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ФГБОУ ВО «Уральский государственный горный университет»



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Тема 1: Представление и знакомство

1.1 Запомните слова и выражения, необходимые для освоения темы курса:

1.	<p>- Hi, Sarah! What's up? - I just got a new job! - Really? What's the job? - A brand-manager at Global Fashion. - That's great! Good luck with your new job!</p>	<p><i>/ Привет, Сара! Как дела? / Я только что нашла новую работу! / Правда? И что за работа? / Бренд-менеджер в компании «Глобал Фешн». / Здорово! Удачи с твоей новой работой!</i></p>
2.	<p>- Hi, Nick! What's new? - Oh, I just got a promotion at work! They bumped me up to Sales Director. - Really? That's great news! Congratulations! - Thanks.</p>	<p><i>/ Привет, Ник! Что нового? / Я только что получил повышение по работе. Меня повысили до директора по продажам. / Правда? Это хорошие новости! Поздравляю! / Спасибо.</i></p>
3.	<p>- Hi, Pam! How're you? - Good, thanks. - I've got news for you! Jack and I are getting married next month! - Oh, really! That's wonderful news! I'm glad for you!</p>	<p><i>/ Привет, Пэм! Как дела? / Спасибо, хорошо. / У меня для тебя новости! Мы с Джеком собираемся пожениться в следующем месяце! / Правда? Отличные новости! Я рада за вас.</i></p>
4.	<p>- Hi! How are you doing? - I'm good! Yourself? - I'm also good, thanks. I hear you got a new job! - That's right! - So, how is it? Do you like it? - It's OK, but it pays less than my last job.</p>	<p><i>/ Привет! Как поживаешь? / Хорошо. Ты как? / Тоже хорошо, спасибо. Я слышал, ты нашел новую работу! / Это верно. / И как? Тебе нравится? / Нормально, но платят меньше, чем на предыдущей работе.</i></p>
5.	<p>— Gosh, Kate! Is that you? It's been a long time! How've you been? — I'm fine. Yourself? — Good, thanks. It is so good to see you! You look great! You haven't changed a bit! — Neither have you. So, how's life? What's new? — Sorry, I'm in a bit of a rush right now. Mmm... How about we go out for a drink some night? What do you say? — Sounds good! Do you have my number? — No. — Here it is. 698 765 46 34. — Great! I'll call you tomorrow afternoon to make a time for this weekend.</p>	<p><i>/ Боже! Кейт! Ты ли это? Давно не виделись! Как ты? / Прекрасно! А ты? / Хорошо, спасибо. Отлично выглядишь. Ты совсем не изменилась / Ты тоже не изменилась. Как жизнь? Что нового? / Прости, но я сейчас немного спешу. Ммм... Как насчет того, чтобы сходить куда-нибудь как-нибудь вечером? Что скажешь? / Отличная мысль! У тебя есть мой номер? / Нет. / Записывай. 698 765 4634. / Отлично! Я позвоню тебе завтра днем, и мы договоримся о времени на выходные.</i></p>
6.	<p>— Hey, Paul! How are you? — I'm good. Yourself? I haven't seen you around lately. Where have you been? — Oh, I was out of town. I spent three</p>	<p><i>/ Привет, Пол! Как дела? / Хорошо. А у тебя? Тебя не видно в последнее время. Где ты был? / Меня не было в городе. Я провел три недели в</i></p>

weeks in Switzerland.	<i>Швейцарии.</i>
— Was it for business or travel?	<i>/ Это была деловая поездка или отпуск?</i>
— I was visiting my friends in Geneva.	<i>/ Я навещал друзей в Женеве.</i>

7.

— Jessica! Hello!	<i>/ Джессика! Привет!</i>
— Hi! How are you?	<i>/ Привет! Как дела ?</i>
— Good, thanks. You look great! It's been ages since I last saw you.	<i>/ Спасибо, хорошо. Ты выглядишь прекрасно! Сто лет тебя не видел.</i>
— Three years exactly.	<i>/ Три года, если точно.</i>
— Right. You haven't changed a bit! So, what's up? What's been happening in your life?	<i>/ Верно. Ты совсем не изменилась. Ну, как дела? Что происходит?</i>
— Not much has been going on. Same old.	<i>/ Ничего особенно и не произошло. Все по-старому.</i>

8.

— Hey, Peter!	<i>/ Привет, Питер!</i>
— Hey! What's up? You are so tan! Where have you been?	<i>/ Привет! Как дела? Ты такой загорелый! (А ты загорел!) Где это ты был?</i>
— I just got back from Australia.	<i>/ Я только вернулся из Австралии.</i>
— Australia?! Cool! What did you do there?	<i>/ Из Австралии? Круто! Что ты там делал?</i>
— It was another surf-trip. You know, I'm a huge fan of surfing.	<i>/ Это была еще одна поездка для занятий серфингом. Ты же знаешь, что я большой фанат серфинга.</i>
— How was it?	<i>/ Ну и как ?</i>
— Oh, it was fantastic! You know, it's never long enough.	<i>/ О, это было потрясающе! Знаешь, отдых всегда проходит быстро.</i>

9.

- Hi! What's your name?	<i>/ Привет! Как вас зовут ?</i>
- Carol. What's yours?	<i>/ Кэрол. А вас как зовут ?</i>
- Peter. Where are you from, Carol?	<i>/ Питер. Откуда вы, Кэрол?</i>
- I'm from the US. And you?	<i>/ Я из США. А вы?</i>
- I'm from Russia. Nice to meet you, Carol.	<i>/ Я из России. Приятно с вами познакомиться, Кэрол.</i>
- Nice to meet you.	<i>/ Взаимно.</i>

10.

- Hi! I'm George. And you are...?	<i>/ Привет! Меня зовут Джордж. А вы...?</i>
- I'm Gina.	<i>/ Я Джина.</i>
- How are you, Gina?	<i>/ Как ваши дела, Джина?</i>
- Good, thanks.	<i>/ Спасибо, хорошо.</i>
- Where are you from?	<i>/ Откуда вы?</i>
- I'm from Britain. How about you? Where are you from?	<i>/ Из Великобритании. А вы? Откуда вы?</i>
- And I'm from Israel. Nice to meet you, Gina.	<i>/ А я из Израиля. Приятно познакомиться, Джина.</i>
- Nice to meet you.	<i>/ Взаимно.</i>
- Is this your first time here?	<i>/ Вы здесь в первый раз?</i>
- No, it's my second time.	<i>/ Нет, второй.</i>
- Where are you staying here?	<i>/ Где вы остановились?</i>
- I'm staying at a hotel.	<i>/ В отеле.</i>

11.

- Hi! What's your name?	<i>/ Привет! Как тебя зовут ?</i>
- Jess. It's short for Jessica. And you are...?	<i>/ Джесс. Это сокращенное от Джессика. А тебя...?</i>

<p>- I'm Brant. How are you doing, Jess? - I'm fine! Yourself? - Good, thanks. Where are you staying? - I'm staying at a hotel. It's up there on the hill. Where are you staying? - My hotel is right here, across the road. - Where are you from? - I'm from Holland. How about you? Where are you from? - I'm from Australia. - Australia?! I thought you were French. I heard you speak French to your friend over there.</p> <p>- I am French, but I live in Australia.</p>	<p>/ Брант. Как поживаешь, Джесс? / Прекрасно! А ты? / Хорошо, спасибо. Где ты остановилась? / Я остановилась в отеле. Он там, на холме. А где ты остановился? / Мой отель здесь рядом, через дорогу. / Откуда ты? / Я из Голландии. А ты откуда? / Я из Австралии. / Австралия?! Я подумал, что ты француженка. Я слышал, как ты разговаривала по-французски со своей подружкой вон там. / Я и есть француженка, но живу в Австралии.</p>
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12.

<p>- Hi! How're you? - Good, thanks. What's your name? - Sveta. What's yours? - I'm Peter. Nice to meet you. - Nice to meet you. - Are you Russian? - Yes, I am. - Where are you from in Russia? - I'm from Nizhniy Novgorod. - I have some friends in Nizhniy Novgorod. - Oh, really? And where are you from? - I'm from Norway.</p>	<p>/ Привет! Как дела? / Хорошо, спасибо. Как вас зовут? / Света. А вас как? / Меня Питер. Приятно с вами познакомиться. / Взаимно. / Вы русская? / Да. / Где вы живете в России? / В Нижнем Новгороде. / У меня есть друзья в Нижнем Новгороде. / Правда? А вы откуда? / Из Норвегии.</p>
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13.

<p>- Hi! How're you? - Good, thanks. - What's your name? - Kate. - And I'm Paolo. Where are you from, Kate? - I'm from Moscow, Russia. - Really? I've been there once. - And where are you from? - I'm from Italy. - Oh, I love Italy. I've been there six or seven times.</p> <p>- That's great! - Where do you live in Italy? - I live in Venice. - Well, Venice is a beautiful place.</p>	<p>/ Привет! Как дела? / Спасибо, хорошо. / Как вас зовут? / Кейт. / А меня Паоло. Откуда вы, Кейт? / Из России, из Москвы. / Правда? Я был там однажды. / А вы откуда? / Я из Италии. / О, я обожаю Италию. Я была там 6 или 7 раз. / Это здорово! / Где вы живете в Италии? / Я живу в Венеции. / Венеция — это красивое место.</p>
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14.

<p>- Hi! What's your name? - Nick. What's yours? - Sandra. Nice to meet you. - Nice to meet you. Where are you from? - I'm from Germany. And you? / - I'm from the US. - Is this your first time in Moscow?</p>	<p>/ Привет! Как вас зовут? / Ник. А вас как? / Сандра. Приятно познакомиться. / Взаимно. Откуда вы? / Из Германии. А вы? / Я из США. / Вы в первый раз в Москве?</p>
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<ul style="list-style-type: none"> - No, I've been here a couple of times. - Are you here on business or vacation? - I'm here for work. How about you? - I'm here on vacation. - Do you like it here? - Yeah! I like it a lot! - Where are you staying here? - I'm staying with some friends of mine. How about you? - I'm staying at the Hayatt. It's the new hotel next to Red Square. - It must be very expensive. - It is very expensive. You can't find a cheap hotel in Moscow. 	<ul style="list-style-type: none"> / Нет, я был здесь пару раз. / Вы здесь по делам или на отдыхе ? / Я здесь по работе. Как насчет вас? (А вы?) / Я здесь на отдыхе. / Вам здесь нравится? / Очень нравится! / Где вы остановились? / Я остановилась у друзей. А вы ? / Я остановился в «Хаяте». Это новый отель рядом с Красной площадью. / Должно быть, он очень дорогой. / Он действительно очень дорогой. В Москве нет дешевых отелей.
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15.

<ul style="list-style-type: none"> - Hi! What's your name? - David. What's yours? - Fred. Nice to meet you. - Nice to meet you. Where are you from? - I'm from Canada. And you? - I'm from Sweden. - Is this your first time in Shanghai? - Yes, this is my first time. - Are you here on business or vacation? - I'm here for a business convention. How about you? Are you here on business or vacation? - Both. We've come here for the film festival. I'm also looking for some property to buy. - Are you here by yourself? - No, I'm here with my wife. She's gone shopping. - Where are you staying? / - We're staying at the Marriott. 	<ul style="list-style-type: none"> / Привет! Как вас зовут? / Дэвид. А вас? / Фред. Приятно познакомиться. / Взаимно. Откуда вы? / Я из Канады. А вы? / Я из Швеции. / Вы первый раз в Шанхае? / Да, первый. / Вы здесь по делам или на отдыхе? / Я приехал на бизнес-конференцию. А вы? Вы здесь по делам или на отдыхе? / И то и другое. Мы приехали на кинофестиваль, и еще я хочу купить недвижимость. / Вы здесь один? / Нет, с женой. Она отправилась по магазинам. / Где вы остановились? / Мы остановились в «Мариотте».
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16.

<ul style="list-style-type: none"> - Hello! I'm Liz. And you are....,? - I'm Henry. How are you doing, Liz? - Good, thanks. - Are you staying in this hotel? - Yes, I am. Are you staying here too? - No. Hotels are expensive here. I'm renting an apartment in the city center. - Oh, OK! Are you here by yourself? - No, I'm here with my family. How about you? - I'm here with a friend. - Is this your first time in Colombo? - Actually, yes. This is my first time. - Do you like it here? - Yeah! It's a nice place. It's too hot though. - How long will you be in Sri Lanka? - Until the end of next week. - Will you stay in Colombo the whole time? 	<ul style="list-style-type: none"> / Привет! Меня зовут Лиз. А вас? / Я Генри. Как ваши дела, Лиз? / Хорошо, спасибо. / Вы остановились в этом отеле? / Да. Вы тоже здесь остановились ? / Нет. Отели здесь дорогие. Я снимаю квартиру в центре города. / Ясно. Вы здесь один? / Нет, я здесь с семьей. А вы? / Я здесь с другом. / В первый раз в Коломбо? / В общем, да. В первый раз. / Вам здесь нравится? / Да! Хорошее место. Только слишком жарко. / Сколько вы пробудете в Шри-Ланке? / До конца следующей недели. / И все это время будете в Коломбо?
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<p>- No, we'll stay here two more days and then we'll go to the Hikkaduwa resort.</p> <p>- Oh, it's a long way from here.</p> <p>- Five hours by car. OK, it was nice chatting with you. I've got to get going now. /</p> <p>- OK. Have a good time!</p>	<p><i>/ Нет, мы пробудем здесь еще два дня, а потом поедem на курорт Хиккадува.</i></p> <p><i>/ О, это далеко отсюда.</i></p> <p><i>/ Пять часов на машине. Ладно, приятно было с вами поболтать. Мне пора идти.</i></p> <p><i>/ Ладно. Хорошо вам провести время!</i></p>
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17.

<p>- Hi! How are you?</p> <p>- Good, thanks.</p> <p>- I think I saw you yesterday at reception.</p> <p>- Yeah, I was trying to book tickets for a water-park. My kids want to go splash around.</p> <p>- Which one do you want to go to? There are three water parks in Dubai.</p> <p>- I hear Wild Wadi is pretty good.</p> <p>- Are you staying in this hotel?</p> <p>- Yes, we are.</p> <p>- In that case you should go to Ice-Land. It's closer, and then it's new. Wild Wadi is rather old.</p> <p>- OK, thank you. We'll go to Ice-Land then. Do we need to book tickets in advance?</p> <p>- No, you usually buy tickets there.</p> <p>- Do you live in Dubai?</p> <p>- No, I actually work here for my husband's company. Your English is very good. Where are you from? Are you Russian?</p> <p>- That's right. I'm from Saint Petersburg.</p> <p>- Really? I've been there once. Ten years ago. It's a beautiful city. You speak very good English for a Russian person. Where did you learn it?</p> <p>- I spent some time in the US. And now I'm working for an American company. OK. Thanks again for your recommendation.</p> <p>- You are welcome. Have a nice day!</p>	<p><i>/ Здравствуйте! Как ваши дела?</i></p> <p><i>/ Спасибо, хорошо.</i></p> <p><i>/ Мне кажется, я видела вас вчера на ресепшене.</i></p> <p><i>/ Да, я пытался заказать билеты в аквапарк. Мои дети хотят поплескаться в воде.</i></p> <p><i>/ В какой аквапарк вы хотите поехать? В Дубае три аквапарка.</i></p> <p><i>/ Я слышал, что «Вайлд Вади» — неплохой аквапарк.</i></p> <p><i>/ Вы проживаете в этом отеле?</i></p> <p><i>/ Да.</i></p> <p><i>/ В таком случае вам следует поехать в «Ай-сленд». Он ближе, и потом, он более новый. «Вайлд Вади» довольно старый.</i></p> <p><i>/ Хорошо, спасибо. Тогда мы поедem в «Айсленд». Нам надо бронировать билеты заранее?</i></p> <p><i>/ Нет, обычно вы покупаете билеты в аквапарке.</i></p> <p><i>/ Вы живете в Дубае?</i></p> <p><i>/ Нет, я здесь работаю в компании моего мужа. Вы хорошо говорите по-английски. Откуда вы? Вы русский?</i></p> <p><i>/ Верно. Я из Санкт-Петербурга.</i></p> <p><i>/ Правда? Я была там однажды. Десять лет назад. Это красивый город. Вы хорошо говорите по-английски для русского человека. Где вы его учили?</i></p> <p><i>/ Я жил какое-то время в США. А сейчас я работаю в американской компании.</i></p> <p><i>Спасибо еще раз за вашу рекомендацию.</i></p> <p><i>/ Пожалуйста. Хорошего дня.</i></p>
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1.2 Подготовьте устный рассказ по теме на основе предложенного:

Let me introduce myself. My name is ... Now I work as an economist in a joint-stock company. I graduated from the Ural State Mining University in 2017 and got a qualification of an economist-specialist of Finance and Credit.

I am interested in dealing in securities. I often read such journal as “Money and Credit”, “Money”, “Banks and Banking”.

In order to develop my scientific outlook I have decided to take a master's degree course at the Ural State Mining University. This year is quite difficult; I've had to combine my work and studies, to attend classes in different disciplines, to read a lot of material to get ready for final examinations. I

prefer dealing with applied sphere of science. I don't have any articles published yet, but I'm working at.

I have already started collecting and working up the material for my master's thesis. My research deals with the Russian security market and general principles of functioning of similar markets abroad. The subject of my investigation is different kinds of securities and stock exchanges where the given financial instruments circulate. My thesis consists of two chapters. The first chapter is devoted to the analysis of stock price fluctuations, indicators, indices and factors. In the second chapter I am going to develop some new rules and principles to receive legible formulations. The most interesting aspect, I think, is an attempt to formulate some laws of a revolution in the field of securities in the contemporary Russian economic environment. I hope my research will be of great importance and serve as guidance to forecast different situations at the Russian security market. I don't use any special equipment except my notebook. Of course, I'm not satisfied with the result obtained. I have a long way to go. I plan to submit my thesis in two years.

My scientific supervisor is Mr... He is professor, Doctor of Economics.

The English language plays an important role in my life and study. I think of improving my speaking skills, so I'll be able to talk to foreign specialists on my own, to take part in scientific conferences abroad. But now I am reading a lot of specialized and scientific books and journals in English searching the material for my thesis.

YOUR FIRST INTERVIEW

With unemployment so high, and often scores of applicants chasing every job, you have to count yourself lucky to be called for an interview. If it's your first, you're bound to be nervous. (In fact if you're not nervous maybe your attitude is wrong!) But don't let the jitters side-track you from the main issue - which is getting this job. The only way you can do that is by creating a good impression on the person who is interviewing you. Here's how:

DO: ♪ Find out as much as you can about the job beforehand. Ask the job centre or employment agency for as much information as possible; ♪ Jot down your qualifications and experience and think about how they relate to the job. Why should the employer employ you and not somebody else? ♪ Choose your interview clothing with care; no one is going to employ you if you look as though you've wandered out of a disco. Whether you like it or not, appearance counts. ♪ Make sure you know where the interview office is and how to get there. Be on time, or better, a few minutes early. ♪ Bring a pen; you will probably be asked to fill in an application form. Answer all the questions as best you can. And write neatly. The interviewer will be looking at the application during the interview; he or she must be able to read it. ♪ Have a light meal to eat, and go to the toilet. If you don't, you may well be thinking about your inside during the interview.

DON'T: ♪ Ever walk into the interview chewing gum, sucking on a sweet or smoking. ♪ Forget to bring with you any school certificates, samples of your work or letters of recommendation from your teachers or anyone else you might have worked part-time for. ♪ Have a drink beforehand to give you courage. ♪ The interview is designed to find out more about you and to see if you are suitable for the job. The interviewer will do this by asking you questions. The way you answer will show what kind of person you are and if your education, skills and experience match what they're looking for.

DO: ♪ Make a real effort to answer every question the interviewer asks. Be clear and concise. Never answer 'Yes' or 'No' or shrug. ♪ Admit it if you do not know something about the more technical aspects of the job. Stress that you are willing to learn. ♪ Show some enthusiasm when the job is explained to you. Concentrate on what the interviewer is saying, and if he or she asks if you have any questions, have at least one ready to show that you're interested and have done your homework. ♪ Sell yourself. This doesn't mean exaggerating (you'll just get caught out) or making your experience or interests seem unimportant (if you sell yourself short no one will employ you). ♪ Ask questions at the close of the interview. For instance, about the pay, hours, holidays, or if there is a training programme.

DON'T: ♪ Forget to shake hands with the interviewer. ♪ Smoke or sit down until you are invited to. ♪ Give the interviewer a hard time by giggling, yawning, rambling on unnecessarily or appearing cocky or argumentative. ♪ Ever stress poor aspects of yourself, like your problem of getting

up in the morning. Always show your best side: especially your keenness to work and your sense of responsibility.

After the interview:

Think about how you presented yourself: could you have done better? If so, and you do not get the job, you can be better prepared when you are next called for an interview. Good luck!

1.3 Систематизация грамматического материала:

Система времен английского глагола действительного залога

Present Simple употребляется для выражения:

1. постоянных состояний,
2. повторяющихся и повседневных действий (часто со следующими наречиями: always, never, usually и т.д.). Mr Gibson is a businessman. He lives in New York, (постоянное состояние) He usually starts work at 9 am. (повседневное действие) He often stays at the office until late in the evening, (повседневное действие)

3. непреложных истин и законов природы, The moon moves round the earth.

4. действий, происходящих по программе или по расписанию (движение поездов, автобусов и т.д.). The bus leaves in ten minutes.

Маркерами present simple являются: usually, always и т.п., every day / week / month / year и т.д., on Mondays I Tuesdays и т.д., in the morning / afternoon / evening, at night / the weekend и т.д.

Present Continuous употребляется для выражения:

1. действий, происходящих в момент речи He is reading a book right now.

2. временных действий, происходящих в настоящий период времени, но не обязательно в момент речи She is practising for a concert these days. (В данный момент она не играет. Она отдыхает.)

3. действий, происходящих слишком часто и по поводу которых мы хотим высказать раздражение или критику (обычно со словом "always") "You're always interrupting me!"(раздражение)

4. действия, заранее запланированных на будущее. He is flying to Milan in an hour. (Это запланировано.)

Маркерами present continuous являются: now, at the moment, these days, at present, always, tonight, still и т.д.

Во временах **группы Continuous** обычно **не употребляются** глаголы:

1. выражающие восприятия, ощущения (see, hear, feel, taste, smell), Например: This cake tastes delicious. (Но не: This cake is tasting delicious)

2. выражающие мыслительную деятельность [know, think, remember, forget, recognize(ze), believe, understand, notice, realise(ze), seem, sound и др.],
Например: I don't know his name.

3. выражающие эмоции, желания (love, prefer, like, hate, dislike, want и др.), Например: Shirley loves jazz music.

4. include, matter, need, belong, cost, mean, own, appear, have (когда выражает принадлежность) и т.д. Например: That jacket costs a tot of money. (Но не: That jacket is costing a lot of money.)

Present perfect употребляется для выражения:

1. действий, которые произошли в прошлом в неопределенное время. Конкретное время действия не важно, важен результат, Kim has bought a new mobile phone. (Когда она его купила? Мы это не уточняем, поскольку это не важно. Важного, что у нее есть новый мобильный телефон.)

2. действий, которые начались в прошлом и все еще продолжаются в настоящем, We has been a car salesman since /990. (Он стал продавцом автомобилей в 1990 году и до сих пор им является.)

3. действий, которые завершились совсем недавно и их результаты все еще ощущаются в настоящем. They have done their shopping. (Мы видим, что они только что сделали покупки, поскольку они выходят из супермаркета с полной тележкой.)

4. Present perfect simple употребляется также со словами "today", "this morning / afternoon" и т.д., когда обозначенное ими время в момент речи еще не истекло. He has made ten photos this morning. (Сейчас утро. Указанное время не истекло.)

К маркерам present perfect относятся: for, since, already, just, always, recently, ever, how long, yet, lately, never, so far, today, this morning/ afternoon / week / month / year и т.д.

Present perfect continuous употребляется для выражения:

1. действий, которые начались в прошлом и продолжаются в настоящее время He has been painting the house for three days. (Он начал красить дом три дня назад и красит его до сих пор.)

2. действий, которые завершились недавно и их результаты заметны (очевидны) сейчас. They're tired. They have been painting the garage door all morning. (Они только что закончили красить. Результат их действий очевиден. Краска на дверях еще не высохла, люди выглядят усталыми.)

Примечание.

1. С глаголами, не имеющими форм группы Continuous, вместо present perfect continuous употребляется present perfect simple. Например: I've known Sharon since we were at school together. (А не: I've been knowing Sharon since we were at school together.)

2. С глаголами live, feel и work можно употреблять как present perfect continuous, так и present perfect simple, при этом смысл предложения почти не изменяется. Например: He has been living/has lived here since 1994.

К маркерам present perfect continuous относятся: for. since. all morning/afternoon/week/day и т.д., how long (в вопросах).

Выполните упражнения для закрепления материала:

1. Underline the correct tense.

- 1 The plane leaves/has left at four o'clock. We must be at the airport by two o'clock.
- 2 It gets/is getting colder and colder every day.
- 3 Have you seen Linda? I have been looking/am looking for her for almost an hour.
- 4 Sam is a very interesting person. He knows/has known all kinds of unusual facts.
- 5 First, you are heating/heat the oven to a temperature of 180°C.
- 6 Have you heard the news? They have just elected/have been electing a new club chairman!
- 7 Martha is finding/has found a new job. She is starting text week.
- 8 The teacher has been correcting/has corrected essays for three hours.
- 9 Michael's car broke down last week, so he uses/is using his father's for the time being.
- 10 It rarely gets/is getting very hot in Britain.

2. Choose the correct answer.

- 1 'I met our new boss this morning.'
'I ...C... him, too. He's very nice.'
A am meeting
B have been meeting
C have met
- 2 '... in a hotel?'
'No, but my parents did last summer in Rome.'
A Have you ever stayed

- B Did you ever stay
C Are you ever staying
- 3 'Who is in that new film?'
'Well, a young actress ... the leading role.'
A has been playing
B plays
C has played
- 4 'Is David at home?'
'Yes, but he ... a shower at the moment.'
A is having
B has been having
C has
- 5 'Why are you so upset?'
'I ... my favourite ring.'
A lose
B have been losing
C have lost
- 6 'Have you found a house yet?'
'No. I ... with my aunt at the moment.'
A stay
B am staying
C have stayed

3 Put the adverbs of frequency in the correct position.

- 1 A: Do you wear sunglasses in the winter?
B: No, I do. (never)
No, I never do.
- 2 A: Do you like fishing, Alan?
B: Yes, I go fishing at weekends, (sometimes)
- 3 A: Do you go to the gym very often?
B: Yes, I go. (once a week)
- 4 A: How often do you visit your parents?
B: I visit them, (every weekend)
- 5 A: Do you eat in restaurants very often?
B: No, I do. (rarely)
- 6 A: Do you like oysters?
B: I don't know. I have eaten oysters, (never)
- 7 A: How often do you go on holiday?
B: I go on holiday, (once a year)
- 8 A: When do you read your post?
B: I read it on the way to work, (usually)
- 9 A: Shall I lock the door?
B: Of course. You should lock the door when you go out. (always)
- 10 A: You are breaking things! (always)
B: I'm sorry. I don't mean to.

4. Identify the tenses, then match them to the correct descriptions.

- 1 The plane to Sydney leaves at eleven o'clock.
- 2 I have written two letters this morning.
- 3 They're going on holiday on Saturday.
- 4 Graham has known Errol for five years.
- 5 You're always leaving the door open.
- 6 We are rehearsing a new play at the moment.
- 7 George has bought a new car.

- 8 Lisa has been cleaning the house all morning.
 9 Look! Alison has dyed her hair!
 10 More and more people are recycling their rubbish.
- actions which started in the past and continue up to the present
 - action which has recently finished and whose result is visible in the present
 - to put emphasis on the duration of an action which started in the past and continues up to the present
 - to express criticism or annoyance
 - timetables and programmes
 - actions that we have arranged to do in the near future
 - action which has happened within a specific time period which is not over at the moment of speaking
 - action which happened at an unstated time in the past
 - changing or developing situations
 - temporary actions

5. Put the verbs in brackets into the correct present form.

- 1 A: Tortoises ...*live*... (live) to be very old.
 B: I've heard of one which is over a hundred years old.
- 2 A: Are you still busy?
 B: Yes. I (read) this article for an hour and I still ... (not/finish).
- 3 A: More and more people ... (go) to university these days.
 B: Yes. I think it's a good thing.
- 4 A: I ... (have) a party tonight. Do you want to come?
 B: Yes. What time does it start?
- 5 A: Why are your shoes wet?
 B: I ... (wash) the car.
- 6 A: What's the matter?
 B: I ... (break) my ankle.
- 7 A: What do I need to do next?
 B: You (add) the sugar to the mixture and you ... (mix) it well.
- 8 A: Who ... (use) my car?
 B: I have.
- 9 A: Are you new here?
 B: No. Actually, I ... (live) here for almost ten years.
- 10 A: Pete is playing his music very loud.
 B: Again! He ... (always/do) that!
- 11 A: Have you made plans for Saturday yet?
 B: I ... (go) to the cinema with Jack.
- 12 A: Mr Collins is a very good teacher.
 B: Well, he ... (teach) Maths for twenty-five years, you know.
- 13 A: Are you going to the concert on Saturday night?
 B: Yes. Actually, I ... (already/buy) the tickets.
- 14 A: Hello, Simon.
 B: Oh! We ... (always/meet) each other in this supermarket.

6. a) Put the verbs in brackets into the correct tense.

Dear Kathleen,

I 1) ...'m writing... (write) to tell you my news. My school 2) (choose) me to spend six weeks at a school in the USA. I'm very happy about it!

At the moment, 13) (pack) things for my trip, because I 4) (leave) next week. My mother 5) (book) the ticket.

I 6) (wait) for this opportunity for ages, so I'm very excited. I 7) (finish) reading two books about the USA and 18) ... (borrow) another one from the school library. I 9) (become) more and more nervous every day!

Well, I must go now. I've got a lot of things to do. I'll write to you from the USA.

Love, Tracy

b) Which of the present forms in the text above are used to express:

- 1 actions which happened at an unstated time in the past
- 2 actions which started in the past and continue up to the present with emphasis on duration
- 3 actions happening at or around the moment of speaking
- 4 changing and developing situations
- 5 actions that we have arranged to do in the near future

STATE VERBS

State Verbs are verbs which describe a state rather than an action and therefore do not normally have continuous tenses. These include:

a) verbs which express likes and dislikes: like, love, dislike, hate, enjoy, prefer, adore, etc.
e.g. I love chocolate ice cream.

b) verbs of the senses: see, hear, smell, taste, feel, look, sound. We often use can or could with these verbs when we refer to what we see, hear, etc. at the moment of speaking, *e.g. Jim must be at home. I can see his car parked outside.*

c) verbs of perception: know, believe, understand, realise, remember, forget, notice, recognise, think, seem, see (=understand), expect (=think), etc.
e.g. I expect they will be late.

d) some other verbs such as be, contain, include, belong, fit, need, matter, cost, mean, own, want, owe, have (=possess), require, weigh, wish, keep (=continue), etc. *e.g. My uncle owns a hotel.*

Some of the above verbs are used in continuous tenses when they describe actions and not states. Study the following examples:

- 1 I think he's lying. (= believe)
I'm thinking about the plan. (= am considering)
- 2 The food tastes delicious. (= has a delicious flavour)
He is tasting the food. (= is testing the flavour of)
- 3 I can see some people. (= perceive with my eyes)
I see what you mean. (= understand)
I'm seeing my doctor tomorrow. (= am meeting)
- 4 It looks as if they've finished the job. (= appears)
Mike is looking out of the window, (is directing his eyes.)
- 5 This perfume smells nice. (= has a nice smell)
He is smelling the milk. (= is sniffing)
- 6 The baby's hair feels like silk. (= has the texture of)
She is feeling the baby's forehead. (= is touching)
- 7 Bob has a Porsche. (= possesses)
He's having a shower at the moment. (= is taking a shower)
- 8 The chicken weighs 2 kilos. (= has a weight of)
The butcher is weighing the meat. (= is measuring how heavy it is)
- 9 This dress fits you perfectly. (= it is the right size)
We are fitting new locks. (= are putting in)
- 10 He appears to be nervous. (= seems)
He is appearing in a new play. (= is taking part)
- 11 He is a rude person. (= character - permanent state)
He is being rude. (= behaviour - temporary situation, usually with adjectives such as careful, silly, (im)polite, lazy, etc.)

Note: a) The verb enjoy can be used in continuous tenses to express specific preference. *e.g. I'm enjoying this party a lot. (specific preference)*

BUT: I enjoy going to parties. (I enjoy parties in general.)

b) The verbs look (when we refer to a person's appearance), feel (= experience a particular emotion), hurt and ache can be used in either the continuous or simple tenses with no difference in meaning. e.g. You look/are looking great today.

7. Put the verbs in brackets into the present simple or the present continuous.

- 1 A: Why ...*are you smelling*... (you/smell) the soap?
B: It ... (smell) lovely. It's like roses!
- 2 A: Why ... (you/taste) the soup?
B: To see if it ... (taste) good. I think it needs more salt.
- 3 A: I ... (feel) very tired.
B: You should go to bed early.
- 4 A: I ... (see) Andy this evening.
B: I ... (see). So, you don't want to come to the cinema with me, do you?
- 5 A: How much (the bag of apples/weigh)?
B: I don't know yet. The man ... (weigh) the bag now.
- 6 A: I ... (think) about buying a new car soon.
B: Why? I ... (think) your car is fine. You don't need a new one.
- 7 A: What ... (you/look) at?
B: The sky. It ... (look) as if it's going to rain.
- 8 A: I really ... (enjoy) home-made food.
B: So do I, and I ... (enjoy) every bit of this meal.
- 9 A: Why ... (you/feel) the radiator?
B: It ... (feel) cold in here. Is the heating on?
- 10 A: That famous opera singer ... (appear) at the opera house tonight.
B: Yes. He ... (appear) to be feeling better after his operation.
- 11 A: Chris ... (be) a sensible person, isn't he?
B: Yes, but in this case he ... (be) rather foolish.
- 12 A: My dad ... (fit) the old blind from the living room in my bedroom today.
B: Really? ... (it/fit) that window?
- 13 A: My back ... (hurt).
B: Why don't you lie down for a while?

8. Fill in the gaps with have / has been (to) or have / has gone (to).

- 1 A: Hello, Jim! Have you seen Mum?
B: Yes. She ...*has gone to*... the shops. She'll be back soon.
- 2 A: Where ... you ... today?
B: I ... the cinema.
- 3 A: Shall we go on a picnic this weekend?
B: Oh, yes! I ... not ... on a picnic for ages.
- 4 A: I'm going to India this year.
B: I ... never ... India.
A: Really? I ... there twice before.
- 5 A: Where are the children?
B: They ... the park to play football.
A: ... Dad ... with them?
B: Of course. Don't worry!

9. Underline the correct word in bold.

- 1 I always/**already** do the housework on Saturdays.
- 2 We haven't booked our summer holiday **just**/**yet**.
- 3 My brother has **just**/**ever** joined the football club.
- 4 Linda has **already**/**ever** bought a new dress for the party.

- 5 Have you **so far/ever** tasted Japanese food?
 6 Joe has been in Paris **since/for** two weeks.
 7 I have **never/just** seen this film before.
 8 The secretary has typed twenty letters **yet/so far** this morning.
 9 I have been working here **since/still** July.
 10 The Taylors have moved house **recently/so far**.
 11 They **still/already** haven't employed a new supervisor.

10. Put the verbs in brackets into the correct present form.

- 1 A: Linda ...*is learning*... (learn) to drive at the moment.
 B: I know. She told me last week.
 2 A: Has Alan got a job?
 B: Oh yes. He ... (be) the manager of a leisure centre.
 3 A: Do you want to have a break now?
 B: Not yet. I ... (write) a report for tomorrow's meeting.
 4 A: It's ten o'clock. Have you given the manager his letters?
 B: Yes, and I ... (also/type) six reports so far this morning.
 5 A: Is Jeff still in the garden?
 B: Yes. He ... (plant) flowers all afternoon.
 6 A: That author is very well-known, isn't she?
 B: Yes. She ... (write) twenty novels so far.
 7 A: You look very happy today.
 B: I am. I ... (just/hear) some good news.
 8 A: What time ... (the play/start) tonight?
 B: Seven o'clock, I think.
 9 A: Are you new to this company?
 B: Not really. In fact, I ... (work) here for almost two years.
 10 A: Are you ready for the concert?
 B: Yes. I ... (practise) for weeks.
 11 A: Do you do any exercise at all?
 B: Yes. Actually, I ... (go) swimming three times a week.

Past simple употребляется для выражения:

1. действий, произошедших в прошлом в определенное указанное время, то есть нам известно, когда эти действия произошли, They graduated four years ago. (Когда они закончили университет? Четыре года назад. Мы знаем время.)

2. повторяющихся в прошлом действий, которые более не происходят. В этом случае могут использоваться наречия частоты (always, often, usually и т.д.), He often played football with his dad when he was five. (Но теперь он уже не играет в футбол со своим отцом.) Then they ate with their friends.

3. действий, следовавших непосредственно одно за другим в прошлом.
 They cooked the meal first.

4. Past simple употребляется также, когда речь идет о людях, которых уже нет в живых.
 Princess Diana visited a lot of schools.

Маркерами past simple являются: yesterday, last night / week / month / year I Monday и т.д., two days I weeks I months I years ago, then, when, in 1992 и т.д.

People used to dress differently in the past. Women used to wear long dresses. Did they use to carry parasols with them? Yes, they did. They didn't use to go out alone at night.

• **Used to** (+ основная форма глагола) употребляется для выражения привычных, повторявшихся в прошлом действий, которые сейчас уже не происходят. Эта конструкция не изменяется по лицам и числам. Например: Peter used to eat a lot of sweets. (= Peter doesn't eat

many sweets any more.) Вопросы и отрицания строятся с помощью did / did not (didn't), подлежащего и глагола "use" без -d.

Например: Did Peter use to eat many sweets? Mary didn't use to stay out late.

Вместо "used to" можно употреблять past simple, при этом смысл высказывания не изменяется. Например: She used to live in the countryside. = She lived in the countryside.

Отрицательные и вопросительные формы употребляются редко.

Past continuous употребляется для выражения:

1. временного действия, продолжавшегося в прошлом в момент, о котором мы говорим. Мы не знаем, когда началось и когда закончилось это действие, At three o'clock yesterday afternoon Mike and his son were washing the dog. (Мы не знаем, когда они начали и когда закончили мыть собаку.)

2. временного действия, продолжавшегося в прошлом (longer action) в момент, когда произошло другое действие (shorter action). Для выражения второго действия (shorter action) мы употребляем past simple, He was reading a newspaper when his wife came, (was reading = longer action: came = shorter action)

3. двух и более временных действий, одновременно продолжавшихся в прошлом. The people were watching while the cowboy was riding the bull.

4. Past continuous употребляется также для описания обстановки, на фоне которой происходили события рассказа (повествования). The sun was shining and the birds were singing. Tom was driving his old truck through the forest.

Маркерами past continuous являются: while, when, as, all day / night / morning и т.д. when/while/as + past continuous (longer action) when + past simple (shorter action)

Past perfect употребляется:

1. для того, чтобы показать, что одно действие произошло раньше другого в прошлом. При этом то действие, которое произошло раньше, выражается past perfect simple, а случившееся позже - past simple,

They had done their homework before they went out to play yesterday afternoon. (=They did their homework first and then they went out to play.)

2. для выражения действий, которые произошли до указанного момента в прошлом, She had watered all the flowers by five o'clock in the afternoon. (=She had finished watering the flowers before five o'clock.)

3. как эквивалент present perfect simple в прошлом. То есть, past perfect simple употребляется для выражения действия, которое началось и закончилось в прошлом, а present perfect simple - для действия, которое началось в прошлом и продолжается (или только что закончилось) в настоящем. Например: Jill wasn't at home. She had gone out. (Тогда ее не было дома.) ЛИ isn't at home. She has gone out. (Сейчас ее нет дома.)

К маркерам past perfect simple относятся: before, after, already, just, till/until, when, by, by the time и т.д.

Выполните упражнения для закрепления материала:

1. Brian and Ruth went on a day trip yesterday. Look at the notes below and say what they did, using the linking words from the list.

first, then, next, after that, later, finally

S1: First, they travelled to Brighton by train.

9:15 - 10:30 - travel to Brighton by train

10:30 - 11:30 - look around shops

11:30 - 12:30 - walk on beach

14:30 - 2:00 - eat lunch at seaside restaurant

2:00 - 4:30 - visit funfair

4:30 - 5:30 - have afternoon tea

2. Now, in pairs, ask and answer questions about what Brian and Ruth were doing at the times in the list below, as in the example.

SA: What were Brian and Ruth doing at half past nine in the morning?

SB: They were travelling to Brighton by train.

9:30 am

11:00 am

11:45 am

1:15 pm

2:30 pm

5:00 pm

3. Put the verbs in brackets into the past simple or the past continuous.

A) The sun 1) ...was shining... (shine) and the birds 2) ... (sing) as Mike 3) ... (drive) down the country lane. He 4) ... (smile), because he 5) ... (look forward) to the journey ahead. Mike 6) ... (enjoy) driving, especially when he 7) ... (go) somewhere new. Then, suddenly, the engine 8) ... (begin) to make a strange noise and the car 9) ... (stop) dead in the middle of the road. Mike 10) ... (try) to start it, but nothing 11) ... (happen). He 12) ... (sigh), then 13) ... (get out) of the car. As he 14) ... (push) the car to the side of the road, Mike 15) ... (start) to wish he had stayed at home.

B) John 1) ... (enter) his flat and 2) ... (close) the door. He 3) ... (hang up) his coat when he 4) ... (hear) a strange noise. A tap 5) ... (run) in the kitchen. He 6) ... (walk) into the kitchen and 7) ... (turn) it off. Then, he 8) ... (freeze). Someone 9) ... (stand) behind him. He 10) ... (take) a deep breath and 11) ... (turn) around. His flatmate, Steve, 12) ... (lean) in the doorway. 'You 13) ... (give) me a fright!' John exclaimed. Steve 14) ... (laugh) at him. John 15) ... (start) to laugh, too. 'I 16) ... (think) you had gone to London today,' he said. 'No,' 17) ... (reply) Steve. 'Unfortunately, I 18) ... (miss) the train.'

4. Choose the correct answer.

1 'Were you expecting James and Paul to stay for dinner?'

'No, but I ...A... a lot of food, so it didn't matter.'

A had prepared

B was preparing

C had been preparing

2 Tony has been singing for years, hasn't he?'

'Yes. He his first record when he was sixteen.'

A made

B was making

C had made

3 There was a power cut last night.'

'I know. I some paperwork when the lights went out.'

A had been doing

B was doing

C had done

4 'Did you see Paul Simon in concert?'

'No. I was hoping to get tickets, but they '

A had sold out

B sold out

C were selling out

5 The restaurant was packed last night.'

'Yes. Luckily, I a table in advance.'

A was booking

B had booked

C had been booking

6 'Did you watch the film yesterday?'

- 'No. It by the time we got home.'
- A finished
B was finishing
C had finished
- 7 'Did you stay up late last night?'
- 'No. I all day, so I went to bed early.'
- A had been working
B worked
C was working
- 8 'Did you enjoy your holiday?'
- 'Yes. We most of our time on the beach.'
- A had spent
B were spending
C spent
- 9 'Kim looked tired this morning.'
- 'I know. She all night long.'
- A studied
B had studied
C had been studying
- 10 'So what happened?'
- 'We through the woods when we heard a gunshot.'
- A had walked
B walked
C were walking

5. Put the verbs in brackets into the past simple or the present perfect.

- A A: I 1) ... 've seen... (see) this film before.
B: Me too, but I love this actor. He 2) ... (play) a lot of good roles.
A: ' Tom Cruise? I 3) ... (meet) him, you know.
B: Really? When?
A: When I 4) ... (be) in Los Angeles on holiday.
- B A: Who is that man?
B: He's an artist. He 1) ... (paint) a lot of beautiful pictures.
A: I think Van Gogh 2) ... (paint) the most beautiful pictures ever. But his life 3) ... (be) miserable.
- C A: I 1) ... (Just/hear from) an old friend of mine.
B: Oh, really?
A: Yes. Jim 2) ... (write) to me. I 3) ... (get) the letter this morning.
B: That's nice. When 4) ... (you/first/meet) him? A: He 5) ... (live) next door to me for three years, but he 6) ... (move) away last June and I 7) ... (not/see) him since.

6. Put the verbs in brackets into the correct tense.

- 1 A: What ...were you doing... (you/do) at ten o'clock this morning?
B: I ... (read) some important documents in my office.
- 2 A: Why are you so disappointed?
B: Because I ... (hope) that I would pass the test, but I didn't.
- 3 A: Have you found your bag yet?
B: No, but I ... (report) it stolen to the police yesterday.
- 4 A: Did you enjoy the play last night?
B: No, even though I ... (read) good reviews of it before I bought the tickets.
- 5 A: Have you written your report yet?
B: I ... (Just/start) when you came in, actually.
- 6 A: Sorry I'm late.

- B: Where have you been? I ... (expect) you an hour ago.
 7 A: We ... (go) to an antique market yesterday.
 B: ... (you/buy) anything?
 8 A: Were you surprised that the factory closed down?
 B: Not really. In fact, I ... (know) it was going to happen.
 9 A: Julia did well in the test, didn't she?
 B: Yes. She ... (study) very hard for it.

7. Put the verbs in brackets into the correct tense.

A) When Simon 1) ...*arrived*... (arrive) at the cinema, dozens of people 2) ... (queue) outside. They 3) ... (wait) to see the same film as Simon. Simon, however, 4) ... (buy) a ticket in advance, so he 5) ... (walk) straight to the front of the queue and 6) ... (enter) the cinema. He 7) ... (feel) relieved that he didn't have to queue. He 8) ... (reach) his seat just as the lights 9) ... (go down) for the start of the film.

B) Last weekend, Cathy 1) ... (hire) a car and 2) ... (drive) to the seaside. When she 3) ... (arrive) the wind 4) ... (blow) and the sky 5) ... (be) cloudy. She 6) ... (get out) of the car and 7) ... (take) a walk along the seafront. Then she 8) ... (decide) to go for fish and chips at a nearby restaurant that she 9) ... (see) earlier and liked the look of. By the time she 10) ... (leave) the restaurant, it 11) ... (already/grow) dark. As she 12) ... (walk) to her car it 13) ... (begin) to rain. However, Cathy 14) ... (not/mind) because she 15) ... (have) a wonderful day.

8. Identify the tenses, then match them to the correct descriptions.

- 1 People used to have/had very simple lives in those days.
- 2 She was talking on the phone when her boss came in.
- 3 Sam was in hospital because he had crashed his car.
- 4 They had been studying hard all morning, so they were tired.
- 5 I was cooking lunch while he was pouring the drinks.
- 6 We had been living in the house for a year before we decorated the kitchen.
- 7 Princess Diana did a lot of work for charity.
- 8 At two o'clock this afternoon they were having lunch at work.
- 9 First, she knocked on the door. Then, she went inside.
- 10 We had bought the tickets before we went to the theatre.

- a) to talk about actions of people who are no longer alive
- b) action which happened before another past action or before a stated time in the past
- c) actions which happened immediately one after the other in the past
- d) to put emphasis on the duration of an action which started and finished in the past before another past action
- e) action which was in progress at a stated time in the past
- f) two or more simultaneous actions
- g) action in progress when another action interrupted it
- h) action which lasted for some time in the past and whose result was visible in the past
- i) past habit or state which is now finished
- j) action which finished in the past and whose result was visible in the past

9. Underline the correct tense.

- 1 Lynne was singing/had sung as she was cleaning the windows.
- 2 Mr Todd was teaching/had been teaching for thirty years when he retired.
- 3 I phoned Jack because I wanted/had wanted to ask him a question.
- 4 They had walked/had been walking for hours when they stopped for a rest.
- 5 The shop had been selling/had sold the table by the time I got there.
- 6 Joe was happy. He was winning/had won first prize in the competition.
- 7 It was raining/had rained while they were playing the football match.

- 8 Rob **was opening/opened** the box and looked inside.
 9 Eve was delighted to hear that she **was getting/had got** the job.
 10 People **used to work/were working** very long hours in those days.
 11 I was running when I **slipped/was slipping** on the ice.
 12 They were already **buying/had already bought** the tickets when they went to the concert.
 13 Carol **had broken/was breaking** her arm, so she couldn't write for six weeks.
 14 We **had been staying/stayed** in a hotel by the sea last summer.
 15 Elvis Presley **sang/had sung** lots of hit songs.
 16 I **opened/was opening** the door and stepped outside.
 17 They **had stood/were standing** outside when the results were announced.
 18 Alexander Graham Bell **had invented/invented** the telephone.
 19 She broke the glass while she **had washed/was washing** it.

10. Choose the correct answer.

- 1 He went to bed ..B... he had brushed his teeth.
 A before
 B after
 C while
- 2 I was watching television ... the doorbell rang.
 A when
 B as soon as
 C while
- 3 She ... hadn't finished the washing-up when the guests arrived.
 A yet
 B just
 C still
- 4 We had been walking for hours ... we reached the campsite.
 A since
 B for
 C before
- 5 John was repairing the car ... Steve was tidying the garage.
 A while
 B before
 C after
- 6 We went to Spain on holiday
 A tomorrow
 B next year
 C last year
- 7 I fell asleep ... I closed my eyes.
 A just
 B as soon as
 C already
- 8 ... did Jane and Ted get married?
 A How long
 B How long ago
 C While
- 9 She hasn't seen Jim ... she left school.
 A for
 B just
 C since
- 10 He won't go home ... he has finished his work.
 A how long
 B until

- C yet
 11 I have lived in Kent ... ten years now.
 B for
 A since
 C before
 12 We haven't finished work
 A yet
 B until
 C just
 13 ... did Tina meet Steve?
 A How long
 B How long ago C While

11. Fill in the gaps with an appropriate past form.

One fine morning, a man 1) ...*was fishing*... (fish) in a river. The sun 2) ... (shine) and the man 3) ... (sit) on the river bank. Everything was very quiet and peaceful. The man 4) ... (wait) patiently for several hours when suddenly he 5) ... (feel) something pulling on the fishing line. He 6) ... (stand up) quickly and 7) ... (begin) to take in the line. He 8) ... (just/lift) the huge fish he had caught out of the water when there was a loud splash and it fell back into the river. At first, the man didn't know what 9) ... (happen). Then, he 10) ... (look) carefully at his fishing line. It 11) ... (snap). The poor man was so disappointed that he 12) ... (pack) away all his things and went home.

b) Which of the past forms in the text above are used to express:

1. emphasis on the duration of an action which started and finished in the past before another past action or a stated time in the past
2. action which happened at a definite time in the past-time stated, known or implied
3. actions which happened immediately one after the other in the past
4. to describe the atmosphere, the setting, etc. in the introduction to a story
5. action which happened before another past action

12. Complete the sentences using any appropriate past forms.

- 1 While Joanne ...*was washing*... her hair. Carl was cleaning the house.
- 2 I have no idea where I ... my wallet.
- 3 He ... his leg when he fell off his skateboard.
- 4 We ... in the classroom for ten minutes before the teacher arrived.
- 5 She ... to the theatre last night.
- 6 My tooth ... for a week before I went to the dentist's.
- 7 She cried when she ... her driving test.
- 8 What ... when the alarm went off?
- 9 They got into the car and ... away.
- 10 I could tell she ... the competition because she couldn't stop smiling.
- 11 We ... along the beach when we heard a cry for help.
- 12 Tom ... the piano for years before he became famous.

13. Put the verbs in brackets into the correct tense.

- A: Hello, Mark. You 1) ...*took*... (take) a long time to answer the door.
 B: Sorry. I 2) ... (not/hear) the bell. Come in, Tony.
 A: 3) What (you/plan) to do today?
 B: Well, I 4) ... (think) of going for a picnic in the country, but the weather is awful so I 5) ... (change) my mind.
 A: Oh dear. Well, yesterday Mary 6) ... (tell) me that she 7) ... (buy) two tickets to see the Rocking Stars, but she couldn't go to the concert. So 8) ... (buy) the tickets from her, because I 9) ... (think) you'd like to go.

B: Tony, that's brilliant! I 10) ... (mean) to buy tickets for that concert, but they 11) ... (sell out) by the time I 12) ... (go) to the booking office.

A: Well, it's lucky I 13) ... (see) Mary, then, isn't it?

14. Put the verbs in brackets into the correct tense.

1 A: Look at Steve! He is soaking wet.

B: I know. He ...*has been washing*... (wash) the car.

2 A: Why ... (you/make) so much food?

B: Well, I ... (expect) guests, but they phoned to say they couldn't come.

3 A: Julia performed well at the concert.

B: Yes. She ... (practise) for months beforehand.

4 A: (you/ever/go) to Spain?

B: Yes. I ... (go) last year.

5 A: I like your new coat.

B: Thank you. I ... (wear) my old coat for years, so I decided to buy a new one.

6 A: Do you know this town well?

B: Of course. I ... (live) here for six years.

Future simple употребляется:

1. для обозначения будущих действий, которые, возможно, произойдут, а возможно, и нет, *We'll visit Disney World one day.*

2. для предсказаний будущих событий (predictions), *Life will be better fifty years from now.*

3. для выражения угроз или предупреждений (threats / warnings), *Stop or I'll shoot.*

4. для выражения обещаний (promises) и решений, принятых в момент речи (on-the-spot decisions), *I'll help you with your homework.*

5. с глаголами hope, think, believe, expect и т.п., с выражениями I'm sure, I'm afraid и т.п., а также с наречиями probably, perhaps и т.п. / *think he will support me. He will probably go to work.*

К маркерам future simple относятся: tomorrow, the day after tomorrow, next week I month / year, tonight, soon, in a week / month year и т.д.

ПРИМЕЧАНИЕ

Future simple не употребляется после слов while, before, until, as soon as, after, if и when в придаточных предложениях условия и времени. В таких случаях используется present simple. Например: *I'll make a phone call while I wait for you. (A не:... while I will wait for you.) Please phone me when you finish work.*

В дополнительных придаточных предложениях после "when" и "if" возможно употребление future simple. Например: *I don't know when I if Helen will be back.*

He is going to throw the ball.

Be going to употребляется для:

1. выражения заранее принятых планов и намерений на будущее, Например: *Bob is going to drive to Manchester tomorrow morning.*

2. предсказаний, когда уже есть доказательства того, что они сбудутся в близком будущем. Например: *Look at that tree. It is going to fall down.*

We use the future continuous:

a) for an action which will be in progress at a stated for an action which will be future time.

This time next week, we'll be cruising round the islands.

b) for an action which will definitely happen in the future as the result of a routine or arrangement. *Don't call Julie. I'll be seeing her later, so I'll pass the message on.*

c) when we ask politely about someone's plans for the near future (what we want to know is if our wishes fit in with their plans.) *Will you be using the photocopier for long?*

No. Why?

I need to make some photocopies.

We use the future perfect:

1. For an action which will be finished before a stated future time. *She will have delivered all the newspapers by 8 o'clock.*

2. The future perfect is used with the following time expressions: before, by, by then, by the time, until/till.

We use the **future perfect continuous**:

1. to emphasize the duration of an action up to a certain time in the future. *By the end of next month, she will have been teaching for twenty years.*

The future perfect continuous is used with: by... for.

Формы выражения будущего времени в придаточных предложениях условия и времени

В придаточных времени с союзами when (когда), after (после), before (перед тем как), as soon as (как только), until (до тех пор пока не), относящихся к будущему времени, а также в придаточных условия, вводимых союзами if (если) и unless (если не), будущее время заменяется формой настоящего времени, но на русский язык переводится будущим, например:

If you help me, I shall do this work on time. - Если ты поможешь мне, я сделаю эту работу вовремя.

As soon as I get free, I shall give you a call. - Как только я освобожусь, я вам позвоню.

We shall not sit to dinner until you come. - Мы не сядем обедать, пока ты не придешь.

Иногда в сложносочиненном предложении словами when и if вводится придаточное дополнительное, а не придаточное времени или условия. В этом случае использование настоящего времени в придаточном будет ошибкой. Чтобы определить, какую форму глагола необходимо использовать, достаточно поставить вопрос к придаточному предложению - «при каком условии?» и «когда?» к придаточным условия и времени и «что?» - к придаточному дополнительному.

We shall sit to dinner (Когда?) when he comes. - Мы сядем обедать, когда он придет.

We will go to the movies if he comes. - Мы пойдем в кино, если он придет.

I want to know (что?) when you will come. - Я хочу знать, когда ты придешь.

I want to know (что?) if you will come. - Я хочу знать, придешь ли ты.

Выполните упражнения для закрепления материала:

1. Put the verbs in brackets into the correct future tense.

1 A: Your house is very small.

B: I know. I ...'m going to move... (move) to a bigger house next year.

2 A: I have got a new job!

B: Wonderful! I ... (call) Mum and tell her the good news.

3 A: How old is your daughter?

B: She ... (be) fourteen next week.

4 A: I must phone Julia.

B: Well, don't phone her now. She ... (sleep).

5 A: Have you been living here long?

B: Yes. By next month, I ... (live) here for ten years.

6 Are you having a party next weekend?

Yes. I hope I ... (finish) decorating the house by then.

7 What are your plans for tonight?

Well, I ... (meet) Steve at eight o'clock.

8 I must buy some bread.

You'd better hurry. The shops ... (close) in half an hour.

9 Shall I call you at ten o'clock tomorrow?

- No. I ... (leave) for work by then.
- 10 Are you coming to the disco on Friday night?
I can't. I ... (study) for my exam then.
- 11 Are you excited about going to California?
Yes! This time tomorrow I ... (fly) across the Atlantic.
- 12 It's seven o'clock.
Yes. John ... (leave) the office by now.
- 13 There's somebody at the door.
Oh. That ... (be) the postman.
- 14 I've left my jacket at home.
I ... (go) back and get it for you.
- 15 Have you booked a taxi to take you to the airport?
Yes. It ... (come) at eight o'clock in the morning.
- 16 Are you nervous about the interview?
Yes. This time tomorrow, I ... (talk) to the managing director.

2. Fill in the future simple, the present simple or the present perfect.

- A)** My car is being repaired and I don't know when it 1) ...*will be*... (be) ready. I doubt whether I 2) ... (be able to) collect it before the weekend. I wonder if John 3) ... (give) me a lift to the party on Saturday. I'll ask him when he 4) ... (come) home.
- B)** I was calling to ask if you'd like to go out after we 1) (finish) work tomorrow or if you 2) ... (want) to watch a video instead. Call me back as soon as you 3) ... (get) in. I'll wait until I 4) ... (hear) from you.
- C)** I will leave the hotel early in case there 1) ... (be) a lot of traffic. I don't know how long the journey 2) ... (take) or what time the plane 3) ... (land), but I 4) ... (call) you as soon as I 5) ... (arrive) at the airport. Then, I will wait until you 6) ... (come) to collect me.
- D)** Paula is drinking tea as she is waiting for Charles. She wonders if he 1) ... (be) late as usual. She will wait until the clock 2) ... (strike) five and then she will call him in case he 3) ... (forget).

3. Fill in the future simple or be going to.

- 1 A: Have you finished your essay yet?
B: No, but I'm sure I ... *'ll finish*... (finish) it on time.
- 2 A: I have decided what to wear for the party.
B: Really? What ... (you/wear), then?
- 3 A: Why do you need hot soapy water?
B: Because I ... (wash) the car.
- 4 A: Did you post those letters?
B: No, I forgot. I... (post) them this afternoon.
- 5 A: Did you book a table at the restaurant?
B: Yes, but I don't expect it ... (be) busy.
- 6 A: I'm hungry.
B: Me too. I ... (make) us something to eat.
- 7 A: What are you doing this weekend?
B: Oh, I ... (probably/visit) my grandparents.
- 8 A: Look at that dog!
B: Oh yes! It ... (swim) across the river.
- 9 A: Tony is nearly eighteen, isn't he?
B: Yes. He ... (work) for his father when he leaves school.
- 10 A: Are you going into town today?
B: Yes. I ... (give) you a lift if you like.
- 11 A: Your shirt is dirty.
B: Oh dear! I ... (change) into another one.

- 12 A: I hope we ... (not/arrive) late for the meeting.
B: Don't worry. There's plenty of time.
- 13 A: I'm really thirsty after all that hard work.
B: I ... (make) some tea.
- 14 A: Did you give Steve his present?
B: No. I ... (give) it to him tonight at dinner.
- 15 A: Watch out! You ... (bang) your head on the doorframe.
B: Oh! I didn't realise it was so low.

4. Underline the correct tense.

A) Next Saturday, Daisy 1) **is flying/flies** to Paris for a business meeting. Her secretary has already booked the flight. The plane 2) **will leave/leaves** at nine o'clock in the morning and one of her business clients 3) **will have met/will be meeting** her at the airport when the plane lands. She doesn't know how long the meeting will last, but she 4) **will have returned/will have been returning** home by Thursday evening.

B) Florence 1) **is going to become/will be becoming** a doctor when she finishes medical school. She thinks she 2) **will probably work/will have probably** worked in a hospital for most of her career. This time next month, she 3) **will have revised/will be revising** hard for her exams. By the time she gets her degree she 4) **will have been studying/will have studied** medicine for five years. Florence hopes she 5) **will have passed/will pass** all the exams with excellent grades.

WILL/WON'T - SHALL

We use:

◆ will you ...? to give an order or make a request. *e.g. Will you stop talking, please?* (= Please stop talking.)

◆ won't to express unwillingness or an emphatic refusal, even when the subject is not a person. *e.g. I've told him not to do that, but he won't listen.* (= He refuses to listen.) The washing machine won't work.

We use wouldn't to refer to the past. *e.g. I asked him to help me, but he wouldn't.* (= He was unwilling to help me.)

◆ Shall I/we ... ?

a) to make an offer. *e.g. Shall I do the washing-up for you?* (= Do you want me to do the washing-up for you?)

b) to make a suggestion. *e.g. Shall we go out for dinner tonight?* (= Why don't we go out for dinner tonight?)

c) to ask for suggestions or instructions. *e.g. 'Where shall I put the vase?' 'On the table.'* 'What shall we do tonight?' 'We could go out'

5. Replace the words in bold with will/won't or shall I/we, as in the example.

1 Can you buy me some milk, please?

...*Will you buy me some milk, please?...*

2 What **do you want me** to do with this shopping?

3 I've asked Jane to tidy her room, but she **refuses to** do it.

4 **Can you open** the door for me, please?

5 **Do you want me** to walk the dog for you?

6 **Why don't we** go to the theatre, tonight?

7 When **do you want me to** visit next?

8 **Please** be quiet!

9 Ann **is unwilling to** talk to me.

OTHER WAY OF EXPRESSING THE FUTURE

We can also express the future with:

◆ be to + infinitive (formal English). *e.g. The President is to visit Poland next Monday.*

- ◆ be about to + infinitive/be on the point of + -ing form (to refer to the near future). *e.g. Look! The bus is about to leave. The company is on the point of closing down.*
- ◆ be due to + infinitive (timetables). *e.g. Their flight is due to arrive at 6:15.*
- ◆ verbs such as decide, plan, intend, arrange, mean + to -infinitive (for plans or Intentions). *e.g. We intend to buy a bigger flat.*
- ◆ be sure to/be certain to/be bound to + infinitive (to express certainty about the future). *e.g. This plan is sure to/is bound to succeed.*

The future in the past

We use the following patterns to talk about things we intended to do or plans we had for the future.

- a) was going to/was to/was about to/ was due to + infinitive
e.g. Mr Simon was going to resign, but the manager offered him a better salary. (So he didn't resign.)
- b) was on the point of + -ing form
e.g. They were on the point of leaving the house when the phone rang. (So they didn't leave.)

6. Complete each sentence with two to five words, including the word in bold.

- 1 The Queen will open the new sports centre next week.
is The Queen ...*is to open*... the new sports centre next week.
- 2 We are planning to go to Spain next summer.
intend We ... Spain next summer.
- 3 The guests should have arrived at nine, but they were late.
due The guests ... at nine, but they were late.
- 4 Jane was thinking of looking for a new job, but she changed her mind.
going Jane ... a new job, but she changed her mind.
- 5 The manager will be angry when he hears the news.
bound The manager ... angry when he hears the news.
- 6 Hurry up! The bus is going to leave!
about Hurry up! The bus ... leave!
- 7 Helen will love this present.
sure Helen ... this present.

7. Identify the tenses, then match them to the correct descriptions.

- 1 I like these shoes. I'll buy them.
 - 2 They will have eaten lunch by two o'clock this afternoon.
 - 3 I'm going to open my own business in the future.
 - 4 This time tomorrow, I'll be taking my driving test.
 - 5 By the time Jack finishes the race, he will have been running for two hours.
 - 6 Everyone believes he will win the competition.
 - 7 I'll tell Paul about the party. I'll be seeing him at work anyway.
 - 8 Will you be speaking to Rob later? I've got a message for him.
 - 9 Look at them! They are going to catch the thieves.
 - 10 Since you're tired, I'll cook dinner tonight.
- a) for offers, promises, threats, etc
 - b) action which will definitely happen in the future as a result of a routine or arrangement
 - c) for plans, intentions or ambitions we have for the future
 - d) predictions about the future
 - e) asking politely about someone's plans for the near future
 - f) action which will be finished before a stated future time
 - g) to emphasise the duration of an action up to a certain time in the future
 - h) action which will be in progress at a stated future time
 - i) on-the-spot decision
 - j) predictions when there is evidence that something will happen in the near future

8. A Fill in the gaps with an appropriate tense form.

Next month, Maggie 1) *...is going...* (go) to Australia to visit her sister, who she hasn't seen for fifteen years. The plane 2) ... (leave) early in the morning and 3) ... (stop off) at Singapore before flying on to Sydney. It 4) ... (be) a very long, tiring journey, but Maggie is very excited because this time next month, she 5) ... (begin) her adventure on the other side of the world. She 6) ... (stay) in Australia for one month. She has booked her flight, so she 7) ... (fly) back to Britain on 31st May. She hopes that she 8) ... (visit) lots of fascinating places and seen many interesting things by the time her holidays are over.

B Which of the tense forms in the text above are used to express:

- 1 timetables/programmes
- 2 actions which will have finished before a stated
- 3 plans or intentions
- 4 fixed arrangements in the near future time
- 5 predictions based on what we know

9. Put the verbs in brackets into the correct future form.

Dear Lionel,

I'm writing to tell you my exciting news. I have won a competition! I think my life 1) *...will change...* (change) a lot now! I 2) ... (meet) the competition organisers next week to get my prize — a cheque for £50,000.

As soon as I 3) ... (have) the money, I 4) ... (buy) a new car, and I 5) ... (also/redecorate) my house. Hopefully, I 6) ... (finish) the whole house by the end of June. Then, on the fifth of July, I 7) ... (fly) to Tahiti for an exotic holiday in the sun. I 8) ... (return) by the end of July and then I 9) ... (throw) a big party for all my friends. I hope you 10) ... (come).

Well, it's almost lunchtime, so I 11) ... (say) goodbye for now. I promise I 12) ... (send) you a postcard from Tahiti.

Best wishes, Emily

10. Fill in the correct present or future forms.

If you 1) *...like...* (like) watersports, you 2) ... (love) Aquaworld. As soon as you 3) ... (arrive) at this unique theme park, you 4) ... (be greeted) by visitor hosts who 5) ... (show) you to a luxury chalet. Once you 6) ... (be) in your swimsuit, you 7) ... (be able to) enjoy a wide variety of watersports, from swimming to water-skiing. You 8) ... (find) plenty to do and you 9) ... (have) the chance to try many exciting activities. Aquaworld 10) ... (open) at 9 am every day and 11) ... (close) at 8 pm. There 12) ... (be) special facilities for children and lifeguards 13) ... (supervise) all activities. Visit Aquaworld for an experience you 14) ... (never/forget)!

11. Choose the correct answer.

- 1 'I...A... about buying a new car recently.'
'Really? What sort of car?'

- A have been thinking
B have thought
C thought

- 2 'I haven't seen Mark for weeks.'
'Well, I ... him this afternoon. Why don't you come along?'

- A have met
B am meeting
C meet

- 3 'We'd better take a taxi to the station.'
'Yes. The train ... in fifteen minutes.'

- A has left
B will have left
C leaves

- 4 'Where is the newspaper?'
'I threw it away. I thought you ... reading it.'
- A have finished
B finished
C had finished
- 5 'I feel very tired,'
'How can you be tired? You ... a thing all day.'
- A haven't been doing
B aren't doing
C haven't done
- 6 'Cathy doesn't study enough.'
'I know. I'm afraid she ... her exam.'
- A won't pass
B won't be passing
C won't have passed
- 7 'It's bad news about Janet crashing her new car, isn't it?'
'Yes. She ... for months to buy it.'
- A saved
B is saving
C had been saving
- 8 'There's someone here to see you.'
'Oh, that ... my sister. Send her in.'
- A will have been
B was
C will be
- 9 'Whose is this earring?'
'I don't know. I found it when I ... the house.'
- A was cleaning
B had cleaned
C am cleaning
- 10 'I ... to reach Jane on the phone all day.'
'Don't you know? She's gone on holiday.'
- A tried
B have been trying
C have tried
- 11 'I want to visit Katie.'
'Well, don't visit her before five o'clock. She ... !'
- A is working
B will be working
C will have worked
- 12 'That ... like Dad's car.'
'It is. He must have finished work early.'
- A sounds
B had sounded
C has sounded
- 13 'Is that a new jumper?'
'No. I ... it from Laura yesterday.'
- A have borrowed
B had borrowed
C borrowed
- 14 '... to the library today?'
'Yes. Would you like me to return your books?'
- A Will you have gone

- B Will you have been going
 C Will you be going
- 15 'How is your grandfather?'
 'His condition ... day by day.'
- A improves
 B has improved
 C is improving
- 16 'When did you speak to Sue?'
 'I met her as I ... to work.'
- A had walked
 B was walking
 C am walking
- 17 'Shall we go shopping?'
 'I can't go until the babysitter ... '
- A arrives
 B will arrive
 C arrived
- 18 'I've invited Sam to my party.'
 'I doubt if he He's studying for an exam.'
- A comes
 B will come
 C is coming
- 19 'I'm sorry I'm late.'
 'I ... here for over an hour.'
- A have been waiting
 B have waited
 C was waiting
- 20 'I'm having trouble with the car.'
 'I'm sure John ... you fix it if you ask him.'
- A is going to help
 B helps
 C will help
- 21 'How long ... James?'
 'Since we were children.'
- A have you known
 B do you know
 C did you know
- 22 'You ... a good teacher one day.'
 'Do you really think so?'
- A were
 B will be
 C are being

Тема 2: Деловая переписка

2.1 Запомните слова и выражения, необходимые для освоения темы курса:

1. Обращение

Dear Sirs, Dear Sir or Madam

Dear Mr, Mrs, Miss or Ms

Dear Frank,

2. Вступление, предыдущее общение.

Thank you for your e-mail of (date)...

Further to your last e-mail...

I apologise for not getting in contact with you before now...

Thank you for your letter of the 5th of March.

With reference to your letter of 23rd March

With reference to your advertisement in «The Times»

3. Указание причин написания письма

I am writing to enquire about

I am writing to apologise for

I am writing to confirm

I am writing in connection with

We would like to point out that...

4. Просьба

Could you possibly...

I would be grateful if you could ...

I would like to receive

Please could you send me...

5. Соглашение с условиями.

I would be delighted to ...

I would be happy to

I would be glad to

6. Сообщение плохих новостей

Unfortunately ...

I am afraid that ...

I am sorry to inform you that

We regret to inform you that...

7. Приложение к письму дополнительных материалов

We are pleased to enclose ...

Attached you will find ...

We enclose ...

Please find attached (for e-mails)

8. Высказывание благодарности за проявленный интерес.

Thank you for your letter of

Thank you for enquiring

We would like to thank you for your letter of ...

9. Переход к другой теме.

We would also like to inform you ...

Regarding your question about ...

(если вам не известно имя адресата)

(если вам известно имя адресата; в том случае когда вы не знаете семейное положение женщины следует писать Ms, грубой ошибкой является использование фразы “Mrs or Miss”)
(В обращении к знакомому человеку)

Спасибо за ваше письмо от (числа)

Отвечая на ваше письмо...

Я прошу прощения, что до сих пор не написал вам...

Спасибо за ваше письмо от 5 Марта

Относительно вашего письма от 23 Марта

Относительно вашей рекламы в Таймс

Я пишу вам, чтобы узнать...

Я пишу вам, чтобы извиниться за...

Я пишу вам, что бы подтвердить...

Я пишу вам в связи с ...

Мы хотели бы обратить ваше внимание на ...

Не могли бы вы...

Я был бы признателен вам, если бы вы ...

Я бы хотел получить.....

Не могли бы вы выслать мне...

Я был бы рад ...

Я был бы счастлив...

Я был бы рад...

К сожалению...

Боюсь, что...

Мне тяжело сообщать вам, но ...

К сожалению, мы вынуждены сообщить вам о...

Мы с удовольствием вкладываем...

В прикрепленном файле вы найдете...

Мы прилагаем...

Вы найдете прикрепленный файл...

Спасибо за ваше письмо

Спасибо за проявленный интерес...

Мы хотели бы поблагодарить вас за...

Мы так же хотели бы сообщить вам о...

Относительно вашего вопроса о...

In answer to your question (enquiry) about ...
I also wonder if...

В ответ на ваш вопрос о...
Меня также интересует...

10. Дополнительные вопросы.

I am a little unsure about...
I do not fully understand what...
Could you possibly explain...

Я немного не уверен в ...
Я не до конца понял...
Не могли бы вы объяснить...

11. Передача информации

I'm writing to let you know that...
We are able to confirm to you...
I am delighted to tell you that...

Я пишу, чтобы сообщить о ...
Мы можем подтвердить ...
Мы с удовольствием сообщаем о ...
К сожалению, мы вынуждены сообщить вам
о...

We regret to inform you that...

12. Предложение своей помощи

Would you like me to...?
If you wish, I would be happy to...
Let me know whether you would like me to...

Могу ли я (сделать)...?
Если хотите, я с радостью...
Сообщите, если вам понадобится моя помощь.

13. Напоминание о намеченной встрече или ожидание ответа

I look forward to ...
hearing from you soon
meeting you next Tuesday
seeing you next Thursday

Я с нетерпением жду,
когда смогу снова услышать вас
встречи с вами в следующий Вторник
встречи с вами в Четверг

14. Подпись

Kind regards,
Yours faithfully,
Yours sincerely,

С уважением...
Искренне Ваш (если имя человека Вам не
известно)
(если имя Вам известно)

2.2 Подготовьте устный рассказ по теме на основе предложенного:

We can't imagine business without communication. Business is made through communication. It can be face-to-face conversation organized in the office or at the restaurant or business correspondence. It can be held with the help of regular mail or E-mail.

A business letter is the principal means used by a business firm to keep in touch with its customers. According to the purpose of the letter there may be different kinds, e.g. a letter of request, a memo (memorandum), a letter of advice, an invitation letter, a congratulation letter, a letter of thanks (gratitude), a letter of apology, an enquiry letter, a letter of guarantee, a letter of complaint, a letter of claim, an order letter, etc.

There are special rules to organize a business letter in a right way. The business letter consists of several parts.

First you should write your own name and address (in the right up corner), telephone numbers, and then write down the title, name and address of the recipient.

Always type the date, in the logical order of day, month, year (10th November 20...).

It is important to use the correct title of the person you are addressing to:

Dr. – means doctor (a person, who has Doctor's degree or PhD);

Professor – if you are addressing the professor;

Mr. / Sir – if you are addressing a male, but is not sure in his title;

Mrs. – if you are addressing a female (married);

Miss – if you are addressing a female (single);

Ms – if you are addressing a female (married or unmarried businesswoman);

Madam – addressing a female if you are not sure in her family status.

The salutation is the greeting with which every letter begins. Opening salutation is typed in the left-hand corner. There are several types of opening salutation:

Dear Sirs – to a company;

Dear Sir – to a man if you do not know his name;

Dear Madam – to a woman if you do not know her name;

Dear Sir or Madam – to a person if you know neither the name, nor sex;

Gentlemen – the most common salutation in the United States.

If your correspondent is known to you personally the warmer and more friendly greeting, *Dear Mr ...* is preferred.

The message forms the body of the letter and is the part that really matters. Some letters are very short and may consist of only one paragraph. Many others have three paragraphs: Introduction (why are you writing?), Details (facts, information, instructions), Action (what action will you take?).

Finishing the letter is a polite way of bringing a letter to a close and you should write one of the following phrases:

Yours sincerely; Truly yours, Yours faithfully sign the letter and put your (title), name and surname.

Business letters have to be written (typed) accurately in plain language.

Email and Fax Communication

E-mail writing has become a large part of modern communication, particularly in business. The world has become much smaller now that we have the ability to send and receive e-mail messages over great distances at an incredible speed. However e-mail was originally used as an informal means of communication. Therefore business e-mail letters are less formal in style than ordinary business letters.

E-mail is short for electronic mail. E-mail correspondence gets from one place to another in a matter of minutes. Connecting to the Internet provides you with e-mail services and an e-mail address which looks like this: *nickname@someplace.com* (@ means *at*, and *com* indicates the domain, in this case, a company). The Internet is a communication network that links computers all around the world via modems. Companies send documents from one place to another in minutes. E-mail is an up-to-date method of transmitting data, text files, and digital photos from one computer to another over the Internet. And now e-mails have become one of the most widely used forms of business and personal communication. E-mails are quick, so they are good for chatting, inviting people out, keeping in touch and doing business.

E-mails do not necessarily contain all the elements important for business letters. So e-mails are usually shorter and it takes less time to compile and send them. The e-mail language is much closer to spoken English than traditional business correspondence style.

Information about the sender and the receiver (addressee) appears at the top in a special frame – so the writer doesn't have to use traditional greetings. *Mr Black, Dear Peter, Peter* are all acceptable ways of starting an e-mail.

As e-mails are designed for speed, they usually avoid the formal expressions used in letters, and people often do not write in complete sentences using abbreviations. A message should be short to fit on one screen, whenever possible, thus keeping all important information visible at once. Be sure your message is easy to answer.

You can end your e-mail with:

Best wishes

All best wishes

Best regards

Regards

Yours

To people you know well, you can end with:

All the best

Best

People often sign e-mail with their first name.

There are a few important points to remember when composing e-mail, particularly when the e-mail's recipient is someone who does not know you.

- Include a meaningful subject line; this helps clarify what your message is about.
- Open your e-mail with a greeting like *Dear Dr. Jones, or Ms. Smith.*

- Use standard spelling and punctuation.
- Don't write unnecessarily long e-mails (4 or 5 paragraphs). Write clear, short paragraphs.
- In business e-mails, try not to use abbreviations such as PLS (please) and BTW (by the way).
- Finish with a closing decision, hope or apology.
- Include a Signature Block in every e-mail – your name, title, business address, telephone number, fax numbers, e-mail address and website address.

Be polite and give as many contact details as possible so that the reader can contact you in different ways.

Even in today's modern age of the Internet, it is still necessary to send and receive faxes. Most companies, large or small, have a fax machine. This allows them to send facsimiles of any document. A fax message is the message that is sent or received over a fax machine (phone lines are used) or online fax service. The word *fax* comes from the word *facsimile* standing for *perfect copy*.

The original document is scanned with a fax machine; the information is then transmitted as electrical signals through the telephone system. A fax message is often sent when particular official correspondence needs to be sent or received urgently and it is not possible to send the documents via email.

1.3 Систематизация грамматического материала:

Категория страдательного залога английского глагола. Образование форм. Passive Voice

образуется при помощи вспомогательного глагола *to be* в соответствующем времени, лице и числе и причастия прошедшего времени смысл. глагола – Participle II (III –я форма или *ed*-форма).

В страдательном залоге не употребляются:

1) Непереходные глаголы, т.к. при них нет объекта, который испытывал бы воздействие, то есть нет прямых дополнений которые могли бы стать подлежащими при глаголе в форме *Passive*.

Переходными в англ. языке называются глаголы, после которых в действительном залоге следует прямое дополнение; в русском языке это дополнение, отвечающее на вопросы винительного падежа – *кого? что?*: *to build* строить, *to see* видеть, *to take* брать, *to open* открывать и т.п.

Непереходными глаголами называются такие глаголы, которые не требуют после себя прямого дополнения: *to live* жить, *to come* приходить, *to fly* летать, *to cry* плакать и др.

2) Глаголы-связки: *be* – быть, *become* – становиться/стать.

3) Модальные глаголы.

4) Некоторые переходные глаголы не могут использоваться в страдательном залоге. В большинстве случаев это глаголы состояния, такие как:

to fit годиться, быть впору *to have* иметь *to lack* не хватать, недоставать *to like* нравиться
to resemble напоминать, быть похожим *to suit* годиться, подходить и др.

При изменении глагола из действительного в страдательный залог меняется вся конструкция предложения:

- дополнение предложения в *Active* становится подлежащим предложения в *Passive*;
- подлежащее предложения в *Active* становится предложным дополнением, которое вводится предлогом *by* или вовсе опускается;
- сказуемое в форме *Active* становится сказуемым в форме *Passive*.

Особенности употребления форм *Passive*:

1. Форма *Future Continuous* не употребляется в *Passive*, вместо нее употребляется *Future Indefinite*:

At ten o'clock this morning Nick will be writing the letter. – At ten o'clock this morning the letter will be written by Nick.

2. В Passive нет форм Perfect Continuous, поэтому в тех случаях, когда нужно передать в Passive действие, начавшееся до какого-то момента и продолжающееся вплоть до этого момента, употребляются формы Perfect:

He has been writing the story for three months. The story has been written by him for three months.

3. Для краткости, во избежание сложных форм, формы Indefinite (Present, Past, Future) часто употребляются вместо форм Perfect и Continuous, как в повседневной речи так и в художественной литературе. Формы Perfect и Continuous чаще употребляются в научной литературе и технических инструкциях.

This letter has been written by Bill. (Present Perfect)

This letter is written by Bill. (Present Indefinite – более употребительно)

Apples are being sold in this shop. (Present Continuous)

Apples are sold in this shop. (Present Indefinite – более употребительно)

4. Если несколько однотипных действий относятся к одному подлежащему, то вспомогательные глаголы обычно употребляются только перед первым действием, например: The new course will be sold in shops and ordered by post.

Прямой пассив (The Direct Passive)

Это конструкция, в которой подлежащее предложения в Passive соответствует прямому дополнению предложения в Active. Прямой пассив образуется от большинства переходных глаголов.

I gave him a book. Я дал ему книгу. A book was given to him. Ему дали книгу. (или Книга была дана ему)

The thief stole my watch yesterday. Вор украл мои часы вчера.

My watch was stolen yesterday. Мои часы были украдены вчера.

В английском языке имеется ряд переходных глаголов, которые соответствуют непереходным глаголам в русском языке. В английском они могут употребляться в прямом пассиве, а в русском – нет. Это: to answer отвечать кому-л.

to believe верить кому-л. to enter входить (в) to follow следовать (за) to help помогать кому-л.

to influence влиять (на) to join присоединяться to need нуждаться to watch наблюдать (за)

Так как соответствующие русские глаголы, являясь непереходными, не могут употребляться в страдательном залоге, то они переводятся на русский язык глаголами в действительном залоге:

Winter is followed by spring.

А при отсутствии дополнения с предлогом by переводятся неопределенно-личными предложениями: Your help is needed.

Косвенный пассив (The Indirect Passive)

Это конструкция, в которой подлежащее предложения в Passive соответствует косвенному дополнению предложения в Active. Она возможна только с глаголами, которые могут иметь и прямое и косвенное дополнения в действительном залоге. Прямое дополнение обычно означает предмет (что?), а косвенное – лицо (кому?).

С такими глаголами в действительном залоге можно образовать две конструкции:

а) глагол + косвенное дополнение + прямое дополнение;

б) глагол + прямое дополнение + предлог + косвенное дополнение:

а) They sent Ann an invitation.- Они послали Анне приглашение.

б) They sent an invitation to Ann. - Они послали приглашение Анне.

В страдательном залоге с ними также можно образовать две конструкции – прямой и косвенный пассив, в зависимости от того, какое дополнение становится подлежащим предложения в Passive. К этим глаголам относятся: to bring приносить

to buy покупать to give давать to invite приглашать to leave оставлять

to lend одалживать to offer предлагать to order приказывать to pay платить
to promise обещать to sell продавать to send посылать to show показывать
to teach учить to tell сказать и др.

Например: Tom gave Mary a book. Том дал Мэри книгу.

Mary was given a book. Мэри дали книгу. (косвенный пассив – более употребителен)

A book was given to Mary. Книгу дали Мэри. (прямой пассив – менее употребителен)

Выбор между прямым или косвенным пассивом зависит от смыслового акцента, вкладываемого в последние, наиболее значимые, слова фразы:

John was offered a good job. (косвенный пассив) Джону предложили хорошую работу.

The job was offered to John. (прямой пассив) Работу предложили Джону.

Глагол to ask спрашивать образует только одну пассивную конструкцию – ту, в которой подлежащим является дополнение, обозначающее лицо (косвенный пассив):

He was asked a lot of questions. Ему задали много вопросов.

Косвенный пассив невозможен с некоторыми глаголами, требующими косвенного дополнения (кому?) с предлогом to. Такое косвенное дополнение не может быть подлежащим в Passive, поэтому в страдательном залоге возможна только одна конструкция – прямой пассив, то есть вариант: Что? объяснили, предложили, повторили...Кому? Это глаголы: to address адресовать

to describe описывать to dictate диктовать to explain объяснять to mention упоминать

to propose предлагать to repeat повторять to suggest предлагать to write писать и др.

Например: The teacher explained the rule to the pupils. – Учитель объяснил правило ученикам.

The rule was explained to the pupils. – Правило объяснили ученикам. (Not: The pupils was explained...)

Употребление Страдательного залога

В английском языке, как и в русском, страдательный залог употр. для того чтобы:

1. Обойтись без упоминания исполнителя действия (70% случаев употребления Passive)

в тех случаях когда:

а) Исполнитель неизвестен или его не хотят упоминать:

He was killed in the war. Он был убит на войне.

б) Исполнитель не важен, а интерес представляет лишь объект воздействия и сопутствующие обстоятельства:

The window was broken last night. Окно было разбито прошлой ночью.

в) Исполнитель действия не называется, поскольку он ясен из ситуации или контекста:

The boy was operated on the next day. Мальчика оперировали на следующий день.

г) Безличные пассивные конструкции постоянно используются в научной и учебной литературе, в различных руководствах: The contents of the container should be kept in a cool dry place. Содержимое упаковки следует хранить в сухом прохладном месте.

2. Для того, чтобы специально привлечь внимание к тому, кем или чем осуществлялось действие. В этом случае существительное (одушевленное или неодушевленное.) или местоимение (в объектном падеже) вводится предлогом by после сказуемого в Passive.

В английском языке, как и в русском, смысловой акцент приходится на последнюю часть фразы. He quickly dressed. Он быстро оделся.

Поэтому, если нужно подчеркнуть исполнителя действия, то о нем следует сказать в конце предложения. Из-за строгого порядка слов английского предложения это можно осуществить лишь прибегнув к страдательному залому. Сравните:

The flood broke the dam. (Active) Наводнение разрушило плотину. (Наводнение разрушило что? – плотину)

The dam was broken by the flood. (Passive) Плотина была разрушена наводнением. (Плотина разрушена чем? – наводнением)

Чаще всего используется, когда речь идет об авторстве:

The letter was written by my brother. Это письмо было написано моим братом.

И когда исполнитель действия является причиной последующего состояния:

The house was damaged by a storm. Дом был поврежден грозой.

Примечание: Если действие совершается с помощью какого-то предмета, то употребляется предлог with, например:

He was shot with a revolver. Он был убит из револьвера.

Перевод глаголов в форме Passive

В русском языке есть три способа выражения страдательного залога:

1. При помощи глагола "быть" и краткой формы страдательного причастия, причем в настоящем времени "быть" опускается:

I am invited to a party.

Я приглашён на вечеринку.

Иногда при переводе используется обратный порядок слов, когда русское предложение начинается со сказуемого: New technique has been developed. Была разработана новая методика.

2. Глагол в страдательном залоге переводится русским глаголом, оканчивающимся на – ся(-сь):

Bread is made from flour. Хлеб делается из муки.

Answers are given in the written form. Ответы даются в письменном виде.

3. Неопределенно-личным предложением (подлежащее в переводе отсутствует; сказуемое стоит в 3-м лице множественного числа действительного залога). Этот способ перевода возможен только при отсутствии дополнения с предлогом by (производитель действия не упомянут):

The book is much spoken about. Об этой книге много говорят.

I was told that you're ill. Мне сказали, что ты болен.

4. Если в предложении указан субъект действия, то его можно перевести личным предложением с глаголом в действительном залоге (дополнение с by при переводе становится подлежащим). Выбор того или иного способа перевода зависит от значения глагола и всего предложения в целом (от контекста):

They were invited by my friend. Их пригласил мой друг.(или Они были приглашены моим другом.)

Примечание 1: Иногда страдательный оборот можно перевести двумя или даже тремя способами, в зависимости от соответствующего русского глагола и контекста:

The experiments were made last year.

1) Опыты были проведены в прошлом году.

2) Опыты проводились в прошлом году.

3) Опыты проводили в прошлом году.

Примечание 2: При переводе нужно учитывать, что в английском языке, в отличие от русского, при изменении залога не происходит изменение падежа слова, стоящего перед глаголом (например в английском she и she, а переводим на русский - она и ей):

Примечание 3: Обороты, состоящие из местоимения it с глаголом в страдательном залоге переводятся неопределенно-личными оборотами:

It is said... Говорят... It was said... Говорили...

It is known... Известно... It was thought... Думали, полагали...

It is reported... Сообщают... It was reported... Сообщали... и т.п.

В таких оборотах it играет роль формального подлежащего и не имеет самостоятельного значения: It was expected that he would return soon. Ожидали, что он скоро вернется.

Выполните упражнения для закрепления материала:

1. What happens in Luigi's restaurant before it opens for the evening? Look at the prompts and make sentences using the present simple passive, as in the example.

- 1 the carpets/vacuum
... *The carpets are vacuumed...*
- 2 the tables/wipe
- 3 the cutlery/polish
- 4 the places/set
- 5 the menu/check
- 6 the food/prepare
- 7 the ovens/heat
- 8 the flowers/arrange/in vases
- 9 the salt and pepper pots/fill
- 10 the candles/light

2. Put the verbs in brackets into the correct passive tense.

- 1 A: That's a lovely shirt. Is it new?
B: Yes. It ...*was bought...* (buy) for me by my grandmother.
- 2 A: When do you have to have this report ready?
B: Well, it ... (must/hand in) by Tuesday.
- 3 A: Did you read the newspaper this morning?
B: No. It ... (not/deliver) by the time I left for work.
- 4 A: Where is your car?
B: At the garage. It ... (repair).
- 5 A: Do you know your exam results yet?
B: No. They ... (not/announce) yet.
- 6 A: Are you going to make dinner tonight?
B: No. It ... (make) by Simon. He promised to do it.
- 7 A: Have you finished your homework yet?
B: No, but it ... (finish) by eight o'clock.
- 8 A: Who waters your plants for you when you're away?
B: They ... (water) by my neighbour.

3. Put the verbs in brackets into the correct passive tense.

The Academy Awards Presentation 1) ...*was first organised...* (first/organise) in 1929 and since then, it 2) ... (hold) every year. The presentation 3) ... (attend) by those at the top of the film industry and 4) ... (watch) on TV by millions of viewers who want to see who 5) ... (present) with the golden statue which 6) ... (desire) by everyone in the motion picture world. The voting for the Academy Awards 7) ... (conduct) secretly and the results 8) ... (not/reveal) to anyone until the envelope 9) ... (open) on stage in front of the audience. Awards 10) ... (give) for the best individual or collective work and 11) ... (separate) into different categories. Up to five nominations 12) ... (make) in each category. The awards, which 13) ... (know) as Oscars, 14) ... (consider) to be the highest honour anyone in the film industry can 15) ... (give).

4. Rewrite the sentences in the passive, where possible.

- 1 Her mother drives her to school every day.
... *She is driven to school by her mother every day...*
- 2 Paul drives to work every day.
...*it cannot be changed...*
- 3 I woke up late on Sunday morning.
- 4 Her mother woke her up at seven o'clock.
- 5 Sue asked the waiter to bring some water.
- 6 David asked for some help.
- 7 Simon is moving house next month.
- 8 Michael moved the boxes out of the way.
- 9 Sandra walks on the beach regularly.

10 The boys walk the dog every day.

5. Fill in by or with.

- 1 She was woken up ...*by*... a loud noise.
- 2 The parcel was tied up ... string.
- 3 John was told off ... his mother.
- 4 This picture was painted ... a famous artist.
- 5 The chair was covered ... a woollen blanket.
- 6 The walls were decorated ... posters.
- 7 My car was repaired ... my father.
- 8 This dessert was made ... fresh cream.

6. Rewrite the sentences in the passive. Omit the agent where possible.

- 1 Do they sell clothes in this shop?
...Are clothes sold In this shop?...
- 2 Someone is cleaning the windows.
- 3 She tapped him on the hand with her pen.
- 4 I don't like people laughing at me.
- 5 People spend a lot of money on food.
- 6 Is Sue washing the car?
- 7 Who made this mess?
- 8 Grandfather is going to tell the children a story.
- 9 They will open the new sports centre soon.
- 10 They made him confess to the robbery.
- 11 Liz showed me some holiday pictures.
- 12 Sam remembers his friend telling him about the party.
- 13 They heard him calling for help.
- 14 Who broke this mug?
- 15 The jury will have reached a verdict by the morning.
- 16 The teacher will mark the essays.
- 17 People make jam from fruit.
- 18 They sent for the doctor.
- 19 Clive hasn't cut the grass yet.
- 20 They may not repair the car this week.

7. Complete the sentences, as in the example.

- 1 It is said that this orchestra is the best in the world.
This orchestra ...*is said to be the best in the world.*
- 2 It is believed that the thieves have left the country.
The thieves
- 3 The fire is reported to have started by accident.
It
- 4 He is known to be making a lot of money.
It
- 5 It is expected that they will arrive in time for dinner.
They
- 6 She is said to know a lot about gardening.
It
- 7 It is thought that he will be attending the meeting.
He
- 8 It is believed that we are able to win the competition.
We
- 9 The company is thought to be making a big profit.

- It
 10 It is reported that the government has reached a decision.
 The government
 11 It is said that they were responsible for the damage.
 They
 12 She is expected to break the world record.
 It
 13 He is known to have several foreign bank accounts.
 It
 14 They are reported to have financial problems.
 It

8. Underline the correct answer.

A large amount of valuable jewellery 1) **has stolen/has been stolen** from Forest Manor. A man 2) **arrested/was arrested** yesterday and 3) **is questioned/is being questioned** by the police at the moment. He 4) **thought/is thought** to 5) **have committed/ have been committed** the crime, although so far no proof 6) **has found/has been found**. The robbery 7) **believed/is believed** to 8) **have carried out/have been carried** out by two men, but so far no clue 9) **has discovered/has been discovered** as to the second man's identity. The police say that he may 10) **have left/have been left** the country.

9. Rewrite the following passages in the passive.

A) Yesterday afternoon, the school held a sports day. John's teacher entered him for the 100m race because people thought John was the fastest runner in the school. John's teacher blew the whistle and the race started. Loud cheers filled the air as John's friends cheered him on. John overtook all the other runners and, as people had expected, John won the race. The headmaster gave him a trophy as a prize.

B) Do you think that people will ever use electric cars? Someone has already invented the electric car, but at the moment they are too expensive for most people to buy. Also, you have to recharge their batteries frequently. However, if people drove electric cars instead of the cars we use today, the air we breathe would be cleaner, as they would not pump exhaust fumes into the atmosphere.

C) Last week, the Prime Minister visited Dawston. The Mayor of the town greeted him when he arrived and gave him a tour. He introduced the Prime Minister to some important businessmen and took him to lunch in a local restaurant. In the afternoon, the Mayor held a meeting and the Prime Minister addressed the citizens of Dawston. He told them that he had enjoyed his visit very much.

10. Rewrite the sentences in the active.

- 1 Her excuse may not be believed by her parents.
 ...Her parents may not believe her excuse....
 2 The painting has been valued by an expert.
 3 He likes being given presents.
 4 The bill must be paid immediately.
 5 Hot water is provided by the hotel 24 hours a day.
 6 Our newspaper is delivered by a boy every morning.
 7 Her wedding dress will be made by a designer in Paris
 8 The meeting was attended by several important art critics,
 9 Preparations are being made by the event organizers.
 10 An interesting book has been published by the company.

11. Put the verbs in brackets into the correct passive or active tense.

Coffee 1) *...is said...* (say) to originate from Kaffa in Ethiopia and most species of coffee plant 2) ... (find) in the tropics of the Eastern Hemisphere. The species which 3) ... (think) to be the earliest

coffee plant 4) ... (ever/cultivate) by man is *Coffea arabica*. Today it 5) ... (grow) mostly in Latin America.

The coffee shrub 6) ... (reach) a height of 8-10 metres and 7) ... (have) white scented flowers. It 8) ... (produce) a red fruit which 9) ... (call) a cherry. The cherry 10) ... (contain) two seeds which 11) (join) together. These seeds, which 12) ... (also/know) as beans, 13) ... (first/roast) I and then they 14) ... (grind) to make coffee.

The grounds 15) ... (then/process) in a variety of different ways. Sometimes they 16) ... (filter) and sometimes they 17) ... (soak) in water to make the drink which is popular with so many people. Coffee is available as grounds or as instant coffee powder and 18) ... (drink) by one third of the world's population.

12. Read the situations, then write sentences using *have something done*.

1 John's suit is dirty. It has to be dry-cleaned. What should he do?

...He should have his suit dry-cleaned...

2 All Linda's clothes are made specially for her. What does she do?

3 They arranged for their house to be painted last week. Now it has been done. What have they done?

4 Malcolm's car was broken into last night. What happened to him?

5 Her bag was stolen yesterday. What happened to her?

6 A printer has printed party invitations for Emma. What has Emma done?

7 Diana is at the hairdresser's. The hairdresser is cutting her hair. What is Diana doing?

8 Robert is taking his car to the garage for a service tomorrow. What's he going to do?

9 Their roof has a hole in it. What should they do?

10 Tracey's bicycle has got a puncture. What should she do?

13. Complete the following conversation using *have something done*.

A: I 1) ...'m *having an extension built*... (an extension/build) on my house this week.

B: That's nice. When it's finished, 2) ... (it/decorate)?

A: No, I'm going to do that myself. First, though, I 3) ... (double glazing/fit).

A: 4) ... (carpets/lay)?

B: I'm not sure yet. How about you? 5) ... (you/your curtains/deliver) last week?

A: Yes. They're really nice. I also 6) ... (the carpets/clean), so everything looks lovely now.

14. Rewrite the sentences using *have something done*.

1 His teeth are checked twice a year.

...He has his teeth checked twice a year....

2 Her skirt is being cleaned at the moment.

3 My hair is trimmed once a month.

4 Central heating is going to be installed in our house next month.

5 Sam's burglar alarm was fitted last week.

6 My car is being repaired at the moment.

7 The band's new single has just been recorded.

8 Our new furniture is going to be delivered tomorrow.

9 Their new house is being decorated at the moment.

10 The windows will be cleaned.

11 A new jumper has been knitted for me.

12 The lock has to be fixed.

13 A new pair of glasses is going to be made for him.

15. Rewrite the sentences using *have something done*.

1 Their windows need to be cleaned.

...They need to have their windows cleaned....

2 The hairdresser was styling Mrs Brown's hair.

- 3 She told her son to carry the shopping to the house.
- 4 Dad is going to arrange for someone to cut the grass.
- 5 They used to employ a cleaner who cleaned the house.
- 6 Did the mechanic repair Paul's motorbike?
- 7 The boss asked his assistant to type the letter.
- 8 A plumber fixed the dripping tap for Joe.
- 9 Have you told the secretary to make some photo-copies?
- 10 The chef was cooking Tom's lunch.
- 11 Did you tell the shop to deliver the sofa to you?
- 12 My purse was stolen last Friday.
- 13 Did you employ a painter to decorate your house?
- 14 The builders are putting a new roof on Adam's house at the moment.
- 15 She asked the maid to polish the silver.
- 16 The man had asked the porter to take his luggage to his room.
- 17 Did you ask Jenny to arrange the flowers for you?
- 18 When will your glasses be made?
- 19 I hired a professional to cater for my party.
- 20 Did you ask anyone to sweep the chimney?
- 21 She asked him to do the shopping.
- 22 Their house was burgled last night.
- 23 He employed a carpenter to build the fence.
- 24 Julie's housekeeper irons all her clothes.
- 25 His shop's windows were smashed in the not.

Тема 3: Наука и образование

3.1 Запомните слова и выражения, необходимые для освоения темы курса:

- analysis - анализ, исследование;
critical analysis — критический анализ;
advanced research — перспективные исследования;
basic research — фундаментальные исследования;
to be engaged in research — заниматься научно-исследовательской работой;
This researches cover a wide field — исследования охватывают широкую область;
after the study of the matter — после изучения этого вопроса;
humane studies — гуманитарные науки;
history and allied studies — история и родственные ей предметы;
a new study of Shakespeare — новая работа /книга/ о Шекспире;
pilot study - предварительное, экспериментальное исследование
desk study - чисто теоретическое исследование;
thorough examination — а) всестороннее исследование; б) тщательное изучение (материала);
to carry on an investigation — проводить исследовательскую работу;
the scientific method of inquiry — научный метод исследования;
we must apply to find a solution — мы должны применить..., чтобы решить;
comparative [experimental] method of investigation — сравнительный [экспериментальный] метод исследования;
his method is to compare different versions — его метод состоит в сопоставлении разных вариантов;
there are several methods of doing this — существует несколько способов сделать это;
ampliative inference — индуктивный метод;
a method that is attended by some risk — метод, связанный с некоторым риском;
convenient method — подходящий метод;
to approximate to a solution of the problem — подходить к решению задачи;
to use ... approach(to) - подход interdisciplinary approach — подход с точки зрения различных наук;
we began the work by collecting material — Мы начали работу со сбора материала;
we have two problems before us — перед нами две задачи;
data for study — материал исследования;
laboratory data — данные лабораторных исследований;
adequacy of data — достоверность данных;
acceptance of a theory — согласие с какой-л. теорией;
application of a theory in actual practice — применение теории в практической деятельности;
the backbone of a theory — основа теории;
to back up a theory with facts — подкрепить теорию фактами;
to construct a theory — создать теорию;
the results of the experiment contradicted this theory/agreed with the theory — результаты опыта шли вразрез с этой теорией/согласовывались с теорией;
- professor – профессор;
lecturer – лектор;
researcher – исследователь;
research – исследование;
graduate - имеющий учёную степень; выпускник;
post-graduate или post-graduate student – аспирант;
masters student – магистрант;

PhD student – докторант;
master's degree - степень магистра;
bachelor's degree - бакалаврская степень;
degree – степень;
thesis - диссертация; исследовательская работа;
dissertation – диссертация;
lecture – лекция;
higher education - высшее образование;
semester – семестр;
student union - студенческий союз;
tuition fees - плата за обучение;
university campus - университетский район; кампус;

3.2 Подготовьте устный рассказ по теме на основе предложенного:

Science is important to world peace in many ways. On one hand, scientists have helped to develop many of the modern tools of war. On the other hand, they have also helped to keep the peace through research which has improved life for people. Scientists have helped us understand the problem of supplying the world with enough energy; they have begun to develop a number of solutions to the energy problem - for example, using energy from the sun and from the atom. Scientists have also analyzed the world's resources. We can begin to learn to share the resources with the knowledge provided to us by science. Science studies the Universe and how to use its possibilities for the benefit of men.

Science is also important to everyone who is affected by modern technology. Many of the things that make our lives easier and better are the results of advances in technology and, if the present patterns continue, technology will affect us even more in the future than it does now. In some cases, such as technology for taking salt out of ocean water, technology may be essential for our lives on Earth.

The study of science also provides people with an understanding of natural world. Scientists are learning to predict earthquakes, are continuing to study many other natural events such as storms. Scientists are also studying various aspects of human biology and the origin and developments of the human race. The study of the natural world may help to improve life for many people all over the world.

A basic knowledge of science is essential for everyone. It helps people find their way in the changing world.

An Academic Conference

The best way to exchange ideas, learn new things and expand your network is to become involved in groups relevant to your craft. This can be through user groups for a particular software environment you work with, or professional associations.

There are plenty of websites and forums that enable professionals to engage with one another online, but nothing seals a bond like face-to-face activities.

The ability to communicate your ideas to audiences will raise your profile to new levels.

The Academic Conference presents a challenge to interaction with other scientists. They regularly take part in conferences and discussions around the world.

A researcher receives an email about the opportunity to submit a proposal to be a presenter at the conference.

An academic conference or symposium is a conference for scholars and scientists to present and discuss their work. Together with academic or scientific journals, conferences provide an important channel for exchange of information among researchers.

Conferences are usually composed of various presentations. They tend to be short and concise, with a time span of about 10 to 30 minutes. The work may be bundled in written form as academic

papers and published as the conference proceedings. They are published to inform a wider audience of the material presented at the conference.

A conference usually includes a keynote speaker (основной докладчик). The keynote lecture is longer, lasting up to an hour and a half. Conferences also feature panel discussions, round tables on various issues and workshops.

Prospective presenters are usually asked to submit a short abstract of their presentation. Nowadays, presenters usually base their talk around a visual presentation that displays key figures and research results.

At some conferences, social or entertainment activities such as tours and receptions can be part of the programme. Business meetings for learned societies (научное общество) or interest groups can also be part of the conference activities.

Academic publishing houses may set up displays at large conferences. Academic conferences fall into three categories:

- a) the themed conference, a small conference organised around a particular topic;
- b) the general conference, a conference with sessions on a wide variety of topics, often organised by regional, national, or international learned societies, and held annually or on some other regular basis;
- c) the professional conference, large conferences not limited to academics (научные работники) but with academically related issues.

Traditional conferences mean participants have to travel and stay in a particular place. This takes time. And an online conference uses the Internet, and participants can access the conference from anywhere in the world and can do this at any time, using browser software. Participants are given a password to access the conference and seminar groups.

The conference is announced by way of a Call for Abstracts, which lists the topics of the meeting and tells prospective presenters how to submit their abstracts.

Submissions take place online. An abstract is a brief summary of a research article, and is often used to help the reader quickly ascertain the purpose of the paper.

An academic abstract typically outlines four elements of the work:

- a) the research focus (statement of the problem) – an opening sentence placing the work in context, and one or two sentences giving the purpose of the work ;
 - b) the research methods used – one or two sentences explaining what was (or will) be done;
 - c) the results of the research – one or two sentences indicating the main findings;
 - d) the main conclusions – one sentence giving the most important consequence of the work.
- The typical abstract length ranges from 100 to 500 words.

3.3 Систематизация грамматического материала:

Модальные глаголы

<u>Глаголы</u>	<u>Значение</u>	<u>Примеры</u>
CAN	физическая или умственная возможность/умение	I can swim very well. – Я очень хорошо умею плавать.
	возможность	You can go now. — Ты можешь идти сейчас. You cannot play football in the street. – На улице нельзя играть в футбол.
	вероятность	They can arrive any time. – Они могут приехать в любой момент.
	удивление	Can he have said that? – Неужели он это сказал?
	сомнение, недоверчивость	She can't be waiting for us now. – Не может быть, чтобы она сейчас нас ждала.
	разрешение	Can we go home? — Нам можно пойти домой?
	вежливая просьба	Could you tell me what time it is now? – Не могли бы вы подсказать, который сейчас час?

MAY	разрешение	May I borrow your book? – Я могу одолжить у тебя книгу?
	предположение	She may not come. – Она, возможно, не придет.
	возможность	In the museum you may see many interesting things. – В музее вы можете увидеть много интересных вещей.
	упрек – только MIGHT (+ perfect infinitive)	You might have told me that. – Ты мог бы мне это сказать.
MUST	обязательство, необходимость	He must work. He must earn money. – Он должен работать. Он должен зарабатывать деньги.
	вероятность (сильная степень)	He must be sick. — Он, должно быть, заболел.
	запрет	Tourists must not feed animals in the zoo. — Туристы не должны кормить животных в зоопарке.
SHOULD OUGHT TO	моральное долженствование	You ought to be polite. – Вы должны быть любезными.
	совет	You should see a doctor. – Вам следует сходить к врачу.
	упрек, запрет	You should have taken the umbrella. – Тебе следовало взять с собой <u>зонт</u> .
SHALL	указ, обязанность	These rules shall apply in all circumstances. – Эти правила будут действовать при любых обстоятельствах.
	угроза	You shall suffer. — Ты будешь страдать.
	просьба об указании	Shall I open the window? – Мне открыть окно?
WILL	готовность, нежелание/отказ	The door won't open. — Дверь не открывается.
	вежливая просьба	Will you go with me? – Ты сможешь пойти со мной?
WOULD	готовность, нежелание/отказ	He would not answer this question. – Он не будет отвечать на этот вопрос.
	вежливая просьба	Would you please come with me? — Не могли бы вы пройти со мной.
	повторяющееся/привычное действие	We would talk for hours. – Мы беседовали часами.
NEED	необходимость	Do you need to work so hard? – Тебе надо столько работать?
NEEDN'T	отсутствие необходимости	She needn't go there. — Ей не нужно туда идти.
DARE	Посметь	How dare you say that? – Как ты смеешь такое говорить?

Модальные единицы эквивалентного типа		
to be able (to) = can	Возможность соверш-я конкрет-го дей-ия в опред. момент	She was able to change the situation then. (Она тогда была в состоянии (могла) изменить ситуацию).
to be allowed (to) = may	Возмож-ть совер-ия дей-ия в наст.-м, прош-ом или буд-ем + оттенок разрешения	My sister is allowed to play outdoors. (Моей сестре разрешается играть на улице).
to have (to) = ought, must, should	Необходимость совер-я дей-я в наст.-м, прош-ом или буд-ем при опред-х об-вах	They will have to set up in business soon. (Им вскоре придется открыть свое дело).
to be (to) = ought, must, should	Необходимость совер-я дей-я в наст.-м, прош-ом при наличии	We are to send Nick about his business. (Мы должны (=

Выполните упражнения для закрепления материала:**1. Fill in the gaps with can, can't, could, couldn't or was/wasn't able to.**

- 1 I had my hands full, so I ...*couldn't/wasn't able to*... open the door.
 2 When I was young, I ... stand on my head.
 3 Although he felt ill, he ... finish all the paperwork.
 4 Tony is clever. He ... speak three languages.
 5 I ... afford that bag. It's too expensive.
 6 Although it was dark, he ... find his way through the woods.
 7 I heard his voice calling me, but I ... see him.
 8 We're busy tonight, so we ... come to the party.
 9 When I entered the house, I ... smell fresh bread baking.
 10 I ... drive a car. I learnt when I was eighteen.

2. Fill in the gaps with must, mustn't or needn't/don't have to.

- 1 A: You ...*must*... study hard to pass the exams.
 B: I know. I study every evening.
 2 A: You ... be late for your job interview.
 B: I know. I'll leave early so as to get there on time.
 3 A: Shall I collect the children from the party?
 B: No, you ... collect them. Mrs Shaw is giving them a lift home.
 4 A: Do you want me to wait for you after work?
 B: No, you ... wait. I can walk home by myself.
 5 A: You ... interrupt while people are talking.
 B: No. It's very bad manners to do that.
 6 A: My dog has been ill all week.
 B: Oh dear! You ... take him to the vet.
 7 A: It's Sally's birthday on Wednesday.
 B: I know. I ... remember to buy her a present.
 8 A: Shall I wash the dishes for you?
 B: No, you ... do that. I'll do them later.

3. Fill the gaps with needn't have or didn't need to and the correct form of the verb in brackets.

- 1 I ran all the way to work, but I ...*needn't have hurried*... (hurry) because I was the first person to arrive.
 2 We ... (hurry), so we stopped to have lunch on the way.
 3 I went to college today, but I ... (go) as all the lectures were cancelled.
 4 I ... (ask) the way to Lewes, since I'd been there before.
 5 I ... (buy) any food, so I didn't go to the supermarket.
 6 I ... (buy) any food after all, because we had plenty at home.
 7 I ... (pack) my shorts, as it rained all week.
 8 We ... (pack) many things, as we would only be away for one night.

4. Complete the sentences using must or can't, as in the example.

- 1 I'm sure she has gone on holiday. She ...*must have gone on holiday*...
 2 I'm certain he doesn't know the secret. He ...
 3 I'm certain Mike hasn't got a new car. Mike ...
 4 I'm sure Susan has paid the phone bill. Susan ...
 5 I'm sure they don't live here. They ...

- 6 I'm sure they left the party early. They ...
 7 I'm certain he didn't call me. He...
 8 I'm certain Marie sent you a birthday card. Marie ...
 9 I'm sure she has been keeping secrets from me. She...
 10 I'm certain she is looking for a new job. She ...
 11 I'm sure David didn't go to the supermarket. David ...
 12 I'm certain he is working at the library. He ...

5. Rephrase the following sentences in as many ways as possible.

- 1 It's likely she has forgotten about the meeting.
 She ...*may/might/could have forgotten about the meeting*...
 2 Perhaps he will be home soon. He ...
 3 Perhaps we won't stay in a hotel. We ...
 4 It's possible she has been delayed in traffic. She ...
 5 It's likely they have gone to the cinema. They ...
 6 Perhaps they are asleep already. They ...
 7 It's likely he hasn't been promoted. He ...
 8 It's possible she called while we were out. She ...
 9 It's likely we will go shopping this afternoon. We ...
 10 Perhaps he is outside in the garden. He ...
 11 It's possible they didn't receive our message. They ...
 12 Perhaps she is visiting a friend. She ...

6. Fill in can, can't, must, mustn't, needn't or have to.

- 1 A: Is Jason at work today?
 B: He ...*can't*... be. His car isn't in the car park.
 2 A: I can't do my German homework. It's too difficult.
 B: I'll help you. I ... speak German.
 3 A: I'm going to watch television.
 B: Alright, but you ... stay up too late.
 4 A: We ... book a taxi to take us to the airport.
 B: I'll do it now.
 5 A: I didn't know Rachel was in the choir.
 B: Oh yes. She ... sing beautifully.
 6 A: Shall I cook dinner tonight?
 B: No, youWe're going to a restaurant.
 7 A: Has Tim bought a car yet?
 B: He ... have. I saw him on the bus yesterday.
 8 A: She ... be very rich.
 B: Yes. She's got a huge house and an expensive car.
 9 A: I did the washing-up for you.
 B: Oh, you ... have, but it was kind of you.
 10 A: Would you like to come to my party on Saturday night?
 B: I'd like to, but Mum says I ... visit my grandparents.

7. Fill in the gaps with could or was/were allowed to.

1. The children ...*were allowed to*... go to the cinema on their own yesterday.
 2. When I was young, we ... wear whatever we liked to school.
 3. Peter ... watch a concert on TV last night, although it was on quite late.
 4. When we were children, we ... play outside until it got dark.
 5. Yesterday, we ... bring our favourite toys to school.
 6. When Dennis lived with his parents, he ... come in at whatever time he liked.

8. Underline the correct word(s).

- 1 A: Could I sleep at my friend's house tonight?
B: Yes, of course you **could/can**.
- 2 A: I **could/was allowed to** go to the disco last night.
B: Was it good fun?
- 3 A: **Can/Might** I have a biscuit please, Mum?
B: Of course. Help yourself.
- 4 A: Excuse me, sir. **May I/Am I allowed to** leave the room?
B: Yes, but don't be too long.
- 5 A: **Must/Might** I borrow these files for a moment, sir?
B: Certainly. Take whatever you need.
- 6 A: Might I use your pen?
B: Of course you **may/might**.
- 7 A: **May I/Am I allowed to** park in the company car park?
B: Of course you are!

9. Fill in shall or will.

- 1 A: ...*Shall*... I help you with the washing-up?
B: No, I can manage by myself.
- 2 A: ... we have pizza for dinner tonight?
B: I'd rather have steak.
- 3 A: ... you carry this for me, please?
B: Certainly. It looks heavy.
- 4 A: What ... we buy for Bob's birthday?
B: I think he'd like a book.
- 5 A: ... you answer the phone, please?
B: Of course.
- 6 A: Where ... we sit in the classroom?
B: Next to the window.
- 7 A: ... you take the rubbish outside for me, please?
B: Yes, in a minute.
- 8 A: ... we have a barbecue next weekend?
B: Yes, if the weather's fine.
- 9 A: ... you babysit for me tonight?
B: I'm sorry, but I can't.
- 10 A: ... we try this new recipe tonight?
B: Yes. We've got all the ingredients.

10. Read the situations and complete the sentences with should/shouldn't, ought to/ought not to and the correct tense of the infinitive.

- 1 Your friend didn't see a film on TV last night. You saw it and it was very good. You ...*should/ought to have seen*... (see) the film.
- 2 Liz bought an expensive jacket yesterday and now she hasn't got enough money for the rest of the week. She ... (buy) such an expensive jacket.
- 3 Your sister eats a lot of junk food which is bad for her health. You ... (eat) so much junk food.
- 4 Mr Jackson had a stiff back. He lifted some heavy boxes and now his back is worse. He ... (lift) those heavy boxes.
- 5 Tony always drives too fast. Yesterday, he was arrested for speeding. He ... (drive) more slowly.
- 6 Sally is clumsy. She is always breaking things. She ... (be) more careful.
- 7 Paul didn't do his homework. The teacher punished him. He ... (do) his homework.
- 8 Amy borrowed her brother's car without asking. He was very angry. She ... (borrow) his car without asking.

11. Underline the correct word(s) in bold.

- 1 A: I found a briefcase on the train.
B: You **ought to/can** take it to the police station as soon as possible.
- 2 A: Did you get some money from the bank?
B: No, I **didn't need to/needn't**. I had enough in my wallet.
- 3 A: Sorry I'm late again.
B: You **should/might** wear a watch.
- 4 A: **Couldn't/May** I speak to Claire, please?
B: Just a moment, please. I'll call her.
- 5 A: We **could/must** go out for a meal this evening, if you like.
B: Oh, yes. That would be nice.
- 6 A: I wonder if Paul and Jim have got lost.
B: They **can't/mustn't** have got lost because I gave them a map.
- 7 A: **Could/Would** I use your telephone, please?
B: Yes, of course.
- 8 A: Was the exam very difficult?
B: Yes, but I **can/was able to** answer all the questions.
- 9 A: We **mustn't/needn't** go shopping this week. We've got plenty of food.
B: Alright. We'll go next week instead.
- 10 A: **Should/May** I sit down, please?
B: Yes, of course. Make yourself at home.
- 11 A: When **will/shall** I visit you next?
B: You **can/must** call in tomorrow, if you like.
- 12 A: Helen should be here by now.
B: She **ought to/could** have missed the train.

12. Match the items in column A to their synonyms in column B.

A

- 1 You mustn't...
2 You can't be ...
3 You needn't...
4 They ought to ...
5 She didn't need to
6 You should ...
7 May I ...?
8 We needn't have ...
9 He was able to ...
10 Shall we ...?
11 You must...
12 They must be ...

B

- a You are supposed to ...
b It wasn't necessary for us to ... (but we did)
c Let's ...
d He managed to ...
e They had better...
f It is forbidden ...
g I'm sure they are ...
h Do you mind if I ...?
i You are to...
j It isn't necessary for you to ...
k I'm certain you aren't ...

1 It wasn't necessary for her to ...

13. Rephrase the following sentences in as many ways as possible.

- 1 **It is possible that Sue will** be late this evening.
Sue may/might/could be late this evening./Sue is likely to be late this evening.
- 2 **I'm sure David isn't** going to the party tonight.
- 3 **The guests are supposed** to arrive at 8 o'clock.
- 4 **It wasn't necessary for Toby to** go to school today.
- 5 **I advise you to** book a table in advance.
- 6 **They are obliged to** wear helmets at work.
- 7 **You are to** wait here until the manager arrives.
- 8 **Steve managed to** repair the bike after trying for two hours.
- 9 **Perhaps we will** go to Italy for a holiday next summer.
- 10 **We are obliged to** wear a uniform for school.
- 11 **You aren't allowed to** run in the corridors.
- 12 **How about** inviting some friends over to dinner?
- 13 **It isn't necessary for you to** buy me a present.
- 14 **Do you mind if** I use your telephone?
- 15 **Would you like me to** clean the windows for you?
- 16 **How about** going for a walk this afternoon?

14. Rephrase the following sentences in as many ways as possible.

- 1 You had better ask your teacher to help you with your studies.
...You ought to/should ask your teacher to help you with your studies...
- 2 Can you hold this bag for me, please?
- 3 Why don't we go for a picnic this weekend?
- 4 It wasn't necessary for John to go to work because it was Sunday.
- 5 We managed to do the puzzle, although it was difficult.
- 6 You are to report to the manager as soon as you reach Manchester.
- 7 You are forbidden to enter this area.
- 8 Do you mind if I take this chair?
- 9 You don't need to feed the dog. I've already done it.
- 10 You ought to have locked the doors when you went out.
- 11 I strongly advise you to take legal action.
- 12 We are supposed to obey the law.

15. Choose the correct answer.

- 1 Shall I make you a cup of tea?
A) Yes, please. B No, you won't.
- 2 Would you help me please? My car won't start.
A I'd be happy to. B Yes, I would.
- 3 Could you open the door for me, please?
A Yes, I could. B Of course.
- 4 Can you do the washing-up for me, please?
A No, I may not. B No problem.
- 5 We could go for a walk this afternoon.
A That's a nice idea. B No, we might not.
- 6 Could I sit down for a minute, please?
A Yes, of course. B No, you couldn't.
- 7 Can I get you anything, madam?
A No, you can't. B No, thank you. I'm just looking.
- 8 Can I go and play football now, please?
A Not at all. B Yes, if you like.

9 Shall I pick you up from work this evening?

A Yes, please. B No, you won't.

10 Will you hold this box for me, please?

A Yes, I may. B Certainly.

16. Complete the sentences, as in the example. Sometimes more than one answer is possible.

	Modal	Use
1	You ...can... go to the cinema.	giving permission
2	You ... have any sweets.	refusing permission
3	... we go for a walk?	making a suggestion
4	... I stay at Paul's house tonight, please?	asking for permission
5	You ...have worked harder.	expressing criticism
6	You .. talk in the library.	expressing prohibition
7	Sally .. invite us to her party.	expressing possibility
8	They ... be lost.	expressing a positive logical assumption
9	You ... do your homework before you go out.	expressing obligation
10	She ... be older than me.	expressing a negative logical assumption
11	Steve ... walk. He's broken his leg.	expressing lack of ability
12	I paint the fence for you?	making an offer

17. Rephrase the following sentences in as many ways as possible.

1 Why don't we go to Spain on holiday this year?

...we can/could go to Spain on holiday this year...

2 Perhaps Tony has gone to work early.

3 Policemen are obliged to wear a uniform while on duty.

4 Simon managed to climb the mountain, although it was steep.

5 It is forbidden to sound the alarm for no reason.

6 How about watching a video this evening?

7 I'm certain Martin heard me calling him.

8 I'm sure Paul isn't an engineer.

18. Choose the correct answer.

1 ...B... I borrow your pen? Mine doesn't work.

A Needn't B Can C Ought

2 I ... go to the bank. I haven't got any money.

A must B mustn't C may

3 Lizzie ... spell her name before she was three.

A might B could C must

4 ... you help me with the shopping, please?

A Must B Shall C Will

5 You ... go to the post office. I'll go later.

A needn't B might C must

6 You ... to study hard for your exams.

A need B can't C shall

7 You ... to be at work by nine o'clock.

A must B should C are

8 No reporters ... approach the scene of the accident.

A might have B were allowed to C needn't

9 We ...phone Mary. It's her birthday today.

A needn't B ought to C are able to

10 What time ... I pick you up from work?

A mustn't B will C shall

19. Choose the correct answer.

- 1 'You ...C... pay the bills today.'
'I know. I promise I won't forget.'
A would B shall C must
- 2 '...we go to the beach tomorrow?'
'Yes. That's a great idea.'
A Shall B Mustn't C Would
- 3 'I'm going to the cinema. Do you want to come with me?'
'No, thank you. I ... do my homework.'
A could B would C have to
- 4 'You ... put that shirt in the washing machine.'
'I know. It has to be dry-cleaned.'
A must B mustn't C couldn't
- 5 'Was your suitcase very heavy?'
'Yes, but I ... carry it by myself.'
A was able to B can't C ought
- 6 '... you drive?'
'Yes, but I haven't got my own car.'
A Might B Should C Can
- 7 'I ... ride a bicycle until I was eight.'
'Neither could I.'
A couldn't B could C can't
- 8 '... you open the door for me, please?'
'Yes, certainly.'
A Shall B Must C Would
- 9 'Ben had a hard time trying to find the leak in the pipe.'
'But he ... stop it, wasn't he?'
A was allowed to B was able to C could
- 10 'I saw Tina in town last night.'
'You ... have seen her. She's on holiday in Spain.'
A would B could C can't
- 11 'Where's Colin?'
'I'm not sure. He ... be in the study.'
A might B will C ought
- 12 'I feel very tired today.'
'You ... have stayed up so late last night.'
A shouldn't B could C might
- 13 'Did you phone Alan yesterday?'
'No, IHe came round to see me.'
A didn't need to B needn't C have to
- 14 '... you give me a lift to work tomorrow?'
'Yes. I'll pick you up at eight o'clock.'
A May B Shall C Will
- 15 '... I help you, madam?'
'Yes, I'm looking for the manager.'
A Would B Must C May

Тема 4: Чтение и перевод научной литературы по направлению исследования

4.1 Запомните слова и выражения, необходимые для освоения темы курса:

КОМПЬЮТЕРНОЕ ОБОРУДОВАНИЕ

laptop - лэптоп; ноутбук; портативный компьютер;
desktop computer (часто используется сокращение desktop) - персональный компьютер;
tablet computer (часто используется сокращение tablet) – планшет;
PC (сокращённо от personal computer) - персональный компьютер;
screen – экран;
keyboard – клавиатура;
mouse – мышка;
monitor – монитор;
printer – принтер;
wireless router - беспроводной роутер; маршрутизатор;
cable – кабель;
hard drive - жёсткий диск;
speakers – громкоговорители;
power cable - кабель питания;

ЭЛЕКТРОННАЯ ПОЧТА

Email - электронная почта;
to email - посылать письма по электронной почте;
to send an email – послать;
email address - адрес электронной почты, email;
username - имя пользователя;
password – пароль;
to reply – ответить;
to forward – переслать;
new message - новое сообщение;

ИСПОЛЬЗОВАНИЕ КОМПЬЮТЕРА

to plug in - подключить что-либо к компьютеру;
to unplug - отсоединить; вытащить из розетки;
to switch on или to turn on – включить;
to switch off или to turn off – выключить;
to start up - запустить систему;
to shut down - выключить систему;
to restart – перезагрузить;

ИНТЕРНЕТ

the Internet – интернет;
website – сайт;
ISP (сокращённо от internet service provider) - поставщик услуг интернета;
Firewall - система защиты доступа; средство сетевой защиты;
web hosting - Web-хостинг;
wireless internet или WiFi – беспроводной;
to download – скачивать;
to browse the Internet - плавать в интернете;

file – файл;
folder – папка;
document – документ;
hardware - элементы электронных устройств; жарг. железо;
software - программное обеспечение;

network – сеть;
to scroll up - прокрутить вверх;
to scroll down - прокрутить вниз;
to log on – войти;
to log off – выйти;
space bar - клавиша для пробела;
virus – вирус;
antivirus software - антивирусная программа;
processor speed - скорость процессора;
memory – память;
word processor - текстовый процессор;
database - база данных;
spreadsheet - электронная таблица;
to print – распечатать;
to type – печатать;
lower case letter - нижний регистр (клавиатуры);
upper case letter или capital letter - заглавные буквы;

4.2 Подготовьте устный рассказ по теме на основе предложенного:

Electromagnetism is everywhere. It is a field that exists throughout space. When particles are electrically charged, the electromagnetic field exerts a force on them. These particles then move and exert a force on the electromagnetic field. By generating these fields when and where we want them and by controlling these forces we have electricity. This gives us the power we use in the modern world. All our TVs, phones, street lights and cars depend on electromagnetism.

So what is electromagnetism? Actually, it is two things, but they are so closely connected that it is convenient for us to think of them as one, as two sides of the same coin. There are two types of field: electric and magnetic. Electrically-charged particles result in an electric field, static electricity. When there is a conductor, a material which will allow electric field to pass through it, then we can create an electric current. In our homes, the conductors are the wires that run through our house to the light bulbs or the TV. A magnetic field results from the motion of an electric current and is used to generate the electricity we use.

In the 19th century, James Clerk Maxwell, the Scottish physicist, produced the equations that proved the two forces acted as one. One effect of this was for physicists all over the world to hurry back to their libraries and laboratories to rewrite the theories on the motion of objects. Maxwell's equations showed that what physicists had believed for centuries was in fact not correct. It was not until Einstein, in the 20th century, that the theory of motion was put right - at least for now.

How do we know the two things are one? Well, sailors had known for centuries that lightning affected the magnetic compasses on their ships. No one, however, made the connection between lightning and electricity until Benjamin Franklin, the American politician and scientist, flew a kite in a thunderstorm to attract the lightning. In other parts of the world, physicists were experimenting with magnets and electricity. Most passed a current across a magnetic needle and watched it move. The Frenchman, Andre Marie Ampere eventually applied mathematics to electromagnetism. It is from his work that we have our modern understanding of electromagnetism.

One piece of the jigsaw remained. No one had discovered a way of generating electricity. True, there were batteries, Alessandro Volta invented the Voltaic pile in 1800, but it was of limited use. Certainly no battery could provide enough electrical power to operate a machine. For that the world would have to wait for Michael Faraday to find a way of creating an electrical current, when and where it was needed.

Innovation

The term innovation derives from the Latin word *innovatus* (to renew or change). Although the term is broadly used, innovation generally refers to the creation of better or more effective products, processes, technologies, or ideas that are accepted by markets, governments, and society. Innovation

differs from invention or renovation in that innovation generally signifies a substantial positive change compared to incremental changes.

Inter-Disciplinary Views. Due to its widespread effect, innovation is an important topic in the study of economics, business, entrepreneurship, design, technology, sociology, and engineering. In society, innovation aids in comfort, convenience, and efficiency in everyday life. For instance, the benchmarks in railroad equipment and infrastructure added to greater safety, maintenance, speed, and weight capacity for passenger services. These innovations included changing from wood to steel cars, from iron to steel rails, stove-heated to steam-heated cars, gas lighting to electric lighting, diesel-powered to electric-diesel locomotives. By mid-20th century, trains were making longer, more comfortable, and faster trips at lower costs for passengers. Other areas that add to everyday quality of life include: the innovations to the light bulb from incandescent to compact fluorescent and LEDs which offer longer-lasting, less energy-intensive, brighter technology; adoption of modems to cellular phones, paving the way to smart phones which meets anyone's internet needs at any time or place; cathode-ray tube to flat-screen LCD televisions and others.

Business and Economics. In business and economics, innovation is the catalyst to growth. With rapid advancements in transportation and communications over the past few decades, the old world concepts of factor endowments and comparative advantage which focused on an area's unique inputs are outmoded for today's global economy. Now, as Harvard economist Michael Porter points out competitive advantage, or the productive use of any inputs, which requires continual innovation, is paramount for any specialized firm to succeed. Economist Joseph Schumpeter, who contributed greatly to the study of innovation, argued that industries must incessantly revolutionize the economic structure from within, that is innovate with better or more effective processes and products, such as the shift from the craft shop to factory. In addition, entrepreneurs continuously look for better ways to satisfy their consumer base with improved quality, durability, service, and price which come to fruition in innovation with advanced technologies and organizational strategies.

One prime example is the explosive boom of Silicon startups out of the Stanford Industrial Park. In 1957, dissatisfied employees of Shockley Semiconductor, the company of Nobel laureate and co-inventor of the transistor William Shockley, left to form an independent firm, Fairchild Semiconductor. After several years, Fairchild developed into a formidable presence in the sector.

Eventually, these founders left to start their own companies based on their own, unique, latest ideas, and then leading employees started their own firms. Over the next 20 years, this snowball process launched the momentous startup company explosion of information technology firms. Essentially, Silicon Valley began as 65 new enterprises born out of Shockley's eight former employees.

Organizations. In the organizational context, innovation may be linked to positive changes in efficiency, productivity, quality, competitiveness, market share, and others. All organizations can innovate, including for example hospitals, universities, and local governments. For instance, former Mayor Martin O'Malley pushed the City of Baltimore to use CitiStat, a performance-measurement data and management system that allows city officials to maintain statistics on crime trends to condition of potholes. This system aids in better evaluation of policies and procedures with accountability and efficiency in terms of time and money. In its first year, CitiStat saved the city \$13.2 million. Even mass transit systems have innovated with hybrid bus fleets to real-time tracking at bus stands. In addition, the growing use of mobile data terminals in vehicles that serves as communication hubs between vehicles and control center automatically send data on location, passenger counts, engine performance, mileage and other information. This tool helps to deliver and manage transportation systems.

Sources of Innovation. There are several sources of innovation. General sources of innovations are different changes in industry structure, in market structure, in local and global demographics, in human perception, mood and meaning, in the amount of already available scientific knowledge, etc. These also include internet research, developing of people skills, language development, cultural background, Skype, Facebook, etc. In the simplest linear model of innovation the traditionally recognized source is manufacturer innovation. This is where an agent (person or business) innovates in order to sell the innovation. Another source of innovation, only now becoming widely recognized, is

end-user innovation. This is where an agent (person or company) develops an innovation for their own (personal or in-house) use because existing products do not meet their needs. End-user¹³ innovation is, by far, the most important and critical source of innovation. In addition, the famous robotics engineer Joseph F. Engelberger asserts that innovations require only three things: 1) a recognized need; 2) competent people with relevant technology; and 3) financial support.

Innovation by businesses is achieved in many ways, with much attention now given to formal research and development (R&D)¹⁴ for "breakthrough innovations. "R&D help spur on patents and other scientific innovations that leads to productive growth in such areas as industry, medicine, engineering, and government. Yet, innovations can be developed by less formal on-the-job modifications of practice, through exchange and combination of professional experience and by many other routes. The more radical and revolutionary innovations tend to emerge from R&D, while more incremental innovations may emerge from practice – but there are many exceptions to each of these trends.

An important innovation factor includes customers buying products or using services. As a result, firms may incorporate users in focus groups (user centred approach), work closely with so called lead users (lead user approach) or users might adapt their products themselves. Regarding this user innovation, a great deal of innovation is done by those actually implementing and using technologies and products as part of their normal activities. In most of the times user innovators have some personal record motivating them. Sometimes user-innovators may become entrepreneurs, selling their product, they may choose to trade their innovation in exchange for other innovations, or they may be adopted by their suppliers.

Nowadays, they may also choose to freely reveal their innovations, using methods like open source. In such networks of innovation the users or communities of users can further develop technologies and reinvent their social meaning.

4.3 Систематизация грамматического материала:

Сослагательное наклонение. Три типа условных предложений

Conditionals are clauses introduced with *if*. There are three types of conditional clause: Type 1, Type 2 and Type 3. There is also another common type, Type 0.

Type 0 Conditionals: They are used to express something which is always true. We can use *when* (whenever) instead of *if*. *If/When the sun shines, snow melts.*

Type 1 Conditionals: They are used to express real or very probable situations in the present or future. *If he doesn't study hard, he won't pass his exam.*

Type 2 Conditionals: They are used to express imaginary situations which are contrary to facts in the present and, therefore, are unlikely to happen in the present or future. *Bob is daydreaming. If I won the lottery, I would buy an expensive car and I would go on holiday to a tropical island next summer.*

Type 3 Conditionals: They are used to express imaginary situations which are contrary to facts in the past. They are also used to express regrets or criticism. *John got up late, so he missed the bus. If John hadn't got up late, he wouldn't have missed the bus.*

	If-clause (hypothesis)	Main clause (result)	Use
Type 0 general truth	if + present simple	present simple	something which is always true
	If the temperature falls below 0 °C, water turns into ice.		
Type 1 real present	if + present simple, present continuous, present perfect or present perfect continuous	future/imperative can/may/might/must/should/ could + bare infinitive	real - likely to happen in the present or future
	If he doesn't pay the fine, he will go to prison. If you need help, come and see me.		

	If you have finished your work, we can have a break. If you're ever in the area, you should come and visit us.		
Type 2 unreal present	if + past simple or past continuous	would/could/might + bare infinitive	imaginary situation contrary to facts in the present; also used to give advice
	If I had time, I would take up a sport. (but I don't have time - untrue in the present) If I were you, I would talk to my parents about it. (giving advice)		
Type 3 unreal past	if + past perfect or past perfect continuous	would/could/might + have + past participle	imaginary situation contrary to facts in the past; also used to express regrets or criticism
	If she had studied harder, she would have passed the test. If he hadn't been acting so foolishly, he wouldn't have been punished.		

Conditional clauses consist of two parts: the if -clause (hypothesis) and the main clause (result). When the if - clause comes before the main clause, the two clauses are separated with a comma. When the main clause comes before the if - clause, then no comma is necessary.

e.g. a) If I see Tim, I'll give him his book.

b) I'll give Tim his book if I see him.

We do not normally use will, would or should in an if - clause. However, we can use will or would after if to make a polite request or express insistence or uncertainty (usually with expressions such as / don't know, I doubt, I wonder, etc.).

We can use should after if to talk about something which is possible, but not very likely to happen.

e.g. a) If the weather is fine tomorrow, will go camping. (NOT: If the weather will be fine...)

b) If you will fill in this form, I'll process your application. (Will you please fill in... - polite request)

c) If you will not stop shouting, you'll have to leave. (If you insist on shouting... - insistence)

d) I don't know if he will pass his exams, (uncertainty)

e) If Tom should call, tell him I'll be late. (We do not think that Tom is very likely to call.)

We can use unless instead of if... not in the if -clause of Type 1 conditionals. The verb is always in the affirmative after unless.

e.g. Unless you leave now, you'll miss the bus. (If you don't leave now, you'll miss the bus.)

(NOT: Unless you don't leave now, ...)

We can use were instead of was for all persons in the if - clause of Type 2 conditionals.

e.g. If Rick was/were here, we could have a party.

We use If I were you ... when we want to give advice.

e.g. If I were you, I wouldn't complain about it.

The following expressions can be used instead of if: provided/providing that, as long as, suppose/supposing, etc.

e.g. a) You can see Mr. Carter provided you have an appointment. (If you have an appointment...)

b) We will all have dinner together providing Mary comes on time. (... if Mary comes ...)

c) Suppose/Supposing the boss came now, ...

We can omit if in the if - clause. When if is omitted, should (Type 1), were (Type 2), had (Type 3) and the subject are inverted.

e.g. a) Should Peter come, tell him to wait. (If Peter should come,...)

b) Were I you, I wouldn't trust him. (If I were you, ...)

c) *Had he known, he would have called. (If he had known, ...)*

1. Look at the prompts and make Type 1 conditional sentences, as in the example.

e.g. If we cut down all the forests, the world's climate will change.

- 1 cut down/ all forests / world's climate / change
- 2 not stop/use / aerosols /destroy / ozone layer
- 3 find / alternative sources of energy / solve / some of our environmental problems
- 4 temperatures / go up / by a few degrees /sea levels / rise
- 5 recycle / waste / save / natural resources
- 6 population / continue to increase / not be enough food for everyone

2. Lisa is trying to decide where to go on holiday. She would like to go to one of these places.

In pairs, ask and answer questions using the prompts below, as in the example.

A) SPAIN FOR A WEEK

£180 Inclusive!!

2-star hotel beach

Free water sports

B) A TWO WEEK CAMPING HOLIDAY IN THE SOUTH OF FRANCE

ONLY £280 per person

Self-catering

1. How long / be away / choose / Spain?

SA: *How long will she be away if she chooses Spain?*

SB: *If she chooses Spain, she'll be away for a week.*

2. Where / go / like / camping?

3. How much / pay / go to / France?

4. What / do / go to / Spain?

5. Where / go / want / cheap holiday?

3. Study the situations, then make Type 2 conditional sentences, as in the example.

I don't have a car, so I have to wait for the bus every day.

1. If I ...*had*... (have) a car, I ...*wouldn't have to*... (not/have to) wait for the bus every day.

I never do my homework, so my teacher always gets angry with me.

2. If I ... (do) my homework, my teacher ... (not/get) angry with me.

I live in a small house, so I can't invite friends over.

3. If I ... (live) in a bigger house, I ... (be able to) invite friends over.

I never get up early, so I y am always late for school.

4. If I ... (get up) earlier, I ... (not/be) late for school.

4. Complete the sentences to make Type 3 conditional sentences, as in the example.

1. If he ...*hadn't noticed*... (not/notice) the mould in one of his glass dishes, Alexander Fleming ...*would never have discovered*... (never/discover) penicillin.

2. If he ... (sell) some of his paintings, Van Gogh ... (get) some recognition during his lifetime.

3. If Barbara Streisand ... (change) the shape of her nose, her career ... (never/be) the same.

4. If Anne Sullivan ... (not/teach) her, Helen Keller ... (not/be able to) communicate.

5. If Naomi Campbell ... (not/be) so beautiful, she ... (never/become) a supermodel.

5. Read the story below and make Type 3 conditional sentences, as in the example.

e.g. 1) ...if Sally hadn't been in a hurry, she would nave left some important notes at home....

Sally had a terrible day yesterday. She was in a hurry, so she left some important notes at home. She wasn't prepared for her meeting with a new client, so the meeting was a disaster. The client

was disappointed, and as a result he refused to do business with the company. The boss shouted at Sally, so she got upset.

6. Match the items in column A with those in column B in order to make correct Type 0 conditional sentences, as in the example.

e.g. 1 - c ...if you add sugar to a cup of coffee, the coffee tastes sweeter...

A

1. Add sugar to a cup of coffee.
2. Throw salt onto snow.
3. Put an apple in a bowl of water.
4. Water plants regularly.
5. Lie in the sun too long.
6. Take regular exercise.

B

- a The apple floats.
- b Your skin turns red.
- c The coffee tastes sweeter.
- d You feel healthy.
- e The plants grow.
- f The snow melts.

7. Put the verbs in brackets into the correct tense.

- 1 A: What time will you be home tonight?
B: I'm not sure. If I ...*have to*... (have to) work late. I ... *'ll call*... (call) you.
- 2 A: I felt very tired at work today.
B: Well, if you ... (not/watch) the late film, you ... (not/feel) so tired
- 3 A: Should I buy that car?
B: Why not? If I ... (have) the money, I ... (buy) it myself.
- 4 A: If you ... (pass) a chemist's, ... (you/get) me some cough medicine?
B: Yes, certainly.
- 5 A: My sister seems very upset at the moment.
B: Were I you, I ... (talk) to her about it.
- 6 A: Unless you ... (hurry), you ... (be) late again.
B: No, I won't. There's plenty of time.
- 7 A: Oh! I forgot to ask Sarah over for dinner.
B: If I ... (speak) to her today, I ... (ask) her for you.
- 8 A: May I join the club, please?
B: Provided you ... (be) over eighteen, you can join the club.
- 9 A: What a lovely restaurant! I'm glad we came here.
B: If you ... (not/burn) the dinner, we ... (not/come) here!
- 10 A: Just think. If I ... (not/move) to York, I ... (never/meet) you.
B: I know, wasn't it lucky?
- 11 A: Jo doesn't spend enough time with me.
B: Well, if she ... (have) the time, I'm sure she ... (try), but she's very busy.
- 12 A: Did you give Bill the message?
B: No, but when I ... (see) him, I ... (tell) him the news.

8. Choose the correct answer.

- 1 'If you ...*C*... that plate, you'll burn your fingers.'
'Why? Has it been in the oven?'

- A would touch
B will touch
C touch

- 2 '... you're busy, we'll talk now.'
 'That's fine. I'm not busy at the moment.'
- A If
 B Provided
 C Unless
- 3 'If you watch the news, you ... a lot.'
 'I know. I watch it every day.'
- A learn
 B were learning
 C would learn
- 4 '... you wear warm clothes, you won't get cold.'
 'I'll wear an extra jumper.'
- A Unless
 B Providing
 C Supposing
- 5 'Shall I invite John to the party?'
 'Well, were I you, I ... him.'
- A would invite
 B will invite
 C am inviting
- 6 '... the teacher comes back now, what will you do?'
 'I don't know.'
- A When
 B Providing
 C Supposing
- 7 'Could I see the menu, please?'
 'Yes, sir. If you ... a seat, I will fetch it for you.'
- A take
 B had taken
 C have taken
- 8 'Don't cry. Everything will be alright.'
 'Yes, but if I ... the bus, I wouldn't have been late for school.'
- A didn't miss
 B hadn't missed
 C don't miss
- 9 'When water boils, it ... steam.'
 'Yes, I know; and the steam is hot, too.'
- A would produce
 B produce
 C produces
- 10 'Can you help me, please?'
 'Well, if I wasn't studying, I ... you.'
- A would help
 B help
 C will help
- 11 'John crashed his car yesterday.'
 'I know, but if he hadn't been changing the cassette, he ...'
- A won't crash
 B wouldn't crash
 C wouldn't have crashed
- 12 'Can I have some chocolate, please?'
 'If you behave yourself, I ... you some later.'
- A would buy

B might buy

C buy

13 'Should you see Colin ... and tell me.'

'I will.'

A come

B to come

C will come

14 'If we were rich, we ... expensive clothes.'

'Well, unfortunately we aren't rich!'

A could afford

B can afford

C afford

9. Put the verbs in brackets into the correct tense.

1 If I ...*were*... (be) you, I wouldn't drive in the snow.

2 Peter ... (be able to) help you if he was here.

3 If I had closed the window, the cat ... (not/jump) out.

4 I ... (call) for help if I got stuck in a lift.

5 Had I known him, I ... (talk) to him.

6 John ... (may/lose) his job if he is rude to the boss.

7 If you ... (save) some money, you would have been able to go on holiday last year.

8 You may win if you ... (take) part in the contest.

9 If I had toothache, I ... (go) to the dentist.

10 They would have helped us move house if we ... (ask) them.

11 If Jane ... (be) older, she could live by herself.

12 We would have changed our plans if we ... (hear) the weather forecast.

13 Emma ... (send) a card if she had remembered it was their anniversary.

14 Robert ... (feel) better if you talked to him.

15 If Sam was still living nearby, you ... (can/invite) him for dinner.

16 If you ... (put) your money in your wallet, you will not lose it.

17 If you ... (like) chocolate, you will love this cake.

18 If Bill ... (come) home early, he will eat dinner with us.

19 Sandra will join us later unless she ... (have) a lot of work to do.

IF - WHEN

We use if to say that something might happen.

We use when to say that something will definitely happen.

e.g. If you see Mark, will you give him the message? (You might see Mark.)

When you see Mark, will you give him the message? (It is certain that you will see Mark.)

10. Fill in the gaps using when or if.

1 A: Have you phoned Paul yet?

B: No, I'll phone him ...*when*... I get home.

2 A: ... I get a new job soon, I may have a party.

B: That's a good idea.

3 A: I really liked that dress we saw.

B: Well, you can buy it ... you get paid.

4 A: Shall we go somewhere this weekend?

B: Yes ... it's sunny, we could go to the beach.

5 A: Did you make this cake yourself?

B: Yes ... you like it, I'll give you the recipe.

6 A: Is Jane still asleep?

B: Yes ... she wakes up, I'll tell her you're here.

- 7 A: Have you done your homework?
B: No. I'll do it ... we've finished dinner.
- 8 A: We've run out of milk.
B: Well, ... I go to the shops, I'll buy some more.

11. Choose the correct answer.

- 1 If you are bored ...C... something else.
A you would do
B you will do
C do
- 2 ... I you, I would look for a new job.
A Would be
B Were
C Had been
- 3 I ... you if I had known you were in hospital.
A would visit
B would have visited
C will visit
- 4 If you ... well, lie down for a while.
A hadn't felt
B don't feel
C didn't feel
- 5 Ice ... if the temperature rises above 0°C.
A will melt
B would melt
C melts
- 6 Had I known about the meeting, I ... it.
A would have attended
B attended
C will attend
- 7 If he ... in the garden, he would have heard the doorbell.
A isn't
B was
C hadn't been
- 8 I ... to the bank manager if I were you.
A would talk
B will talk
C talked

MIXED CONDITIONALS

All types of conditionals can be mixed. Any tense combination is possible if the context permits it.

If - clause	Main clause
Type 2 If nobody paid the bill,	Type 1 the electricity will be cut off.
Type 2 If he had money,	Type 3 he would have bought her a gift.
Type 2 If he had won the lottery,	Type 3 he wouldn't be asking for money now.

12. Rewrite the sentences, as in the example.

- 1 He doesn't know her. That's why he didn't speak to her.
...If he knew her, he would have spoken to her...

- 2 He lost his job. He's unemployed now.
 ...*If he hadn't lost his job, he wouldn't be unemployed...*
 3 His pet died. That's why he's unhappy now.
 4 She doesn't have a mobile phone. That's why she couldn't be contacted yesterday.
 5 Tom didn't see the boss earlier. He's waiting for her now.
 6 He is allergic to seafood. That's why he didn't eat paella last night.
 7 I lost my map. That's why I'm asking for directions now.
 8 She doesn't speak French. She didn't have a good time in Paris.
 9 He lost the race. He is not a champion now.
 10 She didn't go to the bank yesterday. That's why she hasn't got any money now.
 11 They went to a party last night. That's why they are tired now.
 12 I crashed my car. That's why I'm taking the bus today.

WISHES

We use the verb wish and the expression if only to express a wish. If only is more emphatic than I wish.

wish/if only + past simple/past continuous: when we want to say that we would like something to be different in the present.

e.g. I wish/If only I had a room of my own. (But I don't have a room of my own.)

wish/if only + past perfect: to express regret that something happened or did not happen in the past.

e.g. I wish I had got your message earlier. (But I didn't get it earlier.) If only I had talked to him. (But I didn't talk to him.)

wish/if only + would: a) for a polite imperative

e.g. I wish you would stop shouting. (Please, stop shouting.)

b) to express our wish for a change in a situation or someone's behavior because we are annoyed by it.

e.g. I wish the wind would stop blowing, (wish for a change in a situation)

If only John would stop insulting people. (wish for a change in someone's behavior)

After the subject pronouns I and we, we use could instead of would.

e.g. I wish we could go to the party. (NOT: I wish we would go...)

Note: We can use were instead of was after wish or if only.

e.g. I wish she were/was more sensitive.

13. Wendy has just started university. It isn't what she expected, and she is disappointed.

Read what she says and make sentences, as in the example.

e.g. I wish my room wasn't/weren't so small.

1. My room is so small.
2. I have to share the bathroom.
3. The kitchen is such a mess.
4. My tutors are strict.
5. The classes are so hard to understand.
6. The people are not friendly.
7. I can't visit my family and friends because they are so far away.
8. I don't have any friends.

14. Elise is a famous singer. These are some of the things she finds annoying. Read what she says and make sentences, as in the example.

e.g. I wish people wouldn't stare at me everywhere I go.

1. People stare at me everywhere I go.
2. People always ask me to sing at parties.
3. Magazines print false stories about my private life.
4. Photographers take photos of me all the time.

5. People make me sign autographs wherever I go.
6. People never give me any privacy.

15. Put the verbs in brackets into the correct tense.

- 1 A: I wish I ...*could play*... (play) a musical instrument.
B: You should take lessons.
- 2 A: If only the wind ... (stop) blowing so hard.
B: Yes, it's very windy today, isn't it?
- 3 A: I wish John ... (come) with us.
B: So do I. He would have really enjoyed it.
- 4 A: Paul, I wish you ... (stop) making so much noise.
B: Sorry, I'll try.
- 5 A: I wish I ... (study) more when I was at school.
B: It doesn't matter now. You've got a good job.
- 6 A: I wish I ... (be) young again.
B: So do I. We had some good times back then.
- 7 A: I wish I ... (not/speak) to Jane like that.
B: Don't worry. I'm sure she'll forgive you.
- 8 A: If only Bob ... (call) me.
B: Well, he promised to call today.
- 9 A: I'm exhausted. I wish I ... (do) some of the housework yesterday.
B: Sorry I wasn't here to help you.
- 10 A: I wish you ... (make) less noise when you come in.
B: It's not my fault. The door squeaks when you open it.
- 11 A: Are you going to your school reunion party next week?
B: No. I wish I ... (go) because I would like to see everyone again.

16. Rewrite the sentences using the correct conditional type, as in the examples.

- 1 I wish Jack were here. (he/help us)
...If Jack were hers, he would help us...
- 2 I wish we hadn't got stuck in traffic. (we/be late for work)
...If we hadn't got stuck in traffic, we would have been late for work....
- 3 I wish you paid more attention in class. (you/understand everything)
- 4 I wish they had called before they came. (I/cook something)
- 5 I wish Tim weren't so selfish. (he/make friends much more easily)
- 6 I wish Sandra hadn't got up late today. (we/go shopping together)
- 7 I wish you hadn't left the door unlocked. (thieves/ break in)

17. Complete the wishes. Also make correct conditional sentences, as in the example.

1. I've got to get up.
I wish *I didn't have to get up*. (stay in bed for another hour)
If I didn't have to get up, I would stay in bed for another hour.
2. I should have been more careful.
I wish ... (not crash into the wall)
3. She's always shouting at me.
I wish ... (concentrate on my work)
4. He hasn't called me yet.
I wish ... (stop worrying)

HAD BETTER / WOULD RATHER

We use had better + bare infinitive to give advice or to say what the best thing to do in a particular situation is.

e.g. You had I'd better take some warm clothes with you. (You should/ought to take ...)

I'd better not call him now; he'll be busy.

Had better is stronger than should/ought to, but it is not as strong as must.

e.g. You must call a doctor, (strong advice)

You had better call a doctor, (less strong than must)

You should/ought to call a doctor. (less strong than had better)

We use would rather (= would prefer to) to express preference.

e.g. I'm busy. I'd rather not take a break now.

When the subject of would rather is also the subject of the following verb, we use the following constructions:

a) would rather + bare present infinitive (present/ future)

e.g. I'd rather stay at home tonight.

b) would rather + bare perfect infinitive (past)

e.g. I'd rather have gone on holiday to Italy last summer.

When the subject of would rather is different from the subject of the following verb, we use the following constructions:

a) would rather + past tense (present/future)

e.g. I'd rather Tim did the shopping today.

b) would rather + past perfect (past)

e.g. I'd rather Kate hadn't spent so much money yesterday.

Study the ways in which we can express preference:

a) prefer + gerund + to + gerund (general preference)

e.g. I prefer jogging to cycling.

b) prefer + full infinitive + rather than + bare infinitive (general preference)

e.g. I prefer to go out rather than stay at home.

c) prefer + noun + to + noun (general preference)

e.g. She prefers orange juice to apple juice.

d) would prefer + full infinitive + rather than + (bare infinitive) (specific preference)

e.g. I'd prefer to pay in cash rather than (pay) by credit card.

e) would rather + bare infinitive + than (+ bare infinitive)

e.g. She'd rather have a salad than (have) a steak.

18. In pairs, ask and answer questions using the prompts below, as in the example. The choice of answer is yours.

SA: Would you rather go on holiday to Spain or Italy?

SB: I'd rather go to Spain than Italy.

1. go on holiday to Spain or Italy?
2. eat pizza or spaghetti for dinner?
3. play cards or chess this evening?
4. work in a bank or a school?
5. have a dog or a cat as a pet?
6. learn French or German at school?

19. Complete the sentences, as in the example.

- 1 I'll cook dinner if you really want me to, but ...*I'd rather you cooked it*
- 2 I'll go to the supermarket if you really want me to, but ...
- 3 I'll wash the dishes if you really want me to, but...
- 4 I'll empty the rubbish bin if you really want me to, but...
- 5 I'll iron all the clothes if you really want me to, but...
- 6 I'll clean the bathroom if you really want me to, but...

20. Fill in the gaps with would rather, prefers or (would) prefer.

- 1 Do you ...*prefer*... reading magazines or books?

- 2 She ... go to a disco than to go to the theatre.
 3 Jack ... listening to music to watching television.
 4 He ... study History than Maths.
 5 I ... the piano to the violin.
 6 ... you ... to have spaghetti or steak for dinner tonight?
 7 I ... see a comedy film than an adventure film.
 8 ... you ... going to the cinema or going to the theatre?

21. Put the verbs in brackets into the correct form.

- 1 A: Did you enjoy the party last night?
 B: No, I'd rather ...*have stayed*... (stay) at home.
 2 A: Shall I dust the computer, Tom?
 B: I'd rather you ... (not/touch) it, actually. I'll do it myself.
 3 A: I've got a terrible cold.
 B: You'd better ... (not/go) to work today, then.
 4 A: I'm going to work now.
 B: I think it's going to rain today. You'd better ... (take) your umbrella with you.
 5 A: I didn't enjoy Ben's party. I would rather he ... (invite) more people.
 B: Oh! I enjoyed it.
 6 A: You had better ... (study) hard this weekend for the exam on Monday.
 B: I will, but I would prefer ... (go out) with my friends.
 7 A: My parents prefer ... (spend) their holidays in the mountains.
 B: Do they? I like to be by the sea.
 8 A: We'd better ... (not/book) a taxi to bring us home tonight.
 B: You're right. We might want to stay late.
 9 A: They're organising a party for Susan's birthday.
 B: I know, but it's a secret, so we'd better ... (not/talk) about it in case she hears.
 10 A: I'd rather you ... (not/leave) your shoes in the kitchen every time you come home from school.
 B: Sorry, I keep forgetting.
 11 A: I didn't enjoy my lunch today. I'd rather ... (eat) something else.
 B: I'll make you some sandwiches tomorrow then.
 12 A: Did you enjoy the film last night?
 B: Not really. I would rather we ... (see) a comedy instead.
 13 A: Shall we stay in tonight?
 B: Well, if you don't mind I would prefer ... (visit) my parents.

THE UNREAL PRESENT AND PAST

The past simple can be used to talk about imaginary, unreal or improbable situations which are contrary to facts in the present (unreal present). The past perfect can be used to refer to imaginary, unreal or improbable situations which are contrary to facts in the past (unreal past).

The past simple is used with:

- Type 2 Conditionals
e.g. If he knew the truth, he would be very angry.
- suppose/supposing
e.g. Suppose/Supposing they didn't invite you, what would you do?
- wish/if only
e.g. I wish/If only I had a lot of money.
- would rather (present)
e.g. I'd rather Lisa went to the market.
- as if/as though
e.g. Jim behaves as if last though he were the boss.
- it's (about/high) time

e.g. *It's (about/high) time they did something about it.*

The past perfect is used with:

- Type 3 Conditionals

e.g. *If she had asked me, I would have helped her.*

- suppose/supposing

e.g. *Suppose/Supposing you had lost your money, what would you have done?*

- wish/if only

e.g. *I wish/If only I hadn't invited them to my party.*

- would rather (past)

e.g. *I'd rather you hadn't said anything about it.*

- as if/as though

e.g. *He hadn't seen her before, but he acted as if last though he had known her for years.*

22. Underline the correct tense.

- 1 It's about time she learnt/had learnt how to cook.
- 2 I'd rather you **didn't touch/had not touched** my favorite vase. You may break it.
- 3 If she **heard/had heard** the news, she would have called us by now.
- 4 They would have opened the door if they **knew/had known** who was there.
- 5 It's high time they **made/had made** some changes.
- 6 I wish I **saved/had saved** some money last month.
- 7 Ben would have taken up sport earlier if he **realized/had realized** how much fun it was.
- 8 Tom speaks to everyone as if he **knew/had known** everything.
- 9 He would rather you **didn't open/hadn't opened** the letter. He wanted to do it himself.
- 10 Suppose you **met/had met** him, what would you say to him?
- 11 If only he **called/had called** me last night, we could have gone out.
- 12 I'd rather Mary **spent/had spent** the night with us. It's snowing too heavily for her to drive home.
- 13 If you **knew/had known** what she did yesterday, you would be very surprised.
- 14 Supposing she **were seen/had been seen** leaving early, what would have happened?

23. Complete the following sentences.

1. Your friend wants to go skating, but you want to go bowling. What do you say?
I would prefer ...to go bowling...
2. Your friend likes staying in hotels, but you think camping is more fun. What do you say?
I prefer
3. Your parents want you to take the dog for a walk. You want your brother to do it. What do you say?
I'd rather
4. Your brother has bought a guitar. You want him to stop playing. What do you say?
I'd rather you
5. Your friend is very tired. You think she should go to bed. What do you say?
You'd better

Тема 5: Аннотирование научных статей

5.1 Запомните слова и выражения, необходимые для освоения темы курса:

Основные штампы (key-patterns) аннотаций на английском и русском языках

1. The article (paper, book, etc.) deals with... - Эта статья (работа, книга и т.д.) касается...
2. As the title implies the article describes.... - Согласно названию, в статье описывается...
3. It is specially noted... - Особенно отмечается...
4. A mention should be made... - Упоминается...
5. It is spoken in detail... - Подробно описывается...
6. ...are noted - Упомянуты...
7. It is reported... - Сообщается...
8. The text gives a valuable information on.... - Текст дает ценную информацию...
9. Much attention is given to... - Большое внимание уделяется...
10. The article is of great help to ... - Эта статья окажет большую помощь...
11. The article is of interest to... - Эта статья представляет интерес для...
12. It (the article) gives a detailed analysis of - 12. Она (статья) дает детальный анализ...
13. It draws our attention to... - Она (статья, работа) привлекает наше внимание к...
14. The difference between the terms...and...should be stressed - Следует подчеркнуть различие между терминами ...и...
15. It should be stressed (emphasized) that... - Следует подчеркнуть, что...
16. ...is proposed - Предлагается...
17. ...are examined - Проверяются (рассматриваются)
18. ...are discussed - Обсуждаются...
19. An option permits... - Выбор позволяет...
20. The method proposed ... etc. - Предлагаемый метод... и т.д.
21. It is described in short ... - Кратко описывается ...
22. It is introduced - Вводится ...
23. It is shown that - Показано, что ...
24. It is given ... - Дается (предлагается) ...
25. It is dealt with - Рассматривается ...
26. It is provided for ... - Обеспечивается ...
27. It is designed for - Предназначен для ...
28. It is examined, investigated ... - Исследуется ...
29. It is analyzed ... - Анализируется ...
30. It is formulated - Формулируется ...
31. The need is stressed to employ... - Подчеркивается необходимость использования...
32. Attention is drawn to... - Обращается внимание на ...
33. Data are given about... - Приведены данные о ...
34. Attempts are made to analyze, formulate ... - Делаются попытки проанализировать, сформулировать ...
35. Conclusions are drawn.... - Делаются выводы ...
36. Recommendations are given ... - Даны рекомендации ...

Образцы клише для аннотаций на английском языке

- The article deals with ...
- As the title implies the article describes ...
- The paper is concerned with...
- It is known that...
- It should be noted about...
- The fact that ... is stressed.
- A mention should be made about ...

- It is spoken in detail about...
- It is reported that ...
- The text gives valuable information on...
- Much attention is given to...
- It is shown that...
- The following conclusions are drawn...
- The paper looks at recent research dealing with...
- The main idea of the article is...
- It gives a detailed analysis of...
- It draws our attention to...
- It is stressed that...
- The article is of great help to ...
- The article is of interest to ...
- is/are noted, examined, discussed in detail, stressed, reported, considered.

5.2 Подготовьте устный рассказ по теме на основе предложенного: №5

When Should You Summarize an Article?

There are a few instances when you might want to summarize an article. These are:

To show how an author's ideas support your argument

To argue against the author's ideas

To condense a lot of information into a small space

To increase your understanding of an article

What Needs to Be Included in a Summary of an Article?

A great summary should include certain important elements that make the reading experience easier on the reader. A good summary will consist of the following elements.

The main idea of the article is conveyed clearly and concisely

The summary is written in the unique style of the writer

The summary is much shorter than the original document

The summary explains all of the important notions and arguments

The summary condenses a lot of information into a small space

How Do You Summarize an Article?

Summarizing an article can be boiled down to three simple steps. By following these steps, you should have a thorough, clear, and concise summary in no time.

Identify the main idea or topic.

Identify the important arguments.

Write your summary.

Continue reading for detailed explanations of each of these steps.

Identify the Main Idea or Topic

The aim of an article is to convey a certain idea or topic through the use of exposition and logic.

In a summary, you want to identify the main idea of the article and put this information into your own words. To do this, you must be willing to read the article several times. On the first reading, try to gain a general notion of what the article is trying to say. Once you've done this write down your initial impression. This is most likely the thesis, or main idea, of the article. Also, be sure to include the author's first and last name and the title of the article in your notation for later reference.

Example: In the article "Why Two Best Friends Doesn't Work," author Cassandra Grimes argues that most teenage girls can't get along in groups of more than two.

When trying to identify the central idea, you should ask yourself, "Why was this essay written and published?" Clues to help determine this include the following.

How to Identify the Main Idea of an Article

Gather information from the title.

Identify the place it was published, as this can help you determine the intended audience.

Determine the date of publication.

Determine the type of essay. (Is it expository, argumentative, literary, scholarly?)

Take note of the tone of the piece.

Identify certain notions or arguments that seem to be repeated throughout.

Applying these methods of identification, let's take a look at the article "Bypass Cure" by James Johnson. We can assume the subject of the article from the title. Upon further examination, it becomes clear that the author is arguing that new research suggests the best cure for diabetes is the surgical solution of a gastric bypass.

Example: "Bypass Cure" by James Johnson records a recent discovery by researchers that people who have bypass surgery for weight control are also instantly cured of diabetes. Since rising diabetic rates and obesity has become a worldwide concern, the article provides a startling but controversial potential solution.

Now that we have identified the main idea of the article, we can move onto the next step.

Identify Important Arguments

At this point in the preparation process, you should read the article again. This time, read more carefully. Look specifically for the supporting arguments. Some tips on how to identify the important arguments of an article are listed below.

How to Identify Important Arguments in an Article

Read on a paper copy or use a computer program that lets you make annotations.

Underline the topic sentence of each paragraph. (If no one sentence tells the main concept, then write a summary of the main point in the margin.)

Write that sentence in your own words on the side of the page or on another piece of paper.

When you finish the article, read all the topic sentences you marked or wrote down.

In your own words, rewrite those main ideas.

Use complete sentences with good transition words.

Be sure you don't use the same words, phrases, or sentence structure as the original.

You may find you need to leave out some of the unimportant details.

Your summary should be as short and concise as possible.

In short, you want to boil the article down to its main, supporting arguments. Let everything else fall away, and what you are left with is an argument or an opinion, and the arguments that support it.

Write Your Summary

Your summary should start with the author's name and the title of the work. Here are several ways to do this correctly:

Introduction Sentence Examples for an Article Summary

In "Cats Don't Dance," John Wood explains ...

John Wood, in "Cats Don't Dance," explains ...

According to John Wood in "Cats Don't Dance" ...

As John Wood vividly elucidates in his ironic story "Cats Don't Dance" ...

John Wood claims in his ironic story "Cats Don't Dance" that ...

Combine the thesis of the article with the title and author into your first sentence of the summary. Reference the following sentence as an example.

In "Cats Don't Dance," John Wood explains that in spite of the fact that cats are popular pets who seem to like us, felines are not really good at any activities that require cooperation with someone else, whether that is dancing or sharing.

If possible, your first sentence should summarize the article. The rest of your summary should cover some of the central concepts used to support the thesis. Be sure to restate these ideas in your own words, and to make your summary as short and concise as possible. Condense sentences and leave out unimportant details and examples. Stick to the important points.

How to Quote the Author of an Article

When you refer to the author for the first time, you always use their full name. When you refer to the author after that, you always use their last name. The following examples show how to use the author's name in an article summary after you have already introduced them.

Johnson comments ...

According to Wood's perspective ...

As Jones implies in the story about ...

Toller criticizes...

In conclusion, Kessler elaborates about ...

You don't need to use an author's title (Dr., Professor, or Mr. and Mrs.), but it does help to add their credentials to show they are an authoritative source. The sentences below show ways to do this.

In "Global Warming isn't Real," Steven Collins, a professor at the University of Michigan, claims that ...

New York Times critic Johann Bachman argues in "Global Warming is the Next Best Thing for the Earth" that ...

If you are discussing the ideas of the author, you always need to make it clear that you are reciting their ideas, not your own.

How to Introduce the Ideas of the Author in an Article Summary

Use author tags

Use mentions of "the article" or "the text"

Add the page number that the information is found on in parenthesis at the end of the sentence

Using Author Tags

In writing your summary, you need to clearly state the name of the author and the name of the article, essay, book, or other source. The sentence below is a great example of how to do this.

According to Mary Johnson in her essay, "Cats Make Good Pets," the feline domestic companion is far superior to the canine one.

You also need to continue to make it clear to the reader when you are talking about the author's ideas. To do this, use "author tags," which are either the last name of the author or a pronoun (he or she) to show you are still discussing that person's ideas.

Also, try to make use of different verbs and adverbs. Your choice of author tag verbs and adverbs can contribute to the way you analyze the article. Certain words will create a specific tone. See the tables for a selection of different word choices.

How Long Is a Summary of an Article?

The length of an article summary will depend on the length of the article you are writing about.

If the article is long (say, 10-12 pages) then your summary should be about four pages. If the article is shorter, your summary should be about one to two pages. Sometimes, an article summary can be less than one page.

The length of a summary will also depend on the instructions you have been given. If you are writing a summary for yourself, it's up to you how long or short it will be (but remember, a summary is supposed to be a short regurgitation of the information outline in an article). If you are writing a summary for a class assignment, the length should be specified.

How to Edit and Revise Your Summary

Before you are officially done, it is important to edit your work. The steps below explain the process of editing and revision.

Re-read the summary and edit out any obvious mistakes.

Read your summary aloud. If anything sounds off, fix it.

Let one of your peers read your summary. Make changes according to their feedback.

With that, your summary should be complete.

5.3 Систематизация грамматического материала:

Синтаксис: Побудительные предложения, восклицательные предложения, вопросительные предложения.

В побудительном предложении выражаются различные побуждения к действию – приказ, просьба, запрещение, рекомендация, совет и т.д. Повелительные предложения, выражающие приказания, произносятся с понижающейся интонацией, а предложения, выражающие просьбу, - с повышающейся интонацией.

Повелительное предложение может быть как утвердительным, так и отрицательным. Глагол в повелительном предложении употребляется в форме повелительного наклонения. Подлежащее как правило отсутствует, и предложение начинается прямо со сказуемого. Подразумевается, что действие должен выполнять тот, кому адресовано обращение.

- Open the book. *Откройте книгу.*
Translate this article, please. *Переведите, пожалуйста, эту статью.*
Take off your hat! *Снимите шляпу!*
Don't go there. *Не ходите туда.*
Tell me all about it. *Расскажи мне все об этом.*
Put the dictionary on the shelf. *Положите словарь на полку.*
Don't be late, please. *Не опоздайте, пожалуйста.*

Предложение может состоять и из одного сказуемого, выраженного глаголом в повелительном наклонении:

- Write! *Пиши(те)!*
Don't talk! *Не разговаривай(те)!*

Для выражения просьбы в конце повелительного предложения часто употребляется *will you?* или *won't you?*, отделяющиеся запятой:

- Come here, **will you?** *Идите сюда, пожалуйста.*
Close the window, **will you?** *Закройте, пожалуйста, окно.*
Fetch me a chair, **won't you?** *Принесите мне стул, пожалуйста.*
Come and see me, **won't you?** *Заходите ко мне, пожалуйста.*

Просьба может быть выражена также в форме вопросительного предложения, начинающегося с *will* или *would*. В отличие от общего вопроса, предложение, выражающее просьбу, произносится с падающей интонацией:

- Will** you come here? *Идите сюда, пожалуйста.*
Will you give me that book? *Дайте мне эту книгу, пожалуйста.*
Would you mind lending me your dictionary? *Не будете ли вы добры одолжить мне ваш словарь?*
Would you give me some water? *Дайте мне воды, пожалуйста.*
Will you fetch me a chair, please? *Принесите мне стул, пожалуйста.*
Would you be good enough to close the window? *Не будете ли вы добры закрыть окно?*

Для усиления просьбы перед глаголом в повелительном наклонении употребляется вспомогательный глагол **do**:

- Do write to me! *Пожалуйста, пишите мне!*
Do listen to me. *Послушайте же меня!*
Do come with me. *Идемте со мной, ну!*

Восклицательные предложения передают различные эмоциональные чувства – радость, удивление, огорчение и т.д. Любое предложение: повествовательное,

вопросительное или повелительное может стать восклицательным, если высказываемая мысль сопровождается сильным чувством и интонацией. На письме оно обычно обозначается восклицательным знаком. Восклицательные предложения произносятся с понижающейся интонацией.

At last you have returned! *Наконец вы вернулись!*
Have you ever seen such weather?! *Вы когда-нибудь видели такую погоду?!*
How can you be so lazy! *Ну как можно быть таким ленивым!*
Oh, please, forgive me! *О, пожалуйста, прости меня!*
Hurry up! *Спешите!*
You are so stupid! *Ты так глуп!*

Среди них выделяют восклицательные предложения, начинающиеся с местоимения **what** – *какой, какая, что за* или наречия **how** – *как*. В этих предложениях сохраняется прямой порядок слов, т.е. сказуемое следует за подлежащим. В отличие от русского языка, слова **what** и **how** всегда стоят непосредственно перед определяемым словом. То есть, если по-русски возможна конструкция: "**Какую** я сделал ошибку!", то в английском возможно лишь: "**Какую** ошибку я сделал!"

Местоимение **what** относится обычно к существительному, перед которым могут находиться еще и определяющие его прилагательное или наречие:

What a beautiful house that is! *Какой это красивый дом!*
What beautiful hair she has got! *Какие у нее прекрасные волосы!*
What interesting news I've heard! *Какую интересную новость я узнал!*
What a cold day it is! *Какой холодный день!*
What clever people they are! *Какие они умные люди!*
What a large house that is! *Какой это большой дом!*

А наречие **how** относится к прилагательному или наречию; предложение строится по схеме: **How** + прилагательное (наречие) + подлежащее + сказуемое:

How beautifully she sings! *Как красиво она поет!*
How slowly they run! *Как медленно они бегут!*
How far it is! *Как это далеко!*
How hot it was! *Как жарко было!*
How well she sings! *Как хорошо она поет!*
How quickly you walk! *Как быстро вы ходите! = Как вы быстро ходите!*

Если местоимение **what** определяет исчисляемое существительное в единственном числе, то это существительное употребляется с неопределенным артиклем:

What a foolish mistake I have made! *Какую глупую ошибку я сделал!*
What a beautiful girl she is! *Какая она красивая девушка!*
What a fine building that is! *Какое это красивое здание!*

С исчисляемым существительным во множественном числе и с неисчисляемым существительным артикль не употребляется:

What foolish mistakes I have made! *Какие глупые ошибки я сделал!*
What interesting books you have brought! *Какие интересные книги вы принесли!*
What fine weather it is! *Какая хорошая погода!*
What strange ideas he has! *Какие у него странные идеи!*

Чаще всего восклицательные предложения неполные. В них опускаются подлежащее, часть сказуемого, или все сказуемое целиком:

What a fine building (that is)! *Какое прекрасное здание!*
What a silly story (it is)! *Что за глупая история!*

What a funny girl (she is)! *До чего смешная девчонка!*
How late (it is)! *Как поздно!*
How wonderful! *Как замечательно!*
How beautiful! *Как красиво!*
What a girl! *Ну и девушка!*
How cold (it is)! *Как холодно!*

Порядок слов в английском предложении

В русском языке, благодаря наличию падежных окончаний, мы можем переставлять члены предложения, не меняя основного смысла высказывания. Например, предложения Студенты изучают эти планы и Эти планы изучают студенты совпадают по своему основному смыслу. Подлежащее в обоих случаях - студенты, хотя в первом предложении это слово стоит на первом месте, а во втором предложении - на последнем.

По-английски такие перестановки невозможны. Возьмём предложение The students study these plans Студенты изучают эти планы. Если подлежащее и дополнение поменяются местами, то получится бессмыслица: These plans study the students Эти планы изучают студентов. Произошло это потому, что слово plans, попав на первое место, стало подлежащим.

Английское предложение имеет твёрдый порядок слов.

Порядок слов в английском предложении показан в этой таблице:

I	II	III Дополнение			IV Обстоятельство
		Косвенное без предлога	Прямое	Косвенное с предлогом	
Подлежащее	Сказуемое				
We Мы	study изучаем		math математику		
He Он	gives дает	us нам	lessons уроки		in this room. в этой комнате
She Она	reads читает		her notes свои заметки	to Peter Петру	every day. каждый день

Вопросительное предложение

Общее правило построения вопросов в английском языке таково: Все вопросы (кроме специальных вопросов к подлежащему предложения) строятся путем инверсии. Инверсией называется нарушение обычного порядка слов в английском предложении, когда сказуемое следует за подлежащим.

В тех случаях, когда сказуемое предложения образовано без вспомогательных глаголов (в Present и Past Indefinite) используется вспомогательный глагол to do в требуемой форме - do/does/did.

Общие вопросы

Общий вопрос задается с целью получить подтверждение или отрицание высказанной в вопросе мысли. На общий вопрос обычно дается краткий ответ: "да" или "нет".

Для построения общего вопроса вспомогательный или модальный глагол, входящий в состав сказуемого, ставится в начале предложения перед подлежащим.

а) Примеры сказуемого с одним вспомогательным глаголом: Is he speaking to the teacher?
 - Он говорит с учителем?

б) Примеры сказуемого с несколькими вспомогательными глаголами:

You will be writing letters to us. – Ты будешь писать нам письма.

Will you be writing letters to us? – Будешь ли ты писать нам письма?

Примеры с модальными глаголами:

She can drive a car. – Она умеет водить машину.

Can she drive a car? - Она умеет водить машину? (Yes, she can.; No, she cannot)

Когда в составе сказуемого нет вспомогательного глагола (т.е. когда сказуемое выражено глаголом в Present или Past Indefinite), то перед подлежащим ставятся соответственно

формы do / does или did; смысловой же глагол ставится в форме инфинитива без to (словарная форма) после подлежащего.

С появлением вспомогательного глагола do на него переходит вся грамматическая нагрузка - время, лицо, число: в Present Indefinite в 3-м лице ед. числа окончание -s, -es смыслового глагола переходит на глагол do, превращая его в does; а в Past Indefinite окончание прошедшего времени -ed переходит на do, превращая его в did.

Do you go to school? – Ходишь ли ты в школу?

Do you speak English well? - Ты хорошо говоришь по-английски?

Ответы на общие вопросы

Общий вопрос требует краткого ответа "да" или "нет", которые в английском языке образуются следующим образом:

а) Положительный состоит из слова Yes за которым (после запятой) идет подлежащее, выраженное личным местоимением в им. падеже (никогда не используется существительное) и тот вспомогательный или модальный глагол, который использовался в вопросе (вспомогательный глагол согласуется с местоимением ответа);

б) Отрицательный ответ состоит из слова No, личного местоимения и вспомогательного (или модального) глагола с последующей частицей not

Например: Are you a student? - Ты студент?

Yes, I am. - Да.; No, I am not. - Нет.

Do you know him? – Ты знаешь его?

Yes, I do. – Да (знаю).; No, I don't. – Нет (не знаю).

Специальные вопросы

Специальный вопрос начинается с вопросительного слова и задается с целью получения более подробной уточняющей информации. Вопросительное слово в специальном вопросе заменяет член предложения, к которому ставится вопрос.

Специальные вопросы могут начинаться словами:

who? – кто? whom? – кого? whose? - чей? what? – что? какой? which? –
который?

when? – когда? where? – где? куда? why? – почему? how? – как?

how much? – сколько? how many? – сколько? how long? – как долго?
сколько времени?

how often? – как часто?

Построение специальных вопросов:

1) Специальные вопросы ко всем членам предложения, кроме подлежащего (и его определения) строятся так же, как и общие вопросы – посредством инверсии, когда вспомогательный или модальный глагол ставится перед подлежащим.

Специальный вопрос (кроме вопроса к подлежащему) начинается с вопросительного слова или группы слов за которым следуют вспомогательный или модальный глагол, подлежащее и смысловой глагол (сохраняется структура общего вопроса).

Вопрос к прямому дополнению:

What are you reading? Что ты читаешь?

What do you want to show us? Что вы хотите показать нам?

Вопрос к обстоятельству

Обстоятельства бывают разного типа: времени, места, причины, условия, образа действия и др.

He will come back tomorrow. – Он вернется завтра.

When will he come back? – Когда он вернется?

What did he do it for? Зачем он это сделал?

Where are you from?

Вопрос к определению

Вопрос к определению начинается с вопросительных слов what какой, which (of) который (из), whose чей, how much сколько (с неисчисляемыми существительными), how many сколько (с исчисляемыми существительными). Они ставятся непосредственно перед

определяемым существительным (или перед другим определением к этому существительному), а затем уже идет вспомогательный или модальный глагол.

What books do you like to read? Какие книги вы любите читать?

Which books will you take? Какие книги (из имеющихся) вы возьмете?

Вопрос к сказуемому

Вопрос к сказуемому является типовым ко всем предложениям: "Что он (она, оно, они, это) делает (делал, будет делать)?" , например:

What does he do? Что он делает?

Специальные вопросы к подлежащему

Вопрос к подлежащему (как и к определению подлежащего) не требует изменения прямого порядка слов, характерного для повествовательного предложения. Просто подлежащее (со всеми его определениями) заменяется вопросительным местоимением, которое исполняет в вопросе роль подлежащего. Вопросы к подлежащему начинаются с вопросительных местоимений:

who – кто (для одушевленных существительных)

what - что (для неодушевленных существительных)

The teacher read an interesting story to the students yesterday.

Who read an interesting story to the students yesterday?

Сказуемое в таких вопросах (после who, what в роли подлежащего) всегда выражается глаголом в 3-м лице единственного числа (не забудьте про окончание -s в 3-м лице ед. числа в Present Indefinite. Правила образования -s форм см. здесь.):

Who is reading this book? Кто читает эту книгу?

Who goes to school?

Альтернативные вопросы

Альтернативный вопрос задается тогда, когда предлагается сделать выбор, отдать чему-либо предпочтение.

Альтернативный вопрос может начинаться со вспомогательного или модального глагола (как общий вопрос) или с вопросительного слова (как специальный вопрос) и должен обязательно содержать союз or - или. Часть вопроса до союза or произносится с повышающейся интонацией, после союза or - с понижением голоса в конце предложения.

Например вопрос, представляющий собой два общих вопроса, соединенных союзом or:

Is he reading or is he writing?

Did he pass the exam or did he fail?

Вторая часть вопроса, как правило, имеет усеченную форму, в которой остается (называется) только та часть, которая обозначает выбор (альтернативу):

Is he reading or writing?

Разделительные вопросы

Основными функциями разделительных вопросов являются: проверка предположения, запрос о согласии собеседника с говорящим, поиски подтверждения своей мысли, выражение сомнения.

Разделительный (или расчлененный) вопрос состоит из двух частей: повествовательной и вопросительной.

Первая часть - повествовательное утвердительное или отрицательное предложение с прямым порядком слов.

Вторая часть, присоединяемая через запятую, представляет собой краткий общий вопрос, состоящий из местоимения, заменяющего подлежащее, и вспомогательного или модального глагола. Повторяется тот вспомогательный или модальный глагол, который входит в состав сказуемого первой части. А в Present и Past Indefinite, где нет вспомогательного глагола, употребляются соответствующие формы do/ does/ did.

В второй части употребляется обратный порядок слов, и она может переводиться на русский язык: не правда ли?, не так ли?, верно ведь?

1. Если первая часть вопроса утвердительная, то глагол во второй части стоит в отрицательной форме, например:

You speak French, don't you? You are looking for something, aren't you? Pete works at a plant, doesn't he?

2. Если первая часть отрицательная, то во второй части употребляется утвердительная форма, например:

It is not very warm today, is it? John doesn't live in London, does he?

Безличные предложения

Поскольку в английском языке подлежащее является обязательным элементом предложения, в безличных предложениях употребляется формальное подлежащее, выраженное местоимением *it*. Оно не имеет лексического значения и на русский язык не переводится.

Безличные предложения используются для выражения:

1. Явлений природы, состояния погоды: It is/(was) winter. (Была) Зима. It often rains in autumn. Осенью часто идет дождь. It was getting dark. Темнело. It is cold. Холодно. It snows. Идет снег.

2. Времени, расстояния, температуры: It is early morning. Раннее утро. It is five o'clock. Пять часов. It is two miles to the lake. До озера две мили. It is late. Поздно.

3. Оценки ситуации в предложениях с составным именным (иногда глагольным) сказуемым, за которым следует подлежащее предложения, выраженное инфинитивом, герундием или придаточным предложением: It was easy to do this. Было легко сделать это. It was clear that he would not come. Было ясно, что он не придет.

4. С некоторыми глаголами в страдательном залоге в оборотах, соответствующих русским неопределенно-личным оборотам: It is said he will come. Говорят, он придет.

Выполните упражнения для закрепления материала:

1. Write questions and answers for the following statements, as in the example.

- 1 Sam was hungry when he reached the restaurant.
...Was Sam hungry when he reached the restaurant? Yes. he was...
- 2 They should concentrate in class.
- 3 She can't speak any foreign languages.
- 4 They have to work overtime.
- 5 The boss was angry when Stuart arrived late.
- 6 The children didn't enjoy the film.
- 7 She wanted to go to the supermarket.
- 8 The train leaves at half past six.

2. Fill in *who, whose, what, which, where, when, how long, how often, what time, why, how much, how many or how long ago*.

1. ...How often ... do you play football?' Twice a week.'
2. '... does the train leave?' 'Nine o'clock.'
3. '... is Martin?' 'In the garden.'
4. '... is it?' 'Half past ten.'
5. '... does he earn?' '£1,000 a month.'
6. '... sisters have you got?' 'Two.'
7. '... is this book?' '£5.'
8. '... did he call?' 'To invite me out to dinner.'
9. '... is the new driver like?' 'He's very friendly.'
10. '... shall we do this evening?' 'Let's go out.'
11. '... is the office party?' 'On Saturday.'
12. '... have you been waiting?' 'About half an hour.'
13. '... is that briefcase?' 'I think it's Tom's.'
14. '... of these rings do you prefer?' 'The gold one.'

15. '... spilt coffee on the desk?' 'I did. Sorry.'
16. '... did you get your exam results?' 'Last Friday.'
17. '... did you meet Jessie?' 'Two years ago.'
18. '... is the easiest way to get to the cinema?' 'Go through the city centre.'

3. Write questions to which the words in bold are the answers.

- 1 They live **near the beach**.
...Where do they live?...
- 2 It takes **ten minutes** to drive to the supermarket.
- 3 George is **selfish**.
- 4 Mary is **tall, with dark hair and green eyes**.
- 5 I go swimming **twice a week**.
- 6 **The joke** made them laugh.
- 7 They are **Miss Drake's** books.
- 8 The shoes cost **twenty pounds**.
- 9 The film starts **at 7 pm**.
- 10 **Mr Samson** wants to open a shop.
- 11 Todd has been **to Spain**.
- 12 **She is happy because** she has won the competition.
- 13 Alan is a **very serious** person.
- 14 They moved here **six months ago**.

4. Write questions to which the words in bold are the answers.

Louise is **eight years old**. She lives in **Brighton, England**, and she has lived there **since she was two years old**. Louise goes to school every day and her favourite subjects are **English and History**. She has **two** brothers. Their names are **Steven and James**. Louise has several hobbies, such as **collecting wild flowers and playing the violin**. She practises the violin **every evening**. Her mother enjoys this, **because she likes listening to music**.

5. Write questions to which the words in bold are the answers.

- 1 Mark is decorating **the living room**.
...What is Mark decorating?...
- 2 She found **Steven's** wallet.
- 3 **Mum** made these cakes.
- 4 **Fiona's** dress was ruined at the party.
- 5 Melissa is wearing **a blue dress**.
- 6 **Bob** is the older of the two brothers.
- 7 Stacey has bought **a new bag**.
- 8 I like **the blue** jumper best.
- 9 **The roof** was blown off in the storm.
- 10 I ran into **Jason** the other day.
- 11 I spoke to the **manager's** secretary about my complaint
- 12 **The Ethiopian runner** won the 1500m race.

6. Complete the questions.

- 1 Ryan won two races.
a 'Who ...*won two races*...?' 'Ryan.'
b 'How many ...*races did Ryan win*...?' 'Two.'
- 2 Stanley goes swimming three times a week.
a 'Who ... ?' 'Stanley.'
b 'How often ... ?' 'Three times a week.'
- 3 There are two shirts. The yellow one is mine.
a 'Which ... ?' 'The yellow one.'

- b 'Whose ... ?' 'Mine.
 4 Steven has broken Jim's mug.
 a 'Whose ... ?' 'Jim's.
 b 'Who ... ?' 'Steven.
 5 Linda is going to the theatre this evening.
 a 'Who ... ?' 'Linda.
 b 'Where ... ?' 'To the theatre.
 6 Anne bought Ralph a present yesterday.
 a 'Who ... ?' 'Anne.
 b 'Who ... ?' 'Ralph.
 7 There are two bags. The one on the chair is Fay's.
 a 'Whose ... ?' 'Fay's.
 b 'Which ... ?' 'The one on the chair.'

7. Use the prepositions in brackets to write questions to match the statements.

- 1 She bought some flowers. Who ...*did she buy them for?* ... (for)
 2 I got an invitation this morning. Who ...? (from)
 3 Pedro comes from Spain. Where exactly ...? (from)
 4 I read an interesting article yesterday. What ...? (about)
 5 Lisa is excited. What ...? (about)
 6 Linda played tennis. Who ...? (with)
 7 Sam wrote a letter. Who ...? (to)
 8 I went to a restaurant last night. Who ...? (with)

8. Write the short form of the following negative questions.

- 1 Has she not replied to your letter yet?
 ...*Hasn't she replied to your letter yet?*...
 2 Do they not live here any more?
 3 Can she not drive a car?
 4 Does he not understand what he has to do?
 5 Do you not know the answer to this question?
 6 Did he not offer you anything to drink?
 7 Have we not got any milk left?
 8 Could you not do anything to help him?

9. Make negative questions using the words given, as in the example.

- 1 A: I'm really tired today.
 B: Why? ...*Didn't you go...* (go) to bed early last night?
 2 A: ... (know) what time the film starts?
 B: No, but I'll phone the cinema and ask now.
 3 A: Let's go to see the new Brad Pitt film tonight.
 B: ... (already/see) it?
 4 A: ... (help) me make dinner?
 B: No, sorry. I'm very busy at the moment.
 5 A: ... (type) the reports yet?
 B: No, sir. I'll finish them before I go home, though.
 6 A: ... (cold)?
 B: No. Actually I think it's quite warm in here.

10. Turn the following into indirect questions.

- 1 Who left this bag here? Do you know ...*who left this bag here?*...
 2 Who is that woman? We need to find out ...
 3 What time does the next train leave? Can you tell me ...

- 4 How much does this dress cost? Could you tell me ...
 5 Where does Mary live? I don't know ...
 6 Are the police investigating the robbery? Have you any idea ...
 7 Did the caller leave a message? I'd like to find out ...
 8 Is he the manager? I'd like to know ...
 9 Who reported the crime? Do you know ...
 10 How did they find the missing jewellery? Have you any idea ...

11. Decide if the statement after each exchange is true (T) or false (F).

- 1 Mark: I love playing football.
 Paul: So do I.
 ...T... *Paul loves playing football.*
 2 Lucy: I don't enjoy watching horror films.
 Jessica: Neither do I.
 Jessica enjoys watching horror films.
 3 Simon: I have never been to America before.
 Steven: Neither have I.
 Steven has never been to America before.
 4 Richard: I have got a lot of pen-friends.
 Julia: So have I.
 Julia hasn't got a lot of pen-friends.
 5 Belinda: I am going to take the bus to school.
 Lucy: So am I.
 Lucy is going to take the bus to school.

12. Fill in the gaps with appropriate responses.

- 1 A: I didn't go to the party last night.
 B: ...*Neither/Nor did I...* I wish I had, though.
 2 A: I enjoyed that film.
 B: It was brilliant.
 3 A: I don't like omelettes.
 B: I think they're horrible.
 4 A: I'm not looking forward to this exam.
 B: I'm sure it will be very difficult.
 5 A: I'm going to York next weekend.
 B: ... ! Perhaps I'll see you there.
 6 A: I've just bought a new car.
 B: Mine is a Rover.
 7 A: I haven't got any pets.
 B: I used to have a dog, though.
 8 A: I was quite ill last week.
 B: I had the flu.

13. Fill in the blanks with phrases using the verbs given and so or not.

- 1 A: Are they going on holiday this year?
 B: ...*I don't imagine so...* (imagine). They haven't saved any money.
 2 A: Is Debbie ill?
 B: ... (think). I saw her in town this morning.
 3 A: Did John fail his exams?
 B: ... (afraid). He'll have to take them again.
 4 A: Will you be finished soon?
 B: (expect). I haven't got much left to do.
 5 A: Can you come to the meeting after work?

- B: ... (think). I haven't got any other plans.
 6 A: Have they sold their house?
 B: ... (appear). There's a 'sold' sign up outside.
 7 A: Has he got a new car?
 B: ... (believe). I saw him driving a different one last week.
 8 A: Could you lend me some money, please?
 B: ... (afraid). I haven't got any.
 9 A: Are you going anywhere nice this weekend?
 B: ... (suppose). My boss wants me to work.

14. Fill in the correct question tags and short answers.

- 1 A: You've seen that film, ...*haven't you*...?
 B: Yes, ...*I have*....
 2 A: They want to go skiing this year, ... ?
 B: No,They want to go on an adventure holiday.
 3 A: He'll probably be hungry when he comes in, ... ?
 B: Yes,I'll make him some sandwiches.
 4 A: She likes going to the cinema, ... ?
 B: NoShe prefers going to the theatre.
 5 A: You've been to university, ... ?
 B: Yes,
 6 A: I'm a bit younger than Sally, ... ?
 B: Yes,
 7 A: They aren't moving, ... ?
 B: Yes,
 8 A: You won't forget to call me, ... ?
 B: No,Don't worry.
 9 A: You took some photographs at the ceremony, ... ?
 B: Yes,... .They're in this album.
 10 A: He knows I'm planning a party for him, ... ?
 B: No,He doesn't suspect a thing.
 11 A: They have bought a new car, ... ?
 B: Yes,It's a Volvo.
 12 A: He works for his father, ... ?
 B: Yes,His father owns a large company.
 13 A: I'm not late, ... ?
 B: No,You're just on time.
 14 A: They'll be here in a minute, ... ?
 B: Yes, We'd better tidy up.
 15 A: You did the washing-up, ... ?
 B: Yes, ... , and I cleaned the kitchen.

15. Underline the correct answer.

- 1 A: You're new here, **are you/aren't you?**
 B: Yes. I started work here yesterday.
 A: Ah. Well, you've met everyone in the office, **hadn't you/haven't you?**
 B: Yes. There are a lot of people working here, **aren't they/aren't there?**
 2 A: You will remember to lock all the doors when you leave, **will you/won't you?**
 B: Of course. I'm not stupid, **am I/aren't I?**
 A: No. But you forgot to lock the doors last week, **didn't you/did you?**
 B: You're not going to let me forget that, **aren't you/are you?**
 3 A: You haven't seen Linda lately, **have you/haven't you?**
 B: I saw her today. I told you, **did I/didn't I?**

A: Oh, yes! She didn't mention the party, **did she/didn't she?**

B: No, she didn't. It's tomorrow night, **is it/isn't it?**

16. Fill in the question tags.

- 1 You haven't got any money, ...*have you*...?
- 2 There's some water in the jug, ...?
- 3 She will be here on time, ...?
- 4 Mum can give me a lift, ...?
- 5 You know my brother, ...?
- 6 They live together, ...?
- 7 We have plenty of time, ...?
- 8 That boy is very clever, ...?
- 9 You have a car, ...?
- 10 The train will arrive soon, ...?
- 11 He has finished his homework, ...?
- 12 That's my wallet, ...?

Тема 6: Основные правила презентации научно-технической информации

6.1 Запомните слова и выражения, необходимые для освоения темы курса:

Начало презентации

Good morning / afternoon / evening ladies and gentlemen	Доброе утро / день / вечер дамы и господа
My name is... I am ...	Меня зовут ... Я являюсь ...
Today I would like to talk with you about ...	Сегодня я хотел бы поговорить с вами о...
My aim for today's presentation is to give you information about ...	Цель моей сегодняшней презентации – проинформировать вас о...
I have been asked to comment on what I think of the way ...	Меня попросили сказать / прокомментировать, что я думаю о способе ...
Please feel free to interrupt me if there are any questions.	Пожалуйста, не стесняйтесь прерывать меня, если возникнут любые вопросы.
If you have any questions, please feel free to ask me at the end of the presentation.	Если у вас есть какие-либо вопросы, пожалуйста, задайте их по окончании презентации.

Сообщение о плане презентации

At the outset ...	Вначале ...
First of all, ... / Above all, ...	Прежде всего ...
First I would like to talk about ...	Сначала я хотел бы сказать о ...
I'd like to start by saying ...	Я бы хотел начать с ...
Before discussing ...	Перед тем как обсуждать ...
Describing this process, it is necessary to start with ...	Описывая этот процесс, необходимо начать с ...
Firstly, we must become accustomed to the terminology, which uses ...	Сначала мы должны ознакомиться с терминологией, которую использует ...
I'd like to come to the right point ...	Я бы хотел сразу приступить к делу ...
I am going to divide my review / report / article into 3 areas / parts ...	Я собираюсь разделить свой обзор / доклад / статью на 3 части ...
I will begin with a definition of ..., then go on to a brief review ...	Я начну с определения ..., затем перейду к краткому обзору ...
Let us start by mentioning a few facts ...	Давайте начнем с упоминания некоторых фактов ...
Then I would like to take a look at...	Затем я хотел бы взглянуть на ...
Following that we should talk about ...	Вслед за этим мы должны поговорить о ...
Lastly we are going to discuss ...	В заключение мы обсудим ...
I would like to talk to you today about _____ for _____ minutes.	Сегодня я хотел бы поговорить с вами о _____ в течение _____ минут.
We should be finished here today by _____ o'clock.	Мы должны закончить сегодня к _____ часам.

Управление презентацией

Now we will look at ...	Сейчас мы посмотрим на ...
I'd like now to discuss...	Я бы хотел обсудить сейчас ...
Before moving to the next point I need to ...	Прежде чем перейти к следующему вопросу, мне необходимо ...
Let's now talk about...	Давайте сейчас поговорим о ...
Let's now turn to...	Давайте перейдем сейчас к ...
Let's move on to...	Давайте перейдем к ...
That will bring us to our next point ...	Это приведет нас к нашему следующему пункту ...
Moving on to our next point ...	Переходим к нашему следующему пункту ...
Let us now turn to ..., namely to ...	Теперь перейдем к ..., а именно к ...

We come now to the description of ...	Теперь мы подошли к описанию ...
Let's switch to another topic ...	Перейдем на другую тему ...
Let us now proceed to consider how ...	Давайте перейдем к рассмотрению того, как ...
Firstly ...	Во-первых ...
Secondly ...	Во-вторых ...
Thirdly ...	В-третьих ...
I'd like to describe in detail ...	Я бы хотел подробно описать ...
Let's face the fact ...	Давайте обратимся к факту ...
Consider another situation.	Рассмотрим другую ситуацию ...
Let's go back a bit to ...	Давайте немного вернемся к ...
It will take up too much time / space ...	Это займет слишком много времени / места ...
This point will be discussed later / after ...	Этот вопрос будет обсуждаться позднее / после ...
Lastly ...	Наконец / в заключение ...
Eventually we must confess ...	В конечном итоге, мы должны признаться ...
Now we come to the final phase of ...	Теперь перейдем к заключительному этапу ...
One more question remains to discuss ...	Остается еще один вопрос для обсуждения ...
And the last point, ...	И последний вопрос / замечание, ...
A final remark.	Последнее замечание.
Подведение итогов	
I would just like to sum up the main points again ...	Я бы еще раз хотел подвести итоги основных пунктов ...
If I could just summarize our main points before your questions. So, in conclusion ...	Я хочу только подвести итоги наших главных пунктов перед тем, как вы начнете задавать вопросы. Итак, в заключение ...
Finally let me just sum up today's main topics ...	В заключение, позвольте мне подвести итоги сегодняшних основных тем ...
Concluding what has been said above, I want to stress that ...	Подводя итог тому, что было сказано выше, я хочу подчеркнуть, что ...
I will sum up what has been said ...	Я подытожу все сказанное ...
To conclude this work ...	В завершение этой работы ...
To summarize, the approach to ... described here is ...	Резюмируем: подход к ..., описанный здесь, состоит в ...
We arrived at the conclusion that ...	Мы пришли к заключению, что ...
We shouldn't rush to a conclusion ...	Мы не должны делать поспешный вывод ...
We find the following points significant ...	Мы находим важными следующие моменты ...
We can draw just one conclusion since ...	Мы можем сделать лишь один вывод, поскольку ...
As a summary I would like to say that ...	В качестве обобщения, я бы хотел сказать, что ...
Finally, the results are given in ...	И, наконец, результаты представлены в ...
Уточнения	
I'm sorry, could you expand on that a little?	Простите, можно немножко поподробнее?
Could you clarify your question for me?	Могли бы вы прояснить этот вопрос для меня?
I'm sorry I don't think I've understood your question, could you rephrase it for me?	Извините, по-моему, я не понял вашего вопроса. Могли бы вы изложить его иначе (перефразировать) для меня?
I think what you are asking is ...	Я думаю то, о чем вы спрашиваете, это ...
If I've understood you correctly you are asking about ...	Если я правильно вас понял, вы спрашиваете о ...
So you are asking about ...	Итак, вы спрашиваете о ...
Thus ...	Таким образом ...
Thus we see ...	Таким образом, мы видим ...
In consequence ...	В результате ...

In consequence of ...	Вследствие ...
Turning now to possible variants ...	Переходя теперь к возможным вариантам ...
We can further divide this category into two types ...	В дальнейшем мы можем разделить эту категорию на два типа ...
>We can now go one step further ...	Теперь мы можем продвинуться на шаг вперед ...
That is why we have repeatedly suggested that ...	Вот почему мы неоднократно предлагали ...
However this conclusion may turn out to be hasty, if ...	Однако этот вывод может оказаться поспешным, если ...
Maybe we could get definite results at an earlier date ...	Возможно, мы могли бы получить определенные результаты на более раннюю дату (раньше) ...
No definite conclusions have so far been reached in these discussions ...	В ходе этих дискуссий так и не были сделаны какие-либо определенные выводы ...
Results are encouraging for ...	Результаты обнадеживающие, поскольку ...
Results from such research should provide ...	Результаты такого исследования должны обеспечить ...
That yields no results ...	Это не дает никаких результатов ...
The logical conclusion is that ...	Логическим заключением является то, что ...
The result was astounding ...	Результат был ошеломляющим ...
The results are not surprising ...	Результаты неудивительны ...
Then eventually I came to the conclusion that ...	Затем, со временем, я пришел к выводу, о том что ...
There are two important consequences of ...	Есть два важных следствия ...
The first step is to develop ...	Первый шаг состоит в том, чтобы разработать ...
The second phase of is that ...	Второй этап ... в том, чтобы ...
There are two main stages in the procedure ...	В данной процедуре есть два главных этапа ...
Although I think that ...	Хотя я полагаю, что ...
I strongly believe that ...	Я решительно полагаю, что ...
In order to understand ...	Для того чтобы понять ...
It has to be said that ...	Необходимо сказать, что ...
Many experts are coming to believe that only ...	Многие эксперты все больше приходят к убеждению, что только ...
Some experts, however, think that ...	Некоторые эксперты, однако, думают, что ...
Someone may say that ...	Кто-то может сказать, что ...
Though we used to think ...	Хотя мы привыкли полагать ...
It is generally considered that ...	Обычно полагают, что ...
We should realize that ...	Мы должны осознавать, что ...
Now we understand why it is so hard to ...	Теперь мы понимаем, почему так трудно ...
Consider how it can be done ...	Рассмотрим, как это может быть сделано ...
At first glance it would seem that ...	На первый взгляд могло бы показаться, что ...
It can be viewed in a different light ...	Можно иначе смотреть на это ...
It has been assumed that ...	Предполагалось, что ...
Let us assume for a moment that ...	Предположим на минуту, что ...
Suppose, for example, that ...	Предположим, например, что ...
Though it might seem paradoxical, ...	Хотя это могло бы показаться парадоксальным ...
You might know that ...	Вы, возможно, знаете, что ...
But it can be claimed that ...	Но можно утверждать, что ...
Let us not forget that ...	Давайте не будем забывать, что ...
This simplified approach ignores the importance of ...	Этот упрощенный подход игнорирует важность ...

6.2 Подготовьте устный рассказ по теме на основе предложенного:

A presentation is the practice of showing and explaining the content of a topic to an audience or learner. In the business world, there are sales presentations, informational and motivational presentations, interviews, status reports, image-building, and training sessions.

Students are often asked to make oral presentations. You might have been asked to research a subject and use a presentation as a means of introducing it to other students for discussion.

Before you prepare for a presentation, it is important that you think about your objectives. There are three basic purposes of giving oral presentations: to inform, to persuade, and to build goodwill.

Decide what you want to achieve:

- inform – to provide information for use in decision making;
- persuade – to reinforce or change a receiver’s belief about a topic;
- build relationships – to send some messages which have the simple goal of building good-will

between you and the receiver.

Preparation

A successful presentation needs careful background research. Explore as many sources as possible, from press cuttings to the Internet. Once you have completed your research, start writing for speech bearing in mind the difference between spoken and written language. Use simple, direct sentences, active verbs, adjectives and the pronouns “you” and “I”.

Structuring a Presentation

A good presentation starts with a brief introduction and ends with a brief conclusion. The introduction is used to welcome your audience, introduce your topic/ subject, outlines the structure of your talk. The introduction may include an icebreaker such as a story, an interesting statement or a fact. Plan an effective opening; use a joke or an anecdote to break the ice. The introduction also needs an objective, that is, the purpose or goal of the presentation. It informs the audience of the purpose of the presentation too.

Next, ***the body*** of the presentation comes. Do not write it out word for word. All you want is an outline. There are several options for structuring the presentation:

- 1) Timeline: arrangement in a sequential order.
- 2) Climax: the main points are delivered in order of increasing importance.
- 3) Problem/ Solution: a problem is presented, a solution is suggested.
- 4) Classification: the important items are the major points.
- 5) Simple to complex: ideas are listed from the simplest to the most complex; it can also be done in a reverse order.

After the body, comes ***the closing***. A strong ending to the presentation is as important as an effective beginning. You should summarise the main points. This is where you ask for questions, provide a wrap-up (summary), and thank the participants for attending.

Each successful presentation has three essential objectives: the three Es – to educate, to entertain, to explain.

The main objective of making a presentation is to relay information to your audience and to capture and hold their attention. Adult audience has a limited attention span of about 45 minutes. In that time, they will absorb about a third of what you said, and a maximum of seven concepts. Limit yourself to three or four main points, and emphasise them at the beginning of your speech, in the middle, and again at the end to reiterate your message. You should know your presentation so well that during the actual presentation you should only have to briefly glance at your notes.

People process information in many ways. Some learn visually, others learn by listening, and the kinesthetic types prefer to learn through movement. It’s best to provide something for everyone. Visual learners learn from pictures, graphs, and images. Auditory learners learn from listening to a speaker. And, kinesthetic learners like to be involved and participate.

Scientific report writing requires the use of certain techniques and conventions that are detailed, strict and not always easy to master. The main purpose of a scientific report is to communicate. A typical structure and style have evolved to convey essential information and ideas as concisely and effectively as possible. The main aim of the report is to state your opinion on the issue or to provide precise information about a practical investigation.

Audience. Assume that your intended reader has a background similar to yours before you started the project. That is, a general understanding of the topic but no specific knowledge of the details. The reader should be able to reproduce whatever you did by following your report.

Clarity of Writing. Good scientific reports share many of the qualities found in other kinds of writing. To write is to think, so a paper that lays out ideas in a logical order will facilitate the same kind of thinking. Make each sentence follow from the previous one, building an argument piece by piece. Group related sentences into paragraphs, and group paragraphs into sections. Create a flow from beginning to end.

Style. It is customary for reports to be written in the third person or the 'scientific passive', for example, instead of writing 'I saw', one writes 'it was observed'; rather than, 'I think that ...' one writes 'it could be stated that ...' and so on. Avoid jargon, slang, or colloquial terms. Define acronyms and any abbreviations not used as standard measurement units. Most of the report describes what you did, and thus it should be in the past tense (e.g., "values were averaged"), but use present or future tense as appropriate (e.g., "x is bigger than y" or "that effect will happen"). Employ the active rather than passive voice to avoid boring writing and contorted phrases (e.g., "the software calculated average values" is better than "average values were calculated by the software").

Typical Sections. There are four major sections to a scientific report, sometimes known as IMRAD – Introduction, Methods, Results, And Discussion. Respectively, these sections structure your report to say "here's the problem, here's how I studied it, here's what I found, and here's what it means." There are additional minor sections that precede or follow the major sections including the title, abstract, acknowledgements, references, and appendices. All sections are important, but at different stages to different readers. When flipping through a journal, a reader might read the title first, and if interested further then the abstract, then conclusions, and then if he or she is truly fascinated perhaps the entire paper. You have to convince the reader that what you have done is interesting and important by communicating appeal and content in all sections.

Title of the report. Convey the essential point of the paper. Be precise, concise, and use key words. Avoid padding with phrases like "A study of ..." or headlines like "Global warming will fry Earth!" It is usual to write the title as one phrase or sentence. A good title is brief and informative. Titles should not exceed 10 or 12 words, and they should reveal the content of the study. Many titles take one of these two forms: a simple nominal sentence (Asymmetric Information, Stock Returns and Monetary Policy) or beginning with The effect of (for example, The Effects of Financial Restrictions and Technological Diversity on Innovation). Sometimes it is impossible to make word-by-word translation from Russian into English, for example, Об оценке работы фирмы should be translated as Assessing the Firm Performance or К проблеме хеджевых фондов is translated as Hedge Funds. Sometimes the title contains two parts, the first one is the topic, while the second is its specific details (International Financial Contagion: Evidence from the Argentine Crisis of 2001- 2002). If the report is of a very problematic issue its title may be in the form of a question (Was There a Credit Crunch in Turkey?)

Introduction. This section should contain a brief history of the research problem with appropriate references to the relevant literature and the purpose of the study. Introduce the problem, moving from the broader issues to your specific problem, finishing the section with the precise aims of the paper (key questions). Craft this section carefully, setting up your argument in logical order. Refer to relevant ideas/theories and related research by other authors. Answer the question "what is the problem and why is it important?" The introduction should also explain whether the study is an extension of a previous one, or whether a completely new hypothesis is to be tested. The final section of the introduction generally includes a list of all the hypotheses being tested in the study. The results of the current study are not to be referred to in the introduction.

You may use the following expressions:

This paper	aims at deals with, considers describes examines presents reports on	Настоящий доклад имеет своей целью... В настоящем докладе рассматриваются... В настоящем докладе делается описание... В настоящем докладе исследуется ... В настоящем докладе представлен... В настоящем докладе сообщается о ...
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Examples of an Introduction

A. There has been a European Union foreign policy, confirmed in constitutional form in the Union Treaty, since 1993. The first decade, most commentators agree, has proved to be difficult: 'painful and problematic' according to one. As the twenty-first century progresses, replete with an array of new challenges, the need for a reassessment, and perhaps reinvigoration of Union 'foreign and security policy' is widely argued. The purpose of this article is to provide both a retrospective, of the evolution of the Union's foreign policy so far, and a prospective, of the challenges which it presently faces.

B. This paper examines companies incorporated under the Companies Act 1985. Its purpose is to consider the suitability of such companies for not-for-profit-organisations ('NFPOs').

Methods. Explain how you studied the problem, which should follow logically from the aims. Depending on the kind of data, this section may contain subsections on experimental details, materials used, data collection/sources, analytical or statistical techniques employed, study area, etc. Provide enough detail for the reader to reproduce what you did. Include flowcharts, maps or tables if they aid clarity or brevity. Answer the question "what steps did I follow?" but do not include results yet. Here you may use such expressions as:

A method of ... is proposed	Предлагается метод...
Data on... are discussed	Обсуждаются данные по ...
Present data encompass a period of ...	Настоящие данные охватывают период в
The design of the experiments was to reveal...	Эксперименты были направлены на выявление
	...
The effect of... on... is discussed	Обсуждается влияние ... на ...
The methods used for ... are discussed	Описываются методы, используемые для ...

Results. Explain your actual findings, using subheadings to divide the section into logical parts, with the text addressing the study aims. Tables are an easy and neat way of summarizing the results. An alternative or additional way of presenting data is in the form of line graphs, bar-charts, pie-charts, etc. Graphs, charts and illustrations are referred to as 'figures' (for example, Fig. 1) in the text of the report. All figures should be numbered in order of appearance in the text. For each table or graph, describe and interpret what you see (you do the thinking -- do not leave this to the reader). Expressions to describe results obtained may be:

The most important results are as follows	Самые важные результаты имеют следующий вид...
The results indicate the dominant role of	Результаты указывают на доминирующую роль...
The results of ... are discussed	Обсуждаются результаты ...
The results of observations are supported by...	Результаты наблюдений дополняются

Discussion. This is the most difficult section of a report to write and requires considerable thought and care. Essentially it is a consideration of the results obtained in the study, guided by any statistical tests used, indicating whether the hypotheses tested are considered true or are to be rejected.

This is best thought of in three steps: the main results must be very briefly summarized; the procedure must be critically assessed and weaknesses noted; and a final evaluation of the results made

in terms of the design, leading to a final judgment concerning the hypotheses being tested. The discussion can only refer to results, which are presented in the results section. Any detailed results which only appear in the appendixes cannot be discussed.

Evaluation of the results should include reference to other research with indications as to whether or not the current findings are in agreement with other findings (that is, reference is made to the introduction). The main conclusions reached should be summarized at the end of the discussion. Suggestions for follow-up research can also be given.

Discuss the importance of what you found, in light of the overall study aims. Stand back from the details and synthesize what has (and has not) been learned about the problem, and what it all means. Say what you actually found, not what you hoped to find. Begin with specific comments and expand to more general issues. Recommend any improvements for further study. Answer the question "what is the significance of the research?"

Important Note: this section is often combined with either the Results section or the Conclusions section. Decide whether understanding and clarity are improved if you include some discussion as you cover the results, or if discussion material is better as part of the broader summing up.

Conclusions. Restate the study aims or key questions and summarize your findings using clear, concise statements. Keep this section brief and to the point.

Acknowledgments. This is an optional section. Thank people who directly contributed to the paper, by providing data, assisting with some part of the analysis, proofreading, typing, etc. It is not a dedication; so don't thank Mom and Dad for bringing you into the world, or your roommate for making your coffee.

References. Within the text, cite references by author and year unless instructed otherwise, for example "Comrie (1999) stated that ..." or "several studies have found that x is greater than y (Comrie 1999; Smith 1999)." For two authors, list both names, and for three or more use the abbreviation "et al." (note the period) following the first name, for example "Comrie and Smith (1999)" or "Comrie et al. (1999)." Attribute every idea that is not your own to avoid plagiarism.

6.3 Систематизация грамматического материала:

Согласование времен в английском предложении (Sequence of Tenses)

Если в главном предложении сказуемое выражено глаголом в одной из форм прошедшего времени, то в придаточном предложении употребление времен ограничено. Правило, которому в этом случае подчиняется употребление времен в придаточном предложении, называется согласованием времен.

Правило 1: Если глагол главного предложения имеет форму настоящего или будущего времени, то глагол придаточного предложения будет иметь любую форму, которая требуется смыслом предложения. То есть никаких изменений не произойдет, согласование времен здесь в силу не вступает.

Правило 2: Если глагол главного предложения имеет форму прошедшего времени (обычно Past Simple), то глагол придаточного предложения должен быть в форме одного из прошедших времен. То есть в данном случае время придаточного предложения изменится. Все эти изменения отражены в нижеследующей таблице:

Переход из одного времени в другое	Примеры	
Present Simple » Past Simple	He can speak French – Он говорит по-французски.	Boris said that he could speak French – Борис сказал, что он говорит по-французски.
Present Continuous » Past Continuous	They are listening to him – Они слушают его	I thought they were listening to him – Я думал, они слушают его.
Present Perfect » Past Perfect	Our teacher has asked my parents to help him – Наш учитель попросил моих	Mary told me that our teacher had asked my parents to help him – Мария сказала мне, что наш

	родителей помочь ему.	учитель попросил моих родителей помочь ему.
Past Simple » Past Perfect	I invited her – Я пригласил ее.	Peter didn't know that I had invited her – Петр не знал, что я пригласил ее.
Past Continuous » Past Perfect Continuous	She was crying – Она плакала	John said that she had been crying – Джон сказал, что она плакала.
Present Perfect Continuous » Past Perfect Continuous	It has been raining for an hour – Дождь идет уже час.	He said that it had been raining for an hour – Он сказал, что уже час шел дождь.
Future Simple » Future in the Past	She will show us the map – Она покажет нам карту.	I didn't expect she would show us the map – Я не ожидал, что она покажет нам карту.

Изменение обстоятельств времени и места при согласовании времен.

Следует запомнить, что при согласовании времен изменяются также некоторые слова (обстоятельства времени и места).

- this » that
- these » those
- here » there
- now » then
- yesterday » the day before
- today » that day
- tomorrow » the next (following) day
- last week (year) » the previous week (year)
- ago » before
- next week (year) » the following week (year)

Прямая и косвенная речь

Перевод прямой речи в косвенную в английском языке

Для того чтобы перевести прямую речь в косвенную, нужно сделать определенные действия. Итак, чтобы передать чьи-то слова в английском языке (то есть перевести прямую речь в косвенную), мы:

1. Убираем кавычки и ставим слово that

Например, у нас есть предложение:

She said, "I will buy a dress". Она сказала: «Я куплю платье».

Чтобы передать кому-то эти слова, так же как и в русском, мы убираем кавычки и ставим слово that – «что».

She said that Она сказала, что....

2. Меняем действующее лицо

В прямой речи обычно человек говорит от своего лица. Но в косвенной речи мы не можем говорить от лица этого человека. Поэтому мы меняем «я» на другое действующее лицо. Вернемся к нашему предложению:

She said, "I will buy a dress". Она сказала: «Я куплю платье».

Так как мы передаем слова девушки, вместо «я» ставим «она»:

She said that she Она сказала, что она....

3. Согласовываем время

В английском языке мы не можем использовать в одном предложении прошедшее время с настоящим или будущим. Поэтому, если мы говорим «сказал» (то есть используем прошедшее время), то следующую часть предложения нужно согласовать с этим прошедшем временем. Возьмем наше предложение:

She said, "I will buy a dress". Она сказала: «Я куплю платье».

Чтобы согласовать первую и вторую части предложения, меняем will на would. см. таблицу выше.

She said that she would buy a dress. Она сказала, что она купит платье.

4. Меняем некоторые слова

В некоторых случаях мы должны согласовать не только времена, но и отдельные слова. Что это за слова? Давайте рассмотрим небольшой пример.

She said, "I am driving now". Она сказала: «Я за рулем сейчас».

То есть она в данный момент за рулем. Однако, когда мы будем передавать ее слова, мы будем говорить не про данный момент (тот, когда мы говорим сейчас), а про момент времени в прошлом (тот, когда она была за рулем). Поэтому мы меняем now (сейчас) на then (тогда) см. таблицу выше.

She said that she was driving then. Она сказала, что она была за рулем тогда.

Вопросы в косвенной речи в английском языке

Вопросы в косвенной речи, по сути, не являются вопросами, так как порядок слов в них такой же, как в утвердительном предложении. Мы не используем вспомогательные глаголы (do, does, did) в таких предложениях.

He asked, "Do you like this cafe?" Он спросил: «Тебе нравится это кафе?»

Чтобы задать вопрос в косвенной речи, мы убираем кавычки и ставим if, которые переводятся как «ли». Согласование времен происходит так же, как и в обычных предложениях. Наше предложение будет выглядеть так:

He asked if I liked that cafe. Он спросил, нравится ли мне то кафе.

Давайте рассмотрим еще один пример:

She said, "Will he call back?" Она сказала: «Он перезвонит?»

She said if he would call back. Она сказала, перезвонит ли он.

Специальные вопросы в косвенной речи

Специальные вопросы задаются со следующими вопросительными словами: what – что when – когда how – как why – почему where – где which – который

При переводе таких вопросов в косвенную речь мы оставляем прямой порядок слов (как в утвердительных предложениях), а на место if ставим вопросительное слово.

Например, у нас есть вопрос в прямой речи:

She said, "When will you come?" Она сказала: «Когда ты придешь?»

В косвенной речи такой вопрос будет выглядеть так:

She said when I would come. Она сказала, когда я приду.

He asked, "Where does she work?" Он спросил: «Где она работает?»

He asked where she worked. Он спросил, где она работает.

Выполните упражнения для закрепления материала:

1. Ruth met lots of students when she went to visit a university last month. Read their words, then report what they said.

e.g. I Sarah told her (that) she had made lots of friends.

1. I've made lots of friends. (Sarah)
2. The library is huge. (Tina)
3. I'm learning lots of interesting things. (Paul)
4. The teachers are very friendly. (Simon)
5. I will always remember my time here. (Elaine)
6. I'm taking my final exams next month. (Roger)

2. Turn the following sentences into reported speech.

1. Robert said, 'This film is very funny'.
...Robert said (that) the film was very funny....

- 2 'I'm starting a new job next week,' she said.
 3 'I got my exam results last week,' he told them.
 4 'I can't afford to buy this dress,' said Sally.
 5 'I would buy a car if I had enough money,' he said to her.
 6 Frank said, 'That's the house where I was born.'
 7 'That was a wonderful party,' said Jill.
 8 'Oranges grow in hot countries,' the teacher said.
 9 'A lot of people visit museums,' he said.
 10 'This is a very famous statue,' the tour guide told us.
 11 'I don't like that jacket,' said Bob.
 12 'I'm lost,' the boy said. (up-to-date reporting)
 13 'I may be a little late this evening,' she said.
 14 'You'd better clean up this mess,' Mum said to Claire.
 15 'I've already done the shopping,' she said. (up-to-date reporting)
 16 'I found this note under the sofa,' said Sue.
 17 'I won't be late again,' he said to us.
 18 'If I finish work early, I'll call you,' she said.
 19 'I've been training hard recently,' he told the reporters.
 20 'Shall I make some tea?' said Zoe.
 21 'We must go home now,' said the man to his children.
 22 'Those are the boys who chased me,' Sarah said.
 23 'I'm going to a party tonight,' Lynne told her friends (up-to-date reporting)
 24 'I used to have long hair,' Laura said.
 25 'There is too much violence on TV,' said Grandad.
 26 'You ought to make a decision soon,' Andrew told her.

3. Complete the sentences with your own ideas using reported speech, as in the example.

- 1 'I bought a new dress yesterday.'
 'Did you? But you told me ... *you had bought trousers.*' ...
 2 'Bill is moving house on Saturday.'
 'Is he?'
 3 'I like Chinese food a lot.'
 'Do you? '
 4 'Tom can speak German fluently.'
 'Can he? '
 5 'I haven't seen Anna for months.'
 'Haven't you? '
 6 'Sam is working for his father at the moment.'
 'Is he? '
 7 'I'm afraid I have to work this weekend.'
 'Do you? '
 8 'Janet knows about the surprise party.'
 'Does she?'

4. Turn the sentences into reported speech. In which of the following sentences do the tenses not change? In which do they not have to be changed? Why?

- 1 'The instructions say, 'The camera needs two batteries.'
The instructions say (that) the camera needs two batteries.
The tenses do not change because the introductory verb is in the present simple.
 2 'I've finished the letters you asked me to write,' Jill said.
 3 'Pandas live in China,' the teacher said.
 4 'Dad says, 'It's time for bed.'
 5 'I have to tidy my bedroom now,' Toby said.

- 6 The article says, 'There has been an increase in the number of university students.'
- 7 Mr Brown says, 'My son is going to work abroad.'
- 8 'I should have bought her a present,' he said.
- 9 'I'm never going to have a pet,' my sister always says.
- 10 Alison says, 'The taxi is here.'
- 11 Mr Collins says, 'You needn't work late this evening.'
- 12 'I'll pick you up at eight o'clock,' she told me.
- 13 'Coal is found underground,' he said.
- 14 'You ought to go to the doctor's,' she said to her son.
- 15 'It is raining hard today,' she said.
- 16 They said, 'We've never travelled by plane before.'
- 17 'We might go to the cinema tonight,' they said.
- 18 Mum always says, 'You should wear warmer clothes.'

5. Lucy's grandmother was a famous actress. Now that she has retired, she is showing Lucy reviews from some of the films she made. Using the prompts below, make sentences, as in the example.

e.g. 'When I starred in 'The Love Affair' in 1952, 'Movie World' said that I was an extremely talented actress. The Stars' said that...

1 'The Love Affair' - 1952

'Frances Garner is an extremely talented actress. Movie World

'Garner gives an amazing performance in this film. The Stars

2 'Over the Moon' - 1958

'Garner brings any character to life.' Film Stars

'Frances Garner is always a pleasure to watch.' Movie News

3 "The Secret House" - 1961

'Ms Garner is the best actress ever seen on screen. Film Weekly

'Garner has a gift which is very rare.' Movie Times

4 'Only for You' - 1963

'Frances Garner has made this film a success.' Film World

'Garner truly is a star of the screen.' Screen Play

REPORTED QUESTIONS

Yesterday, they carried out an experiment.

One student asked the teacher why he was mixing the liquids.

The other student asked the teacher if/whether they should take notes.

◆ Reported questions are usually introduced with the verbs ask, inquire, wonder or the expression want to know. The verb is in the affirmative. The question mark and words/expressions such as please, well ..., oh, etc. are omitted. The verb tenses, pronouns and time expressions change as in statements.

e.g. 'What did you make for dinner yesterday?' Bob asked me.

Bob asked me what I had made for dinner the day before.

◆ When the direct speech begins with a question word (who, where, how old, how long, when, why, what, etc.), the reported question is introduced with the same question word. When the direct question begins with an auxiliary (is, do, have) or a modal verb (can, may, etc.), then the reported question begins with if or whether.

e.g. 'Why do you want to leave your job?'

Pam asked me. Pam asked me why I wanted to leave my job.

'Do you like rock music?' he asked us.

He asked us if/whether we liked rock music.

'Can you ride a motorcycle?' Ben asked David.

Ben asked David if/whether he could ride a motorcycle.

6. Turn the questions into reported speech. Begin each one with I asked the ... and give the name of the person who does the job, as in the example.

- 1 'Do I need another filling?'
- ...*I asked the dentist if I needed another filling....*
- 2 'How much does this blouse cost?'
- 3 'How many tablets should I take each day?'
- 4 'Can I borrow the book for another week?'
- 5 'Will it cost very much to repair the television?'
- 6 'May I look at the menu, please?'
- 7 'What do I have to do for homework?'
- 8 'When will the report be typed?'
- 9 'Will you be able to deliver the flowers today?'
- 10 'Can I make an appointment to have my hair cut?'

7. Turn the following into reported questions.

- 1 'What is your name?' he asked me.
- ...*He asked me what my name was....*
- 2 'Where are your parents?' Uncle Bill asked us.
- 3 'Will you help me carry the box, please?' Dad asked.
- 4 'What time will you be home?' Mum asked me.
- 5 'Can you play the guitar?' he asked her.
- 6 'Who was at the door?' David asked Janet.
- 7 'Where is the post office?' they asked us.
- 8 'When will you do your homework?' Meg asked me.
- 9 The boss asked me, 'Have you finished those reports?'
- 10 John asked Sam, 'Do you like computer games?'
- 11 'Will you give me a lift to work, please?' he asked her
- 12 'Where is your jacket?' she asked him.

8. Yesterday, Simon interviewed a famous actor. He asked him the following questions. Turn them into reported questions.

- 1 'Do you enjoy being famous?'
- ...*Simon asked him if/whether he enjoyed being famous....*
- 2 'What is the best part of your job?'
- 3 'What do you find difficult about acting?'
- 4 'How many films have you starred in?'
- 5 'What is your favourite film?'
- 6 'Have you met many other famous people?'
- 7 'Where would you most like to make a film?'
- 8 'Have you visited many interesting places?'
- 9 'What are your plans for the future?'
- 10 'Are you happy with your life?'

REPORTED COMMANDS / REQUESTS / SUGGESTIONS

“Inform the manager immediately.”

“Let's call the computer expert.”

“Please don't tell anyone about this.”

Lorna asked them not to tell anyone about it.

Peter told them to inform the manager right away.

Jim suggested calling the computer expert.

◆ To report commands, instructions, requests or suggestions in reported speech, we use an appropriate introductory verb (ask, order, beg, suggest, tell, etc.) and the to-infinitive, -ing form or that-clause depending on the introductory verb.

- a) 'Stop the car!' the policeman said to him.
The policeman ordered him to stop the car.
- b) 'Put all the ingredients in a bowl,' she said to me.
She told me to put all the ingredients in a bowl.
- c) 'Will you please hold this bag for me?' Laura said to Helen.
Laura asked Helen to hold the bag for her.
- d) 'How about going to the cinema?' I said to them.
I suggested going to the cinema.

9. Turn the following sentences into reported speech.

- 1 The teacher said to the student, 'Come and see me after the lesson.'
...The teacher asked the student to go and see him/ her after the lesson....
- 2 He said, 'Shall we go out for dinner?'
- 3 Colin said to Dave, 'Please hold this book for me.'
- 4 He said to her, 'Close the door, please.'
- 5 Father said, 'How about going to the beach?'
- 6 She said, 'Let's watch the game on TV.'
- 7 He said to them, 'Please, please don't hurt me.'
- 8 The policeman said to the thieves, 'Put your hands up!'
- 9 The man said to the waiter, 'Can you bring me some water, please?'
- 10 Jason said to his father, 'Please, please let me go to the party.'
- 11 The librarian said to the boys, 'Don't make so much noise.'
- 12 The chef said to me, 'Put the cake in the oven.'

10. First read, then report what the teacher told the students before the exam.

- 1 Please leave your bags at the front room.
...He asked the students to leave their bags at the front of the room....
- 2 Don't talk during the exam.
- 3 Raise your hand if you need anything.
- 4 Write all you answers in pen.
- 5 Answer all the questions.
- 6 Don't forget to write your name at the top of the page.
- 7 Check your answers again before you hand the paper in.
- 8 Please, leave quietly when you finish.

11. Study the speech bubbles, then complete the sentences below using reported speech, as in the example.

Hurry up!

Be quiet!

Let's go to the theatre.

We'll discuss it later.

Can I have a biscuit, please, Mum?

I won't be home tonight, Dad.

Will you help me with these bags, please, Jim?

I'm going to bed.

- 1 It was very late, so I *...said I was going to bed.*
- 2 Clare was planning to stay with friends, so she
- 3 I was hungry, so I
- 4 The shopping was very heavy, so Sarah
- 5 Mark wasn't ready for school, so his brother
- 6 The children were shouting, so the teacher
- 7 Susie wanted to watch a play, so she
- 8 Pam was busy when I asked for some advice, so she

12. Turn the following sentences into reported

- 1 'Where are you going?' she said to them.
...*She asked them where they were going...*
2 'I'm going shopping,' said Anna, (up-to-date reporting)
3 'Go away!' said his friend.
4 She asked me, 'Are you ready to leave?'
5 'I'll pick you up at five o'clock,' he said to her.
6 'It's time for lunch,' Ruth says.
7 'When did you arrive?' asked Marilyn.
8 The meeting started ten minutes ago,' she said, (up-to-date reporting)
9 My father said to me, 'Don't be late.'
10 Tom has already left,' said Pam to us.
11 'Who's there?' said Joe.
12 'What colour skirt did you buy?' she asked me.
13 They said to him, 'We're leaving early in the morning. (up-to-date reporting)
14 'Don't go near the fire,' Dad said to the boys.
15 'Let's have a barbecue this weekend,' said Liz.

13. Choose the correct answer.

- 1 She said that it was going to be a wonderful party.
a 'It was going to be a wonderful party.'
b 'It's going to be a wonderful party.'
2 He said the bus might be a little late that day.
a 'The bus was a little late today.'
b 'The bus might be a little late today.'
3 She told him that he should study harder.
a 'You should study harder.'
b 'You should have studied harder.'
4 He said that the fire had done a lot of damage to the building.
a 'The fire had done a lot of damage to the building'
b 'The fire has done a lot of damage to the building,'
5 He said that Michael was the best student he had ever taught.
a 'Michael is the best student I have ever taught.'
b 'Michael was the best student I have ever taught.'
6 She told us that the new furniture had been delivered the day before.
a 'The new furniture had been delivered yesterday.'
b 'The new furniture was delivered yesterday.'
7 They said that the manager would inspect the office the following day.
a 'The manager will inspect the office the following day.'
b 'The manager will inspect the office tomorrow.'
8 He said that if we hadn't acted so quickly, the accident would have been even worse.
a 'If you hadn't acted so quickly, the accident would have been even worse.'
b 'If you haven't acted so quickly, the accident would be even worse.'

14. Complete the sentences.

- 1 'You should spend more time studying.'
The teacher advised *...me to spend more time studying...*
2 'Don't forget to lock the door before you leave.'
Sam reminded
3 'I'm sorry I forgot to call you.'
Jim apologised
4 'You never listen to me, Stuart.'

Mary complained
 5 'Shall we go bowling this evening?'
 Mark suggested
 6 'You mustn't play near the road.'
 Father forbade
 7 'This man stole my wallet!'
 Mr Brown accused
 8 'I'm the best basketball player in the school.'
 Steve boasted
 9 'Yes, I took the letter.'
 Claire admitted
 10 'You must stay for lunch, Sarah.'
 Mrs Stamp insisted
 11 'Please, please, let me borrow your bicycle.'
 Martin begged
 12 'Don't touch the oven. It's hot.'
 Mother warned

15. Fill in the gaps with one of the introductory verbs from the list below in the past simple.

deny	suggest	boast	agree
insist	accuse	promise	complain
advise	threaten	warn	remind

1 'I'm the fastest runner on the team,' he said.
 He ...*boasted*... about being the fastest runner on the team.
 2 'I didn't take your jacket,' he said to her.
 He ... taking her jacket.
 3 'You should go to the doctor's,' Mum said to me.
 Mum ... me to go to the doctor's.
 4 'I'll call you next week,' she said to him.
 She ... to call him next week.
 5 'Yes, I'll set the table for dinner,' he said to her.
 He ... to set the table for dinner.
 6 'He always forgets my birthday,' she said.
 She ... that he always forgot her birthday.
 7 'Let's go for a walk,' she said.
 She ... going for a walk.
 8 'Leave, or I'll shoot,' the man said to them.
 The man ... to shoot them if they didn't leave.
 9 'Don't forget to feed the cat,' she said to him.
 She ... him to feed the cat.
 10 'You broke my CD player,' she said to him.
 She ... him of breaking her CD player.
 11 'Don't go near the edge of the cliff,' Dad said to their
 Dad ... them not to go near the edge of the cliff.
 12 'You must do your homework before you go out,' she said to us.
 She ... on us doing our homework before we went out.

16. Turn the sentences into reported speech using an appropriate introductory verb.

1 'No, I won't do your homework for you,' she said to me.
 ...*She refused to do my homework for me*....
 2 'You lied to me,' Dennis told Ann.
 3 'I promise I won't tell anyone your secret,' Tara said to Diana.
 4 'Don't forget to post the letters,' Mum said to me.

- 5 'I'm sorry I ruined your shirt,' Sarah told Frances.
 6 'No, I didn't use Tim's computer,' George said.
 7 'Don't get too close to the fire,' Mike said to the children.
 8 'Let's have a party,' Simon said.
 9 'I'll punish you if you behave badly,' Mum told the twins.
 10 'It was me who broke the vase,' she said.
 11 'Could I use your phone, please?' David asked me.
 12 'Yes, I'll help you with the washing-up,' Sandra told me.
 13 'Everyone stop talking!' Mr Jones told the class.
 14 'Please, please, don't tell anyone about this,' he said to us.
 15 'You should go to the dentist's,' she told her brother.
 16 'Children, sit down!' the school bus driver said.
 17 'Throw down your weapons!' the policeman said to the robbers.
 18 'No, you may not stay out late tonight,' Dad said to Louise.
 19 'You must wash your hands before eating dinner,' she told the children.
 20 'That's the most beautiful necklace I've ever seen' Amanda said.

EXCLAMATIONS – YES/NO SHORT ANSWERS – QUESTION TAGS

- We use the verbs exclaim/say that to report exclamations which begin with 'What a/an ...' or 'How...!' in direct speech.

e.g. 'What an unusual design!' he said.

He exclaimed/said that it was an unusual design.

He exclaimed/said that the design was unusual. But with exclamations such as 'Splendid!', 'Great!', 'Good!', 'Excellent!', 'Oh!', 'Oh dear!' etc. we use the expression give an exclamation of delight/ disgust/ relief/surprise, etc.

e.g. 'Wow!' he said as he unwrapped his gift.

He gave an exclamation of surprise as he unwrapped his gift.

- Study the following examples:

5 g. a) They said, 'Thank you.' - They thanked us.

b) "You fool!" she said. - She called him a fool.

c) 'Happy Birthday!' we said to Tamzin. We wished Tamzin a happy birthday.

d) 'Congratulations!' they said to us. They congratulated us.

- Yes /No short answers are expressed in reported speech with subject + appropriate auxiliary verb/introductory verb.

e. g. 'Will you help me decorate the cake?' she asked him. "Yes," he said.

She asked him to help her decorate the cake and he said he would/he agreed.

- Question tags are omitted in reported speech. We use an appropriate introductory verb to convey the same meaning.

e. g. 'You won't tell anyone, will you?' she said to him. She asked him not to tell anyone.

17. Turn the following sentences into reported speech.

1 "Will you call me?" he asked. 'Yes, of course,' she said.

He asked her to call him and she said she would.

2 "Wow!" they said as the fireworks exploded in the sky.

3 'You'll try to visit John, won't you?' he said to us.

4 'How delicious!' she said as she tasted the dessert.

5 'What a surprise!' he said when he saw the present.

6 'Amazing!' she said when she saw the magician's act.

7 'Well, good luck, then,' she said to him.

8 'Can you do this puzzle?' she asked. 'No', he said.

REPORTING A DIALOG

In dialogues we use a mixture of statements, questions, commands, requests, etc. In reported speech, we use: and, as, adding that, and (he/she) added that, because, but, since, and then (he/she) went on to say (that), while, then, etc. to link the sentences in a dialogue. We can also use introductory verbs in the present participle form (offering, begging, explaining, etc.).

a) 'I'm exhausted,' she said to him. 'Can you make me a cup of tea?'

She exclaimed that she was exhausted and asked him to make her a cup of tea.

b) 'I'll take a taxi home. It's getting late', he said.

He said that he would take a taxi home as/ because/since it was getting late.

c) Mr Adams: Can I talk to Mr Stephens?

Secretary: I'm sorry, but he's not here. Would you like me to take a message?

Mr Adams: No, thank you. I need to see him in person.

Mr Adams asked to talk to Mr Stephens. His secretary said that he wasn't there and offered to take a message. Mr Adams declined, explaining that he needed to see him in person.

18. Turn the following sentences into reported speech.

1 'I'm hungry,' she said. 'I haven't eaten all day.'

...*She said that she was hungry, explaining that she hadn't eaten all day...*

2 'Let's go to the cinema,' he said. 'We haven't seen a film for months.'

3 Tim: Dave is ill. He can't come to the party.

Mike: What's wrong with him?

Tim: He's got flu. He has to stay in bed.

4 'You're early,' he said to her. 'I'm not ready yet.'

5 'Hurry up!' she told him. 'We're going to miss the bus.'

6 'Have you got your key?' she said. 'I've forgotten mine.'

7 'I'm going out,' Colin said. 'I might be back late.'

8 Sally: I've bought a car. It's being delivered tomorrow.

John: What kind of car is it?

Sally: It's a sports car. It was very expensive.

9 'I'm sorry I'm late. I overslept,' he said to them.

10 Martin: Can you help me? I need some advice.

James: What's the problem?

Martin: I don't know what to buy my mother for her birthday. I want to get something special.

19. Turn the following sentences into direct speech, as in the example.

1 He threatened to tell the headmaster if we didn't behave properly.

...*I'll tell the headmaster if you don't behave properly,' he said....*

2 She invited me to go to the cinema with her.

3 He offered to help me clean the house.

4 We explained that we were late because we had missed the bus.

5 She advised me to see a professional.

6 She admitted to reading my diary.

7 She agreed to help me interview the candidates.

8 He accused me of breaking his glasses.

9 We apologised for missing their dinner party.

10 Edward complained that the children were always disturbing him.

20. Turn the following sentences from direct into reported speech or vice versa.

1 'What are your plans for the weekend?' he asked her.

...*He asked her what her plans for the weekend were....*

2 Malcolm suggested that they go fishing that afternoon.

3 Simon denied having damaged the car.

4 'Could you open the door for me, please?' Kate asked Harry.

- 5 Julia claimed to have met Kevin Costner.
 6 'You never listen when I'm talking to you,' she said.
 7 The instructor said, 'This is how you open the parachute.'
 8 'I promise I won't lose your necklace,' she told her friend.
 9 Stuart begged his parents to let him go to the disco.
 10 His father said to him, 'No, you can't go to the concert.'
 11 'Yes, you may stay out late on Saturday,' said Mum.
 12 The man demanded to speak to his lawyer.
 13 'I'm afraid there are no tickets left,' he said to us.
 14 The path is very slippery,' the guide said to the climbers.
 15 He asked her to write to him while she was away.

21. Turn the following into reported speech. Use appropriate introductory verbs.

- 1 Sam: 'We're having trouble finding a good sales assistant.'
 ...*Sam complained that they were having trouble finding a good sales assistant...*
 2 Dave: 'We've been interviewing people for two weeks.'
 3 Lucy: 'Why don't you contact the Job Centre?'
 4 Ann: 'I think that Julie Smith is looking for a job.'
 5 Tom: 'Yes, right. We forgot that she has been looking for a job.'
 6 Dave: 'Actually, Julie might be perfect for the job. Ann, do you have her phone number?'
 7 Ann: 'Yes, I do. I'll give her a call if you like.'
 8 Sam: 'Don't forget to ask her if she can work flexible hours.'

Сравнительно-сопоставительные конструкции и обороты в предложении

Все три формы прилагательных – основная (или положительная), сравнительная и превосходная используются в сравнительных конструкциях.

Положительная степень

(или основная форма прилагательного)

1 Одинаковое качество двух предметов (лиц, явлений) выражается прилагательными в положительной степени (основная форма) в конструкции с союзами **as...as** в значении *такой же ...как, так же...как*:

He is as tall as his brother.	<i>Он такой же высокий, как и его брат.</i>
This text is as difficult as that one.	<i>Этот текст такой же трудный, как и тот.</i>

Иногда употребляется конструкция с прилагательным **same** *тот же самый, одинаковый*: **the same...as** – *такой же, тот же самый*:

Mary is the same age as Jane.	<i>Мэри того же возраста, что и Джейн.</i>
--------------------------------------	--

2 Разное качество предметов выражается конструкцией **not so/as...as** в значении *не так...как, не такой...как*:

He is not so (as) tall as his brother.	<i>Он не такой высокий, как его брат.</i>
The problem is not so simple as it seems.	<i>Эта проблема не такая простая, как кажется.</i>

Если после второго **as** следует личное местоимение в третьем лице, то обычно глагол повторяется:

I am not as strong as he <u>is</u> .	<i>Я не такой сильный, как он.</i>
Her sister is not so pretty as she <u>is</u> .	<i>Ее сестра не такая хорошенькая, как она.</i>

А если следует личное местоимение в первом или втором лице, то глагол может опускаться:

She is **not so beautiful as** you (are). *Она не такая красивая, как ты.*

3 Если один из сравниваемых объектов превосходит другой вдвое (**twice** [twaɪs]) или в несколько раз (... **times**) по степени проявления какого-либо качества, то употребляется следующая конструкция:

Your room is **twice as large as** mine. *Ваша комната в два раза больше моей.*

This box is **three times as heavy as** that. *Этот ящик в три раза тяжелее того.*

Когда второй объект сравнения не упомянут, то **as** после прилагательного не употребляется:

This grade is **twice as expensive**. *Этот сорт в два раза дороже.*

He is **twice as old**. *Он в два раза старше.*

А если один из объектов уступает по качеству в два раза, то употребляется **half** половина, наполовину, в два раза меньше. Обратите внимание на то, что стоящее за ним прилагательное в конструкции **as... as** имеет противоположное значение тому, что принято в русском языке:

Your flat is **half as large as** mine. *Ваша квартира вдвое меньше моей.*

Moscow is **half as big as** New York. *Москва наполовину меньше Нью-Йорка.*

В подобных сравнительных конструкциях союз **as...as** и последующее прилагательное могут вообще опускаться, что должно компенсироваться наличием соответствующего существительного:

Your flat is **three times** the size of mine. *Ваша квартира в три раза больше моей.*

He is **half** my age. *Он в два раза моложе меня.*

Сравнительная степень

1 При сравнении степени качества одного предмета с другим после прилагательного в СРАВНИТЕЛЬНОЙ степени употребляется союз **than** [ðæn] - чем, который при переводе на русский язык часто опускается:

He is **older** than I am. *Он старше, чем я. (меня)*

This book is **more interesting** than that one. *Эта книга интереснее, чем та (книга).*

Эта конструкция может содержать и количественный компонент сравнения:

My mother is **ten years younger** than my father. *Моя мама на 10 лет моложе отца.*

Уменьшение качества выражается с помощью **less... than**:

I am **less musical** than my sister. *Я менее музыкален, чем моя сестра.*

Если после **than** следует личное местоимение в третьем лице, то глагол обычно повторяется:

She has **more good** marks than he has. *У нее больше хороших отметок, чем у него.*

А если следует личное местоимение в первом или втором лице, то глагол может опускаться:

He is **stronger** than you. *Он сильнее, чем ты.*

В этом случае, если нет второго сказуемого, после **than** обычно употребляется личное местоимение в объектном падеже **me/ him/ her/ them/ us**, а не в именительном:

You are taller than **I am**. или You are taller than **me**. *Ты выше, чем я (меня).*

I got up earlier than **she did**. или I got up earlier than **her**. *Я встал раньше ее (чем она).*

She runs quicker than **him**. *Она бежит быстрее (чем он).*

2 Для усиления сравнительной степени часто употребляются слова **much** [mʌʃ] или **far** [fɑː] со значением - значительно, гораздо, намного, а также **still** еще, **even** [ˈiːvən] даже, **by far** намного, безусловно. Причем **much more** [mʌʃ mɔː] и **far more** употребляется перед неисчисляемыми существительными, а **many more** перед исчисляемыми существительными :

My boyfriend is **much older** than me. *Мой друг гораздо старше меня.*

This book is **far better** than that one. *Эта книга значительно лучше той.*

It is **still colder** today.
He has **much more free** time than I have.
I have **many more** books than he (has).

Сегодня еще холоднее.
У него гораздо больше свободного времени, чем у меня.
У меня гораздо больше книг, чем у него.

3 При передаче зависимости одного качества от другого (обычно их параллельное возрастание или убывание) используется конструкция **the... the**, например:

The more you have, **the more** you want. *Чем больше ты имеешь, тем больше ты хочешь.*
The longer I stay here **the better** I like it. *Чем дольше я нахожусь здесь, тем больше мне нравится.*

Превосходная степень

Если один предмет или лицо превосходят остальные в каком-либо качестве, то употребляется прилагательное в превосходной степени с артиклем **the**. Речь обычно идет не о сравнении двух предметов (лиц, явлений), а трех или более.

"Why did you stay at that hotel?" – "It was **the cheapest** (that) we could find." *"Почему вы остановились в той гостинице?" – "Она была самая дешевая, которую мы могли найти".*

Обычно при сравнении употребляется конструкция **the прилагательное... in**, если речь идет о местоположении, например:

Tom is **the cleverest** (boy) **in** the class. *Том – самый умный (парень) в классе.*
What's **the longest** river **in** the world? *Какая самая длинная река в мире?*

Или конструкция **the прилагательное... of**, например:
the happiest day of my life *счастливейший день моей жизни*
He is **the best** of my friends. *Он лучший из моих друзей.*
Pete is **the best** student of us all. *Пит лучший студент из всех нас.*
She is **the prettiest** of them all. *Она самая хорошенькая из них.*

После превосходной степени часто употребляется определительное придаточное предложение со сказуемым в **Present Perfect** (как вы помните, здесь речь идет о свершившемся факте в прошлом, значение которого продолжается до настоящего момента). Это предложение может вводиться относительным местоимением **that который**, но оно обычно опускается.

This is **the most interesting** book (that) *Это самая интересная книга, которую я I have ever read.*
когда-либо читал.

Типы придаточных предложений и способы их связи

TIME CLAUSES

They had booked tickets before they went to the cinema. They will go home when the film is over.

◆ We use the following time conjunctions to introduce time clauses.

when - as - while - before - after - since - until/till - whenever - as long as - by the time- as soon as -the moment that - no sooner ..than - hardly... when - once - immediately - the first/last/next time etc.

◆ When the time clause precedes the main clause, a comma is used.

e.g. *Whenever he is in town, he visits us.*

He visits us whenever he is in town.

Sequence of Tenses

◆ Time clauses follow the rule of the sequence of tenses. That is, when the verb of the main clause is in a present or future form, the verb of the time clause is in a present form. When the verb of the main clause is in a past form, the verb of the time clause is in a past form too.

Main clause

Time clause

present / future / imperative → present simple or present perfect

She takes off her shoes the moment that she gets home.

I'll call you as soon as I get to my hotel.

Turn off the lights before you leave.

past simple/ past perfect → past simple or past perfect

He took a shower after he had finished painting the room.

They had reserved a table before they went to the restaurant.

TIME CONJUNCTIONS

◆ **ago - before**

ago = before now

e.g. *My parents got married twenty years ago. (= twenty years before now)*

before = before a past time

e.g. *Helen and Mike got married last month.*

They had met six months before. (= six months before last month)

◆ **until/till - by the time**

until/till = up to the time when

e.g. *You must stay in the office until/till you finish/have finished the report.*

(= up to the time when you finish the report) They'll be at their summer house until/till Sunday.

(= up to Sunday)

by the time + clause = not later than the moment something happens

e.g. *I will have set the table by the time you come home. (= before, not later than the moment you come home)*

by = not later than

e.g. *I'll let you know my decision by Friday. (= not later than Friday)*

Note: a) **not... until/till**

e.g. *I won't have finished my work until/till/ before Thursday.*

b) Both until/till and before can be used to say how far away a future event is.

e.g. *There's only one week until/till/ before my summer holidays.*

◆ **during - while/as**

during + noun = in the time period

e.g. *We learnt several interesting facts during the lecture.*

while/as + clause = in the time period

e.g. *We learnt several interesting facts while/as we were listening to the lecture.*

◆ **when = (time conjunction) + present tense**

e.g. *We'll order some pizzas when our friends get here.*

when = (question word) + will/would

e.g. *I'm not sure when his next book will be published.*

CLAUSES OF RESULT

Dolphins are so appealing (that) it is hard not to like them.

They are such intelligent creatures (that) they can communicate with each other.

Clauses of result are used to express the result of something. They are introduced with the following words/expressions:

as a result - therefore - consequently/as a consequence - so - so/such ... that etc.

◆ **as a result/therefore/consequently**

e.g. *The president was taken ill and, as a result/ therefore/ consequently the summit meeting was cancelled.*

The president was taken ill. As a result/therefore/ consequently, the summit meeting was cancelled.

◆ **so** e.g. *It was hot, so I turned on the air-conditioning.*

◆ **such a/an + adjective + singular countable noun**

e.g. *It was such an interesting book (that) I couldn't put it down.*

◆ **such + adjective + plural/uncountable noun**

e.g. *They are such good friends (that) they've never had an argument.*

It was such expensive jewellery (that) it was kept in a safe.

◆ **such a lot of + plural/uncountable noun**

e.g. *She invited such a lot of guests to her party that there wasn't enough room for all of them.*
He has such a lot of money (that) he doesn't know what to do with it.

◆ **so + adjective/adverb**

e.g. *He is so devoted that he deserves praise.*

He speaks so quickly that I can't understand him.

◆ **so much/little + uncountable noun**

so many/few + plural noun

e.g. *There is so much traffic that we won't be on time. He pays so little attention to what I say that it makes me angry.*

He made so many mistakes that he failed. There are so few wolves left that we have to protect them.

CLAUSES OF REASON

Traffic is getting worse because/as more people are buying cars. Traffic is getting worse on account of the fact that more people are buying cars.

Causes of reason are used to express the reason for something. They are introduced with the following words/expressions:

because - as/since - the reason for/why - because of /on account of/due to - now that - for
etc.

◆ **because** e.g. *I took a taxi because it was raining.*

Because it was raining, I took a taxi.

◆ **as/since (=because)** e.g. *They bought him a gift as/since it was his birthday. As/Since it was his birthday, they bought him a gift.*

◆ **the reason for + noun/-ing form**

the reason why + clause

e.g. *The reason for his resignation was (the fact) that he had been offered a better job. The fact that he had been offered a better job was the reason for his resigning. The reason why he resigned was (the fact) that he had been offered a better job.*

◆ **because of/on account of/due to + noun**

because of/on account of/due to the fact that + clause

e.g. *All flights were cancelled because of /on account of the thick fog.*

All flights were cancelled due to the thick fog. He asked for a few days off because of /on account of the fact that he was exhausted. He asked for a few days off due to the fact that he was exhausted.

◆ **now (that) + clause** e.g. *Now (that) they have children, they have less free time.*

◆ **for = because (in formal written style)**

A clause of reason introduced with for always comes after the main clause.

e.g. *The citizens of Harbridge were upset, for a new factory was to be built near their town.*

CLAUSES OF PURPOSE

They met in a café to discuss their holiday.

They met in a café so that they could discuss their holiday.

Clauses of purpose are used to express the purpose of an action. That is, they explain why someone does something. They are introduced with the following words/expressions:

to - in order to/so as to-so that/in order that - in case-for etc.

◆ **to - infinitive**

e.g. *She went shopping to look for some new clothes.*

◆ **in order to/so as to + infinitive (formal)**

e.g. *He did a postgraduate course in order to/so as to widen his knowledge of international politics.*

In negative sentences we use in order not to or so as not to. We never use not to alone.

e.g. *He wrote the number down in order not to/so as not to forget it.*

◆ **so that + can/will (present or future reference)**

e.g. *Emma has booked a first-class ticket so that she can travel in comfort.*

so that + could/would (past reference)

e.g. *He recorded the match so that he could watch it later.*

Note: In order that has the same structure as so that. However, it is not used very often as it is formal.

e.g. *We will send you the forms in order that you can make your application.*

◆ **in case + present tense (present or future reference)**

in case + past tense (past reference)

In case is never used with will or would.

e.g. *Take your credit card in case you run out of cash. He took a jumper in case it got cold.*

◆ **for + noun (when we want to express the purpose of an action)**

e.g. *He went to the doctor's for a check-up.*

for + -ing form (when we want to express the purpose or function of something)

e.g. *We use a spade for digging.*

Clauses of purpose follow the rule of the sequence of tenses, like time clauses.

e.g. *He borrowed some money so that he could pay his phone bill.*

Note: We can express negative purpose by using:

a) **prevent + noun/pronoun + (from) + -ing form**

e.g. *She covered the sofa with a sheet to prevent it (from) getting dirty.*

b) **avoid + -ing form**

e.g. *They set off early in the morning to avoid getting stuck in traffic.*

EXCLAMATIONS

Exclamations are words or sentences used to express admiration, surprise, etc.

To form exclamatory sentences we can use what (a/an), how, such, so or a negative question.

◆ **so + adjective/adverb**

e.g. *This cake is so tasty! He works so hard!*

◆ **such + a/an (+ adjective) + singular countable noun**

e.g. *This is such an original design!*

◆ **such (+ adjective) + uncountable/plural noun**

e.g. *You gave me such valuable information!*

She's wearing such elegant clothes!

◆ **what + a/an (+ adjective) + singular countable noun**

e.g. *What a lovely view!*

What an unusual pattern! What a day!

◆ **what (+ adjective) + uncountable/plural noun**

e.g. *What expensive furniture!*

What comfortable shoes!

◆ **how + adjective/adverb**

e.g. *How clever he is! How well she behaved!*

◆ **negative question (+ exclamation mark)**

e.g. *Isn't she a graceful dancer!*

CLAUSES OF CONTRAST

He prefers to make things by hand although/even though he could use a machine.

Clauses of contrast are used to express a contrast. They are introduced with the following words/phrases:

but - although/even though/though - in spite of/despite - however - while/whereas - yet - nevertheless - on the other hand

◆ **but** e.g. *It was cold, but she wasn't wearing a coat.*

◆ **although/even though/though + clause**

Even though is more emphatic than although. Though is informal and is often used in everyday speech. It can also be put at the end of a sentence.

e.g. *Although/Even though/Though it was summer, it was chilly.*

It was chilly although/even though/though it was summer.

It was summer. It was chilly, though.

◆ **in spite of/despite + noun/-ing form**

e.g. *In spite of/Despite his qualifications, he couldn't get a job.*

He couldn't get a job in spite of/despite (his) being qualified.

in spite of/despite the fact that + clause

e.g. *In spite of/Despite the fact that he was qualified, he couldn't get a job.*

◆ **however/nevertheless** A comma is always used after however/nevertheless.

e.g. *The man fell off the ladder. However/Nevertheless, he wasn't hurt.*

◆ **while/whereas**

e.g. *She is tall, while/whereas her brother is rather short.*

◆ **yet (formal)/still**

e.g. *The fire was widespread, yet no property was damaged. My car is old. Still, it is in very good condition.*

◆ **on the other hand**

e.g. *Cars aren't environmentally friendly.*

On the other hand, bicycles are. / Bicycles, on the other hand, are.

CLAUSES OF MANNER

They look as if/as though they are in a hurry.

Clauses of manner are introduced with as if/as though and are used to express the way in which something is done/said, etc.

◆ We use **as if /as though** after verbs such as act, appear, be, behave, feel, look, seem, smell, sound, taste to say how somebody or something looks, behaves, etc.

e.g. *He is acting as if/as though he's had bad news.*

We also use **as if /as though** with other verbs to say how somebody does something.

e.g. *She talks as if/as though she knows everything.*

◆ We use **as if /as though + past tense** when we are talking about an unreal present situation. Were can be used instead of was in all persons.

e.g. *He spends his money as if /as though he was I were a millionaire. (But he isn't.) He behaves as if/as though he owned the place. (But he doesn't.)*

Note: We can use like instead of as if/as though in spoken English.

e.g. *She looks like she's going to faint, (informal spoken English).*

RELATIVE CLAUSES

A camel is an animal which/that lives in hot countries.

A computer is something which/ that we use for storing information.

A firefighter is someone who/that puts out fires and whose job is very risky.

Relative clauses are introduced with a) relative pronouns (who(m), which, whose, that) and b) relative adverbs (when, where, why).

We use:

◆ **who/that to refer to people.**

◆ **which/that to refer to objects or animals.**

Who/which/that can be omitted when it is the object of the relative clause; that is, when there is a noun or subject pronoun between the relative pronoun and the verb. It cannot be omitted when it is the subject of the relative clause. We can use whom instead of who when it is the object of the relative clause. Whom is not often used in everyday English.

e.g. a) *I saw a friend. I hadn't seen him for years.*

I saw a friend (who/whom/that) I hadn't seen for years. (Who/whom/that is the object, therefore it can be omitted.)

b) *I met a woman. She was from Japan.*

I met a woman who/that was from Japan. (Who/that is the subject, therefore it cannot be omitted.)

◆ **whose instead of possessive adjectives** (my, your, his, etc.) with people, objects and animals in order to show possession.

e.g. a) *That's the boy — his bicycle was stolen yesterday.*

That's the boy whose bicycle was stolen yesterday.

b) *That's the building — its windows were smashed.*

That's the building whose windows were smashed.

◆ We usually avoid using prepositions before relative pronouns.

e.g. a) *The person to whom the money will be entrusted must be reliable, (formal English — unusual structure)*

b) *The chair that you are sitting on is an antique. (usual structure)*

c) *The chair you are sitting on is an antique. (everyday English)*

◆ Which can refer back to a whole clause.

e.g. *He helped me do the washing-up. That was kind of him. He helped me do the washing-up, which was kind of him. (Which refers back to the whole clause. That is, it refers to the fact that he helped the speaker do the washing-up.)*

◆ We can use the structure all/most/some/a few/half/none/two, etc. + of + whom/which.

e.g. a) *He invited a lot of people. All of them were his friends.*

He invited a lot of people, all of whom were his friends.

b) *He has a number of watches. Three of them are solid gold.*

He has a number of watches, three of which are solid gold.

◆ That is never used after a comma or preposition.

e.g. a) *The Chinese vase, which is on the coffee table, is very expensive. (NOT: ...that is on the coffee table ...)*

b) *The bank in which the money was deposited is across the street. (NOT: The bank in that the money...)*

◆ We use that with words such as all, everything, something, anything, no(thing), none, few, little, much, only and with the superlative form.

e.g. *Is this all that you can do for me? (more natural than ...all which you can do ...) The only thing that is important to me is my family. It's the best song that I've ever heard.*

who/that (people) subject — cannot be omitted

who/whom/that(people) object — can be omitted

which/that (objects, animals) subject — cannot be omitted

object — can be omitted

whose (people, objects, animals) possession — cannot be omitted

RELATIVE ADVERBS

We use:

◆ **where** to refer to place, usually after nouns such as place, house, street, town, country, etc. It can be replaced by **which/that + preposition** and, in this case, which/that can be omitted.

e.g. *The house where he was born has been demolished.*

The house (which/that) he was born in has been demolished.

◆ **when** to refer to time, usually after nouns such as **time, period, moment, day, year, summer**, etc. It can either be replaced by **that** or can be omitted.

e.g. *That was the year when she graduated.*

That was the year (that) she graduated.

◆ **why** to give reason, usually after the word **reason**. It can either be replaced by **that** or can be omitted.

e.g. *The reason why she left her job was that she didn't get on with her boss.*

The reason (that) she left her job was that she didn't get on with her boss.

IDENTIFYING/NON-IDENTIFYING CLAUSES

There are two types of relative clause: identifying relative clauses and non-identifying relative clauses. An identifying relative clause gives necessary information and is essential to the meaning of the main sentence. It is not put in commas. A non-identifying relative clause gives extra information and is not essential to the meaning of the main sentence. It is put in commas.

Identifying relative clauses are introduced with:

◆ **who, which, that.** They can be omitted if they are the object of the relative clause.

e.g. a) *People are prosecuted. (Which people? We don't know. The meaning of the sentence is not clear.)*

People who/that lie in court are prosecuted. (Which people? Those who lie in court. The meaning of the sentence is clear.)

b) *The papers are missing. (Which papers? We don't know. The meaning of the sentence is not clear.)*

The papers (which/that) you gave me to check are missing. (Which papers? The ones you gave me to check. The meaning of the sentence is clear.)

◆ **whose, where, when, (the reason) why.** Whose cannot be omitted. Where can be omitted when there is a preposition. When and why can either be replaced by that or can be omitted.

e.g. a) *The man was angry. (Which man? We don't know. The meaning of the sentence is not clear.)*

The man whose car was damaged was angry. (Which man? The one whose car was damaged. The meaning of the sentence is clear.)

b) *The shop is near my house. (Which shop? We don't know.)*

The shop where I bought this shirt is near my house. OR The shop I bought this shirt from is near my house. (Which shop? The one I bought this shirt from.)

c) *The day was the happiest day of my life. (Which day? We don't know.)*

The day (when/that) I got married was the happiest day of my life. (Which day? The day I got married.)

d) *I was upset. This is the reason. (The reason for what? We don't know.)*

I was upset. This is the reason (why/that) I didn't call you. (The reason I didn't call you.)

Non-identifying relative clauses are introduced with:

◆ **who, whom, which.** They cannot be omitted or replaced by that.

e.g. a) *Jenny Ladd is my favourite author. (The meaning of the sentence is clear.) Jenny Ladd, who has written a lot of successful books, is my favourite author. (The relative clause gives extra information.)*

b) *My cousin Peter is a doctor. (The meaning of the sentence is clear.)*

My cousin Peter, who(m) you have just met, is a doctor. (The relative clause gives extra information.)

c) *His flat is modern and spacious.*

His flat, which he bought two years ago, is modern and spacious.

◆ **whose, where, when.** They cannot be omitted.

e.g. a) *The bride looked stunning. (The meaning of the sentence is clear.)*

The bride, whose wedding dress was designed by Valentino, looked stunning. (The relative clause gives extra information.)

b) *Stratford-upon-Avon is visited by thousands of tourists every year.*

Stratford-upon-Avon, where Shakespeare was born, is visited by thousands of tourists every year.

c) *The best time to visit the island is in May. The best time to visit the island is in May, when it isn't too crowded.*

LINKING WORDS

Linking words show the logical relationship between sentences or parts of a sentence.

Positive Addition

and, both ... and, too, besides (this/that), moreover, what is more, in addition (to), also, as well as (this/that) furthermore etc.

She is both intelligent and beautiful.

Negative Addition

neither... nor, nor, neither, either

Neither John nor David goes to university.

Contrast

but, although, in spite of, despite, while, whereas, ever though, on the other hand, however, yet, still etc.

Sarah is kind but not very reliable.

Giving Examples

such as, like, for example, for instance, especially, in particular etc.

All the food was delicious, but the steak in particular was excellent.

Cause/Reason

as, because, because of, since, for this reason, due to, so, as a result (of) etc.

I stayed in bed because I felt ill.

Condition

if, whether, only if, in case of, in case, provided (that providing (that), unless, as/so long as, otherwise, or (else on condition (that) etc.

We took an umbrella with us in case it rained.

Purpose

to, so that, so as (not) to, in order (not) to, in order that, in case etc.

I took some paper and a pen so that I could make notes.

Effect/Result

such/so ... that, so, consequently, as a result, therefore, for this reason etc.

It was so cold that we decided to light a fire.

Time

when, whenever, as, as soon as, while, before, until/till after, since etc.

We did not leave until/till the babysitter arrived.

Place

where, wherever

We can't decide where to go on holiday this year.

Exception

except (for), apart from

The party was good fun, apart from the problem with the stereo.

Relatives

who, whom, whose, which, what, that

That's the horse which/that won the Grand National.

Listing Points/Events

To begin: initially, first, at first, firstly, to start/begin with, first of all etc.

First of all, we greeted the guests.

To continue: secondly, after this/that, second, afterwards, then, next etc.

Then, we offered them drinks.

To conclude: finally, lastly, in the end, at last, eventually etc.

Finally, we served them the meal.

Summarising

in conclusion, in summary, to sum up, on the whole, all in all, altogether, in short etc.

To sum up, I firmly believe that animals have the right to a happy life.

МИНОБРНАУКИ РОССИИ

ФГБОУ ВО «Уральский государственный горный университет»



УТВЕРЖДАЮ

Проректор по учебно-методическому комплексу С.А.Упоров

**МЕТОДИЧЕСКИЕ МАТЕРИАЛЫ
ПО САМОСТОЯТЕЛЬНОЙ РАБОТЕ
ПО ДИСЦИПЛИНЕ**

**ЭКСПЛУАТАЦИЯ И МОНИТОРИНГ
МЕЛИОРАТИВНЫХ СИСТЕМ**

Направление подготовки

20.04.02 Природообустройство и водопользование

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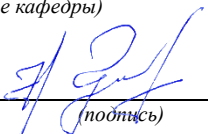
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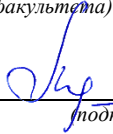
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ВВЕДЕНИЕ

Основная задача высшего образования заключается в формировании творческой личности специалиста, способного к саморазвитию, самообразованию, инновационной деятельности.

Самостоятельная работа студентов является одной из важнейших составляющих образовательного процесса. Независимо от полученной профессии и характера работы любой начинающий специалист должен обладать фундаментальными знаниями, профессиональными умениями и навыками деятельности своего профиля, опытом творческой и исследовательской деятельности по решению новых проблем, опытом социально-оценочной деятельности.

Все эти составляющие образования формируются именно в процессе самостоятельной работы студентов, так как предполагает максимальную индивидуализацию деятельности каждого студента и может рассматриваться одновременно и как средство совершенствования творческой индивидуальности.

Основным принципом организации самостоятельной работы является комплексный подход, направленный на формирование навыков репродуктивной и творческой деятельности, при внеаудиторных контактах с преподавателем на консультациях и домашней подготовке.

Среди основных видов самостоятельной работы традиционно выделяют: подготовка к лекциям, семинарским и практическим занятиям, зачетам и экзаменам, презентациям и докладам; написание рефератов, выполнение лабораторных и контрольных работ, написание эссе; решение кейсов и ситуационных задач; проведение деловых игр; участие в научной работе.

Цель самостоятельной работы студента – осмысленно и самостоятельно работать сначала с учебным материалом, затем с научной информацией, заложить основы самоорганизации и самовоспитания с тем, чтобы привить умение в дальнейшем непрерывно повышать свою профессиональную квалификацию.

В учебном процессе выделяют два вида самостоятельной работы:

- аудиторная – самостоятельная работа на учебных занятиях под непосредственным руководством преподавателя и по его заданию;
- внеаудиторная – самостоятельная работа студентом по заданию преподавателя, но без его непосредственного участия, работа с научной литературой.

Самостоятельная работа помогает:

1) овладеть знаниями:

- - чтение текста (учебника, первоисточника, дополнительной литературы и т.д.);
- - составление плана текста, графическое изображение структуры текста, конспектирование текста, выписки из текста и т.д.;
- - работа со справочниками и др. справочной литературой;
- - ознакомление с нормативными и правовыми документами;
- - учебно-методическая и научно-исследовательская работа;
- - использование компьютерной техники и Интернета и др.;

2) закреплять и систематизировать знания:

- - работа с конспектом лекции;

- - обработка текста, повторная работа над учебным материалом учебника, первоисточника, дополнительной литературы, аудио и видеозаписей;
- - подготовка плана;
- - составление таблиц для систематизации учебного материала;
- - подготовка ответов на контрольные вопросы;
- - заполнение рабочей тетради;
- - аналитическая обработка текста;
- - подготовка мультимедиа презентации и докладов к выступлению на семинаре (конференции, круглом столе и т.п.);
- - подготовка реферата;
- - составление библиографии использованных литературных источников;
- - разработка тематических кроссвордов и ребусов;
- - тестирование и др.;

3) формировать умения:

- - решение ситуационных задач и упражнений по образцу;
- - выполнение расчетов (графические и расчетные работы);
- - решение профессиональных кейсов и вариативных задач;
- - подготовка к контрольным работам;
- - подготовка к тестированию;
- - подготовка к деловым играм;
- - проектирование и моделирование разных видов и компонентов профессиональной деятельности;
- - опытно-экспериментальная работа;
- - анализ профессиональных умений с использованием аудио- и видеотехники и др.

Самостоятельная работа может осуществляться индивидуально или группами студентов в зависимости от цели, объема, конкретной тематики самостоятельной работы, уровня сложности и уровня умений студентов.

Контроль результатов самостоятельной работы студентов осуществляется в пределах времени, отведенного на обязательные учебные занятия и внеаудиторную самостоятельную работу студентов по дисциплине, может проходить в письменной, устной или смешанной форме.

По оценкам текущего (в течение семестра) и промежуточного (во время сессии) контроля по сформулированным ниже критериям выставляется оценка:

«зачтено» - обучающийся продемонстрировал знания, умения и навыки, являющиеся результатами освоения компетенций по дисциплине (базовый, углубленный, продвинутый показатель);

«не зачтено» - обучающийся продемонстрировал знания, умения и навыки, являющиеся результатами освоения компетенций по дисциплине (недостаточный показатель, не соответствующий базовому).

1 ВИДЫ ВНЕАУДИТОРНОЙ САМОСТОЯТЕЛЬНОЙ РАБОТЫ

1.1 Работа с научной литературой.

При работе с книгой необходимо подобрать литературу, научиться правильно ее читать, вести записи. Для подбора литературы в библиотеке используются алфавитный и систематический каталоги. Важно помнить, что рациональные навыки работы с книгой позволяют экономить время и повышают продуктивность. Правильный подбор учебников рекомендуется преподавателем, читающим лекционный курс. Необходимая литература указана в методических разработках по данному курсу.

Самостоятельная работа с учебниками и книгами (а также самостоятельное теоретическое исследование проблем, обозначенных преподавателем на лекциях) – это важнейшее условие формирования научного способа познания.

Основные приемы работы с учебниками и книгами:

- составить перечень книг, с которыми следует познакомиться;
- перечень должен быть систематизированным (что необходимо для семинаров, что для экзаменов, что пригодится для написания курсовых и дипломных работ, а что выходит за рамки официальной учебной деятельности, и расширяет общую культуру);
- обязательно выписывать все выходные данные по каждой книге (при написании курсовых и дипломных работ это позволит экономить время);
- определить, какие книги (или какие главы книг) следует прочитать более внимательно, а какие – просто просмотреть;
- при составлении перечней литературы следует посоветоваться с преподавателями и научными руководителями, которые помогут сориентироваться, на что стоит обратить большее внимание, а на что вообще не стоит тратить время;
- все прочитанные книги, учебники и статьи следует конспектировать, но это не означает, что надо конспектировать «все подряд»: можно выписывать кратко основные идеи автора и иногда приводить наиболее яркие и показательные цитаты (с указанием страниц);
- если книга – собственная, то допускается делать на полях книги краткие пометки или же в конце книги, на пустых страницах просто сделать свой «предметный указатель», где отмечаются наиболее интересные мысли и обязательно указываются страницы в тексте автора;
- следует выработать способность «воспринимать» сложные тексты; для этого лучший прием – научиться «читать медленно», когда понятно каждое прочитанное слово (а если слово незнакомое, то либо с помощью словаря, либо с помощью преподавателя обязательно его узнать).

Таким образом, чтение научного текста является частью познавательной деятельности. Ее цель – извлечение из текста необходимой информации. От того на сколько осознанна читающим собственная внутренняя установка при обращении к печатному слову (найти нужные сведения, усвоить информацию полностью или частично, критически проанализировать материал и т.п.) во многом зависит эффективность осуществляемого действия.

Грамотная работа с книгой, особенно если речь идет о научной литературе, предполагает соблюдение ряда правил, для овладения которыми необходимо настойчиво

учиться. Прежде всего, при такой работе невозможен формальный, поверхностный подход. Не механическое заучивание, не простое накопление цитат, выдержек, а сознательное усвоение прочитанного, осмысление его, стремление дойти до сути – вот главное правило.

Другое правило – соблюдение при работе над книгой определенной последовательности. Вначале следует ознакомиться с оглавлением, содержанием предисловия или введения. Это дает общую ориентировку, представление о структуре и вопросах, которые рассматриваются в книге.

Следующий этап – чтение. Первый раз целесообразно прочитать книгу с начала до конца, чтобы получить о ней цельное представление. При повторном чтении происходит постепенное глубокое осмысление каждой главы, критического материала и позитивного изложения; выделение основных идей, системы аргументов, наиболее ярких примеров и т.д. Непременным правилом чтения должно быть выяснение незнакомых слов, терминов, выражений, неизвестных имен, названий. С этой целью заводятся специальные тетради или блокноты. Важная роль в связи с этим принадлежит библиографической подготовке. Она включает в себя умение активно, быстро пользоваться научным аппаратом книги, справочными изданиями, каталогами, умение вести поиск необходимой информации, обрабатывать и систематизировать ее.

Выделяют четыре основные установки в чтении научного текста:

- информационно-поисковая (задача – найти, выделить искомую информацию);
- усваивающая (усилия читателя направлены на то, чтобы как можно полнее осознать и запомнить как сами сведения, излагаемые автором, так и всю логику его рассуждений);
- аналитико-критическая (читатель стремится критически осмыслить материал, проанализировав его, определив свое отношение к нему);
- творческая (создает у читателя готовность в том или ином виде – как отправной пункт для своих рассуждений, как образ для действия по аналогии и т.п. – использовать суждения автора, ход его мыслей, результат наблюдения, разработанную методику, дополнить их, подвергнуть новой проверке).

С наличием различных установок обращения к научному тексту связано существование и нескольких **видов чтения:**

- *библиографическое* – просматривание карточек каталога, рекомендательных списков, сводных списков журналов и статей за год и т.п.;
- *просмотровое* – используется для поиска материалов, содержащих нужную информацию, обычно к нему прибегают сразу после работы со списками литературы и каталогами, в результате такого просмотра читатель устанавливает, какие из источников будут использованы в дальнейшей работе;
- *ознакомительное* – подразумевает сплошное, достаточно подробное прочтение отобранных статей, глав, отдельных страниц, цель – познакомиться с характером информации, узнать, какие вопросы вынесены автором на рассмотрение, провести сортировку материала;
- *изучающее* – предполагает доскональное освоение материала; в ходе такого чтения проявляется доверие читателя к автору, готовность принять изложенную информацию, реализуется установка на предельно полное понимание материала;
- *аналитико-критическое и творческое чтение* – два вида чтения близкие между собой тем, что участвуют в решении исследовательских задач.

Первый из них предполагает направленный критический анализ, как самой информации, так и способов ее получения и подачи автором; второе – поиск тех суждений, фактов, по которым или в связи с которыми, читатель считает нужным высказать собственные мысли.

Из всех рассмотренных видов чтения основным является изучающее – именно оно позволяет в работе с учебной литературой накапливать знания в различных областях. Вот почему именно этот вид чтения в рамках учебной деятельности должен быть освоен в первую очередь. Кроме того, при овладении данным видом чтения формируются основные приемы, повышающие эффективность работы с научным текстом.

Научная методика работы с литературой предусматривает также ведение записи прочитанного. Это позволяет привести в систему знания, полученные при чтении, сосредоточить внимание на главных положениях, зафиксировать, закрепить их в памяти, а при необходимости вновь обратиться к ним.

1.2 Конспектирование

Аннотирование – предельно краткое связное описание просмотренной или прочитанной книги (статьи), ее содержания, источников, характера и назначения.

Планирование – краткая логическая организация текста, раскрывающая содержание и структуру изучаемого материала.

Тезирование – лаконичное воспроизведение основных утверждений автора без привлечения фактического материала.

Цитирование – дословное выписывание из текста выдержек, извлечений, наиболее существенно отражающих ту или иную мысль автора.

Конспектирование – краткое и последовательное изложение содержания прочитанного.

Конспект – сложный способ изложения содержания книги или статьи в логической последовательности. Конспект аккумулирует в себе предыдущие виды записи, позволяет всесторонне охватить содержание книги, статьи.

Поэтому умение составлять план, тезисы, делать выписки и другие записи определяет и технологию составления конспекта.

1.2.1 Методические рекомендации по составлению конспекта.

Внимательно прочитайте текст. Уточните в справочной литературе непонятные слова. При записи не забудьте вынести справочные данные на поля конспекта.

Выделите главное, составьте план, представляющий собой перечень заголовков, подзаголовков, вопросов, последовательно раскрываемых затем в конспекте. Это первый элемент конспекта.

Вторым элементом конспекта являются тезисы. **Тезис** - это кратко сформулированное положение. Для лучшего усвоения и запоминания материала следует записывать тезисы своими словами. Тезисы, выдвигаемые в конспекте, нужно доказывать. Поэтому третий элемент конспекта - основные доводы, доказывающие истинность рассматриваемого тезиса. В конспекте могут быть положения и примеры.

Законспектируйте материал, четко следуя пунктам плана. При конспектировании старайтесь выразить мысль своими словами. Записи следует вести четко, ясно.

Грамотно записывайте цитаты. Цитируя, учитывайте лаконичность, значимость мысли.

При оформлении конспекта необходимо стремиться к емкости каждого предложения. Мысли автора книги следует излагать кратко, заботясь о стиле и выразительности

написанного. Число дополнительных элементов конспекта должно быть логически обоснованным, записи должны распределяться в определенной последовательности, отвечающей логической структуре произведения. Для уточнения и дополнения необходимо оставлять поля.

Овладение навыками конспектирования требует целеустремленности, повседневной самостоятельной работы.

Конспект ускоряет повторение материала, экономит время при повторном, после определенного перерыва, обращении к уже знакомой работе.

1.2.2 Общие правила конспектирования:

1. Главное в конспекте не объем, а содержание. В нем должны быть отражены основные принципиальные положения источника, то новое, что внес его автор, основные методологические положения работы. Умение излагать мысли автора сжато, кратко и собственными словами приходит с опытом и знаниями. Но их накоплению помогает соблюдение одного важного правила – не торопиться записывать при первом же чтении, вносить в конспект лишь то, что стало ясным.

2. Форма ведения конспекта может быть самой разнообразной, она может изменяться, совершенствоваться. Но начинаться конспект всегда должен с указания полного наименования работы, фамилии автора, года и места издания; цитаты берутся в кавычки с обязательной ссылкой на страницу книги.

3. Конспект не должен быть «слепым», безликим, состоящим из сплошного текста. Особо важные места, яркие примеры выделяются цветным

подчеркиванием, взятием в рамочку, оттенением, пометками на полях специальными знаками, чтобы можно было быстро найти нужное положение.

Дополнительные материалы из других источников можно давать на полях, где записываются свои суждения, мысли, появившиеся уже после составления конспекта.

1.2.3 Конспект первоисточника

(Первоисточники - лекции, статьи, монографии, учебника, книги и пр.)

Представляет собой вид самостоятельной работы по созданию обзора информации, содержащейся в объекте конспектирования, в более краткой форме. В конспекте должны быть отражены основные принципиальные положения источника, то новое, что внес его автор, основные методологические положения работы, аргументы, этапы доказательства и выводы. Ценность конспекта значительно повышается, если студент излагает мысли своими словами, в лаконичной форме.

Конспект должен начинаться с указания реквизитов источника (фамилии автора, полного наименования работы, места и года издания).

Особо значимые места, примеры выделяются цветным подчеркиванием, взятием в рамку, пометками на полях, чтобы акцентировать на них внимание и прочнее запомнить.

Работа выполняется письменно. Озвучиванию подлежат главные положения и выводы работы в виде краткого устного сообщения (3-4 мин) в рамках теоретических и практических занятий. Контроль может проводиться и в виде проверки конспектов преподавателем.

Задачи студента:

- прочитать материал источника, выбрать главное и второстепенное;
- установить логическую связь между элементами темы;

- записывать только то, что хорошо уяснил;
- выделять ключевые слова и понятия;
- заменять сложные развернутые обороты текста более лаконичными (свертывание);
- разработать и применять свою систему условных сокращений.

Критерии оценки:

- содержательность конспекта, соответствие плану;
- отражение основных положений, результатов работы автора, выводов;
- ясность, лаконичность изложения мыслей;
- наличие схем, графическое выделение особо значимой информации;
- соответствие оформления требованиям;
- грамотность изложения;

1.2.4 Опорный конспект

Представляет собой вид самостоятельной работы по созданию краткой информационной структуры, обобщающей и отражающей суть материала лекции, темы учебника. Опорный конспект призван выделить главные объекты изучения, дать им краткую характеристику, используя символы, отразить связь с другими элементами.

Основная цель опорного конспекта – облегчить запоминание. В его составлении используются различные базовые понятия, термины, знаки (символы) – опорные сигналы. Опорный конспект – это наилучшая форма

подготовки к ответу и в процессе ответа. Составление опорного конспекта к темам особенно эффективно у студентов, которые столкнулись с большим объемом информации при подготовке к занятиям и, не обладая навыками выделять главное, испытывают трудности при ее запоминании. Опорный конспект может быть представлен системой взаимосвязанных геометрических фигур, содержащих блоки концентрированной информации в виде ступенек логической лестницы; рисунка с дополнительными элементами и др. Задание составить опорный конспект по теме может быть как обязательным, так и дополнительным.

Опорные конспекты могут быть проверены в процессе опроса по качеству ответа студента, его составившего, или эффективностью его использования при ответе другими студентами, либо в рамках семинарских занятий.

Задачи студента:

- изучить материалы темы, выбрать главное и второстепенное;
- установить логическую связь между элементами темы;
- представить характеристику элементов в краткой форме;
- выбрать опорные сигналы для акцентирования главной информации и отобразить в структуре работы;
- оформить работу и предоставить в установленный срок.

Критерии оценки:

- соответствие содержания теме;
- правильная структурированность информации;
- наличие логической связи изложенной информации;

- соответствие оформления требованиям;
- аккуратность и грамотность изложения;
- работа сдана в срок.

2 ВИДЫ РАБОТ ДЛЯ АУДИТОРИИ

2.1 Информационное сообщение

Это вид внеаудиторной самостоятельной работы по подготовке небольшого по объему устного сообщения для озвучивания на семинаре, практическом занятии.

Сообщаемая информация может носить характер уточнения или обобщения, , отражать современный взгляд по определенным проблемам.

Возможно письменное оформление задания, оно может включать элементы наглядности (иллюстрации, презентацию).

Регламент времени на озвучивание сообщения – до 5 мин.

Задачи студента:

- собрать и изучить лекции, литературу по теме;
- составить план или графическую структуру сообщения;
- выделить основные понятия;
- ввести в текст дополнительные данные, характеризующие объект изучения;
- оформить текст письменно (если требуется);
- сдать на контроль преподавателю и озвучить в установленный срок.

Критерии оценки:

- актуальность темы;
- соответствие содержания теме;
- глубина проработки материала;
- грамотность и полнота использования источников;
- наличие элементов наглядности.

2.2 Реферат

Это более объемный, чем сообщение, вид самостоятельной работы, содержащий информацию, дополняющую и развивающую основную тему, изучаемую на аудиторных занятиях. Ведущее место занимают темы, представляющие профессиональный интерес, несущие элемент новизны. Реферативные материалы должны представлять письменную модель первичного документа – научной работы, монографии, статьи. Реферат может включать обзор нескольких источников и служить основой для доклада на определенную тему на семинарах, конференциях.

Регламент озвучивания реферата – 7-10 мин.

Слово "реферат" (от латинского – referre – докладывать, сообщать) означает сжатое изложение в устной или письменной форме содержания какого-либо вопроса или темы на основе критического обзора информации.

При подготовке реферата необходимо соблюдать следующие правила.

Определить идею и задачу реферата. Следует помнить, что реферат будут читать другие. Поэтому постоянно задавайте себе вопрос, будет ли понятно написанное остальным, что интересного и нового найдут они в работе.

Ясно и четко сформулировать тему или проблему. Она не должна быть слишком общей.

Найти нужную литературу по выбранной теме. Составить перечень литературы, которая обязательно должна быть прочитана.

Только после предварительной подготовки следует приступать к написанию реферата. Прежде всего, составить план, выделить в нем части.

- **Введение**, в котором раскрывается цель и задачи сообщения; здесь необходимо сформулировать проблему, которая будет проанализирована в реферате, изложить своё отношение к ней, то есть мотивацию выбора; определить особенность постановки данной проблемы авторами изученной литературы; объяснить актуальность и значимость выбранной темы.
- **Основная часть**. Разделы, главы, параграфы основной части должны быть направлены на рассмотрение узловых моментов в теме реферата. Изложение содержания изученной литературы предполагает его критическое осмысление, глубокий логический анализ. Каждый раздел основной части реферата предполагает детальное изучение отдельного вопроса темы и последовательное изложение структуры текстового материала с обязательными ссылками на первоисточник. В целом, содержание основной части должно отражать позиции отдельных авторов, сравнительную характеристику этих позиций, выделение узловых вопросов дискурса по выбранной для исследования теме. Нужно показать свободное владение основными понятиями и категориями авторского текста. Для лучшего изложения сущности анализируемого материала можно проиллюстрировать его таблицами, графиками, сравнением цифр, цитатами.
- **Заключение**. В заключении автор реферата должен сформулировать личную позицию в отношении изученной проблемы и предложить, может быть, свои способы её решения. Целесообразно сделать общие выводы по теме реферата и ещё раз отметить её актуальность и значимость.
- **Список использованных источников и литературы**.

Начать реферат можно с изложения яркого, впечатляющего факта, который требует пояснения. Далее изложение должно идти от простого – к сложному. Не останавливайтесь на подробностях. Главное требование к реферату – максимум пользы для читателя при минимуме информации.

Рефераты можно подразделить на две основные группы (типы): научно-проблемные и обзорно-информационные.

Научно-проблемный реферат. При написании такого реферата надо изучить и кратко изложить имеющиеся в литературе суждения по определенному, спорному в теории, вопросу (проблеме) по данной изучаемой теме, высказать по этому вопросу (проблеме) собственную точку зрения с соответствующим ее обоснованием.

Обзорно-информационный реферат. Разновидностями такого реферата могут быть:

1) краткое изложение основных положений той или иной книги, монографии, другого издания (или их частей: разделов, глав и т.д.) как правило, только что опубликованных, содержащих материалы, относящиеся к изучаемой теме по курсу дисциплины.

2) подбор и краткое изложение содержания статей по определенной проблеме (теме, вопросу), опубликованных в различных журналах за тот или иной период, либо в сборниках («научных трудах», «ученых записках» и т.д.).

Объем реферата должен быть в пределах 15-20 страниц машинописного текста через 1,5 интервала. При оформлении реферата необходимо ориентироваться на правила, установленные для оформления курсовых работ.

Написание реферата и его защита перед преподавателем или группой предполагает, что студент должен знать правила написания и оформления реферата, а также уметь подготовить сообщение по теме своего реферата, быть готовым отвечать на вопросы преподавателя и студентов по содержанию реферата.

Задачи студента: идентичны подготовке информационного сообщения, но имеют особенности, касающиеся:

- выбора литературы (основной и дополнительной);
- изучения информации (уяснение логики материала источника, выбор основного материала, краткое изложение, формулирование выводов);
- оформления реферата согласно установленной форме.

Критерии оценки:

- актуальность темы;
- соответствие содержания теме;
- глубина проработки материала;
- грамотность и полнота использования источников;
- соответствие оформления реферата требованиям.

2.2.1 Создание материалов-презентаций

Это вид самостоятельной работы студентов по созданию наглядных информационных пособий, выполненных с помощью мультимедийной компьютерной программы PowerPoint. Этот вид работы требует координации навыков по сбору, систематизации, переработке информации, оформления ее в виде подборки материалов, кратко отражающих основные вопросы изучаемой темы, в электронном виде. То есть создание материалов презентаций расширяет методы и средства обработки и представления учебной информации, формирует навыки работы на компьютере.

Материалы-презентации готовятся в виде слайдов с использованием программы Microsoft PowerPoint. В качестве материалов презентаций могут быть представлены результаты любого вида внеаудиторной самостоятельной работы, по формату соответствующие режиму презентаций.

2.2.2 Создание реферата-презентации.

Данная форма выполнения самостоятельной работы отличается от написания реферата и доклада тем, что результаты своего исследования представляются в виде презентации. Серия слайдов передаёт содержание темы исследования, её главную проблему и социальную значимость.

Слайды позволяют значительно структурировать содержание материала и, одновременно, заостряют внимание на логике его изложения. Происходит постановка проблемы, определяются цели и задачи, формулируются вероятные подходы её разрешения.

Слайды презентации должны содержать логические схемы реферируемого материала. При выполнении работы можно использовать картографический материал, диаграммы, графики, звуковое сопровождение, фотографии, рисунки и другое.

Каждый слайд должен быть аннотирован, то есть он должен сопровождаться краткими пояснениями того, что он иллюстрирует.

Во время презентации-доклада устно дополняется материал комментариями слайдов.

После проведения демонстрации слайдов реферата студент должен дать личную оценку значимости изученной проблемной ситуации и ответить на заданные вопросы.

Задачи студента:

- изучить материалы темы, выделяя главное и второстепенное;
- установить логическую связь между элементами темы;
- представить характеристику элементов в краткой форме;
- выбрать опорные сигналы для акцентирования главной информации и отобразить в структуре работы;
- оформить работу и предоставить к установленному сроку.

Критерии оценки:

- соответствие содержания теме;
- правильная структурированность информации;
- наличие логической связи изложенной информации;
- эстетичность оформления, его соответствие требованиям;
- работа представлена в срок.

2.3 Кейсы (ситуационные задачи)

Это вид самостоятельной работы по систематизации информации в рамках постановки или решения конкретных проблем.

Решение ситуационных задач – чуть менее сложное действие, чем их создание. И в первом, и во втором случае требуется самостоятельный мыслительный поиск самой проблемы, ее решения. Такой вид самостоятельной работы направлен на развитие мышления, творческих умений, усвоение знаний, добытых в ходе активного поиска и самостоятельного решения проблем. Такие знания более прочные, они позволяют видеть, ставить и разрешать как стандартные, так и не стандартные задачи, которые могут возникнуть в дальнейшем в профессиональной деятельности.

Продумывая систему проблемных вопросов, надо опираться на уже имеющуюся базу данных, но не повторять вопросы уже содержащиеся в прежних заданиях по теме. Проблемные вопросы должны отражать интеллектуальные затруднения и вызывать целенаправленный мыслительный поиск. Решения ситуационных задач относятся к частично поисковому методу и предполагают третий (применение) и четвертый (творчество) уровень знаний. Характеристики выбранной для ситуационной задачи проблемы и способы ее решения являются отправной точкой для оценки качества этого вида работ. Оформляются задачи и эталоны ответов к ним письменно.

Задачи студента:

- изучить учебную информацию по теме;
- провести системно – структурированный анализ содержания темы;
- выделить проблему, имеющую интеллектуальное затруднение, согласовать с преподавателем;
- дать обстоятельную характеристику условий задачи;
- критически осмыслить варианты и попытаться их модифицировать (упростить в плане избыточности);
- выбрать оптимальный вариант (подобрать известные и стандартные алгоритмы действия) или варианты разрешения проблемы (если она нестандартная);
- оформить и сдать на контроль в установленный срок.

Критерии оценки:

- соответствие содержания задачи теме;
- содержание задачи носит проблемный характер;
- решение задачи правильное, демонстрирует применение аналитического и творческого подходов;
- продемонстрированы умения работы в ситуации неоднозначности и неопределенности;
- задача представлена на контроль в срок.

3 СОДЕРЖАНИЕ УЧЕБНОЙ ДИСЦИПЛИНЫ

Введение

Определение понятий «Эксплуатация гидромелиоративных систем», «АСУ в мелиорации» и «Мониторинг ГМС». Место дисциплины в подготовке инженера. Краткая история развития науки и основоположники курса по эксплуатации гидромелиоративных систем. Возрастание роли эксплуатации гидромелиоративных систем на современном этапе. Особенности гидромелиоративных систем в зонах недостаточного, избыточного и неустойчивого увлажнения. Организация эксплуатации гидромелиоративных систем в России. Перспективы развития эксплуатационных работ в РФ и за рубежом. Научно-технический прогресс в эксплуатации гидромелиоративных систем. Экономическая эффективность сельскохозяйственного производства на землях, обслуживаемых гидромелиоративными системами.

Раздел 1. Общие вопросы эксплуатации гидромелиоративных систем

1.1.Современные гидромелиоративные системы и основные задачи их эксплуатации. Понятие о гидромелиоративных системах и их состав. Классификация гидромелиоративных систем. Организация эксплуатации гидромелиоративных систем. основные задачи внутрихозяйственной и межхозяйственной систем. Функции гидромелиоративных систем. Понятие и основные положения о совершенных гидромелиоративных системах. Качество и надежность ГМС. Общетехнические свойства надежности. Показатели качества и надежности гидромелиоративных систем. Эксплуатационные требования к совершенным гидромелиоративным системам. Принципиальные схемы совершенных гидромелиоративных систем.

1.2.Технические средства эксплуатации и управления на гидромелиоративных системах. Диспетчерская связь. Средства автоматики и телемеханики. Водомерные посты. Наблюдательные скважины. Производственные и жилые здания. Лаборатории производственных исследований. Производственная база с подсобными предприятиями. Машины для эксплуатационных работ. Транспортные средства. Дорожная сеть. Эксплуатационная обстановка на каналах и сооружениях. Лесонасаждения.

1.3.Эксплуатационная гидрометрия и учет воды на гидромелиоративных системах. Виды учета. Классификация и размещение водомерных постов, основные требования к ним. Составные части и типы водомерных устройств. Конструкции водомерных устройств и сооружений. Гидрометрическая служба, ее задачи и состав работ.

1.4.Производственные исследования и перспективные планы развития гидромелиоративных систем. Цель и основные задачи производственных исследований. Состав производственных исследований на внутрихозяйственных оросительных системах. Состав производственных исследований на межхозяйственных оросительных системах. Состав производственных исследований на орошаемых системах. Перспективные планы развития систем.

1.5.Организация службы эксплуатации гидромелиоративных систем. Служба органов управления гидромелиоративными системами. Кадры управления системами. Инженерная служба эксплуатации внутрихозяйственной системы. Права и обязанности государственной эксплуатационной службы и эксплуатационного персонала. Производственно-финансовое планирование и отчетность. Паспортизация и инвентаризация гидромелиоративных систем.

1.6.Оценка технического состояния гидромелиоративных систем и ее элементов. Виды технического обслуживания и ремонта гидромелиоративных систем. Состав работ по ремонтам и техническому обслуживанию. Организация ремонтных работ. Механизация

и технология ремонтных работ. Техника безопасности при выполнении технического обслуживания и ремонтных работ.

1.7. Проекты по эксплуатации гидромелиоративных систем. Экономическая характеристика объектов. Состав проекта по эксплуатации гидромелиоративных систем: технико-экономическая характеристика объектов эксплуатации, управление мелиоративными режимами орошаемых или осушаемых земель, состав и объем эксплуатационных работ, запас аварийных материалов, организация технической эксплуатации, средства водоучета и контроль за мелиоративным состоянием земель, эксплуатационная обстановка, средства механизации ремонтно-эксплуатационных работ и транспорта, производственная база, жилье и объекты культурно-бытового назначения, служба эксплуатации, научно-производственные помещения, ежегодные затраты на эксплуатацию, эксплуатация по пусковым комплексам.

1.8. Охрана природы при эксплуатации гидромелиоративных систем, охрана водных ресурсов: основные причины загрязнения поверхностных водных источников и подземных вод; основные мероприятия по охране вод от истощения и загрязнения. Охрана земельных ресурсов: основные причины засоления орошаемых земель; мероприятия по защите орошаемых земель от засоления и подтопления; основные причины водной эрозии почв; мероприятия по предотвращению и борьбе с эрозией почв; основные меры борьбы с оврагами. Негативные явления при осушении земель; основные меры по охране земельных и водных ресурсов при осушении. Мероприятия по охране диких животных и рыбных запасов.

Раздел 2. Эксплуатация оросительных систем

2.1. основы водопользования на оросительных системах. Понятие о плановом водопользовании. Цели и задачи водопользования. Развитие планового водопользования. Принципы планового водопользования. Структура планов водопользования и их соподчиненность. Лимиты забора воды в систему и подача ее в хозяйства. Оросительная способность источника орошения. Техника и оперативность планирования водопользования. Принципы планирования водопользования в условиях дефицита водных ресурсов. Управление водопользованием на системе. Показатели для оценки планового водопользования. Водосбережение и охрана природных вод от загрязнения при водопользовании. Планирование внутрихозяйственного водопользования. Состав внутрихозяйственного плана водопользования. Исходная информация для составления планов водопользования. Оперативное планирование водопользования. Заявки на воду. Внутрихозяйственный водооборот.

2.2. Реализация планов внутрихозяйственного водопользования. Подготовка к поливам. Организация и технология поливов при поверхностном самотечном способе, дождевании, внутрипочвенном способе и капельном орошении. Оперативное управление поливами. Корректировка планов водопользования. Руководство поливами и контроль за использованием воды в хозяйствах. Отчетность по водопользованию. Показатели эффективности организации водопользования в хозяйстве.

2.3. Планирование межхозяйственного водораспределения, Принципы и задачи межхозяйственного водораспределения. Состав планов водораспределения и исходные материалы для их составления. Порядок составления планов водораспределения. Учет потребностей водопользователей, возможностей водохозяйственных систем и источников орошения. Водоземельные балансы. Учет КПД каналов системы при планировании водораспределения. Планы и диспетчерские графики забора и распределения воды. Межхозяйственный водооборот.

2.4. Реализация планов межхозяйственного водораспределения. Подготовка систем к поливам. Организация водораспределения на системе. Диспетчерское управление водораспределением. Корректировка планов водораспределения. Оперативный учет воды и

политых площадей. Показатели выполнения планов водораспределения и отчетность. Автоматический контроль и регулирование водоподачи. Улучшение использования водных ресурсов при водопользовании. Актуальность проблемы. Классификация потерь воды при орошении. Причины потерь и их размеры. Потери воды на каналах. КПД каналов. Методы определения потерь. Мероприятия по уменьшению потерь воды на каналах. Потери воды на орошаемых полях. Коэффициент использования воды (КИВ) на поле. Качественные и количественные различия потерь воды при поверхностном способе полива и дождеванием. Мероприятия по уменьшению потерь воды на орошаемых полях. КИВ на системе.

2.5. Улучшение эколого-мелиоративного состояния орошаемых земель. Причины вторичного засоления орошаемых земель. Эксплуатационная оценка засоленных земель. Организация наблюдений за мелиоративным состоянием орошаемых земель. Прогнозирование водного и солевого режимов орошаемых земель. Эксплуатационные мероприятия по улучшению мелиоративного состояния земель. Дренаж на орошаемых землях. Промывка засоленных земель. Оздоровление местности и улучшение условий жизни людей. Регулирование режима движения наносов на оросительных системах. Режим движения наносов в реках. Поступление наносов в системы. Мутность и транспортирующая способность потока. Дислокация наносов. Влияние наносов на работу элементов системы. Схема мероприятий по регулированию режима наносов. Борьба с наносами на головном участке системы. Способы удаления наносов из отстойников, каналов, лотков и трубопроводов. Эксплуатация специальных оросительных систем. Эксплуатация рисовых систем, систем орошения сточными водами, систем регулярного орошения на местном стоке, систем лиманного орошения, обводнительно-оросительных систем, систем орошения подземными водами. Водопользование в зоне крупных водохранилищ на реках. Использование водохранилищ для отдыха людей и мероприятия по охране чистоты вод. Водоохранные зоны.

Раздел 3. Регулирование водного режима на осушительно-увлажнительных и осушительных режимах

3.1. Внутрихозяйственное регулирование водного режима. Требования сельскохозяйственных культур к водному режиму осушаемых земель. Способы регулирования водного режима. Водный баланс и методы регулирования влажности почвы на полях. Внутрихозяйственный эксплуатационный план регулирования водного режима почвы, корректировка плана по текущему году. Системное регулирование водного режима. Системные планы регулирования водного режима в весенний и летний периоды. Расчетные расходы отводимой и проводимой воды на осушительно-увлажнительных системах. Приемы управления подачей и сбросом воды. Регулирование водного режима на полудерных системах, расчет объема откачиваемой с польдера избыточной воды. Управление работой насосных станций на польдерах. Оценка эффективности использования воды на системе.

Раздел 4. Комплексная конструкция и автоматизация гидромелиоративных систем

4.1. Комплексная конструкция и развитие оросительных систем. Цель и принципы реконструкции систем. Оценка технического состояния и очередность реконструкции систем. Перспективные планы развития систем. Основные направления совершенствования систем. Организация работ по реконструкции. Эффективность реконструкции. Природоохранные мероприятия при реконструкции оросительных систем. Комплексная реконструкция и развитие осушительных и осушительно-увлажнительных систем. Цель и принципы реконструкции систем. перспективные планы развития систем. Оценка технического состояния и очередность реконструкции систем. Основные направления совершенствования систем. Состав работ и направлений по реконструкции. Организация работ и эффективность реконструкции. Природоохранные мероприятия при реконструкции осушительных систем. Автоматизация гидромелиоративных систем. Автоматизация поливов. Авто-

матизация водораспределения и учета воды. Автоматизированные системы управления технологическими процессами на гидромелиоративных системах.

Раздел 5. Мониторинг гидромелиоративных систем и мелиоративных земель

5.1. Основные понятия и определения. Мониторинг гидромелиоративных систем и мелиоративных земель. Понятие о мониторинге, его цели и задачи. Структура мониторинга. Объекты и задачи мониторинга. Виды (уровни) и статус мониторинга. Организация мониторинга.

<i>№</i>	<i>Тема, раздел</i>	<i>Самостоятельная работа, час</i>
1.	Введение	14
2.	Раздел 1. Общие вопросы эксплуатации гидромелиоративных систем	34
3.	Раздел 2. Эксплуатация оросительных систем	24
4.	Раздел 3. Регулирование водного режима на осушительно-увлажнительных и осушительных режимах	24
5.	Раздел 4. Комплексная конструкция и автоматизация гидромелиоративных систем	24
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	ИТОГО	144

4 ТИПОВЫЕ ЗАДАНИЯ И СИСТЕМА ОЦЕНИВАНИЯ

4.1 Текущий контроль (в течение семестра)

Оценочное средство	Балловая стоимость	Критерии начисления баллов
Опрос	0-5 баллов	Полнота и правильность ответа на вопрос, наличие вывода, соблюдение норм литературной речи, владение профессиональной лексикой.
Контрольная работа	0-5 баллов	Качество содержания текста. Грамотность. Наличие реквизитов документа. Соответствие требованиям оформления

Оценка за опрос определяется простым суммированием баллов:

<i>Критерии оценки ответа на вопрос</i>	<i>Количество баллов</i>
правильность ответа	1
всесторонность и глубина ответа (полнота)	1
наличие выводов	1
соблюдение норм литературной речи	1
владение профессиональной лексикой	1
Итого	5

3-5 баллов (90-100%) - «зачтено»

0-2 балла (0-49%) - «не зачтено»

Оценивание выполнения контрольной работы осуществляется следующим образом:

<i>Критерии оценки контрольной работы</i>	<i>Количество баллов</i>
Качество содержания текста	0-2
Грамотность	0-1
Наличие реквизитов документа	0-1
Соответствие требованиям оформления	0-1
Итого	0-5

3-5 баллов (90-100%) - «зачтено»

0-2 балла (0-49%) - «не зачтено»

4.1.1 Контрольная работа. Варианты тем

1. Общие вопросы эксплуатации гидромелиоративных систем
2. Эксплуатация оросительных систем
3. Регулирование водного режима на осушительно-увлажнительных и осушительных режимах
4. Комплексная конструкция и автоматизация гидромелиоративных систем
5. Мониторинг гидромелиоративных систем и мелиоративных
6. Организационные принципы технической эксплуатации мелиоративных машин.

Отчет по контрольной оформляется в виде реферата .

4.1.2 Вопросы для проведения опроса

1. Назначение, виды и конструкции мелиоративных систем.
2. Служба эксплуатации. Техническая документация для эксплуатации.
3. Нормативные документы по эксплуатации.
4. Принципы управления мелиоративными системами. Эксплуатационная надежность.
5. Эксплуатация открытых каналов в земляном русле и противодиффузионных облицовок.
6. Эксплуатация оградительных дамб.
7. Эксплуатация закрытой и лотковой оросительной сети.
8. Эксплуатация закрытого дренажа.
9. Эксплуатация насосных станций.
10. Эксплуатация гидротехнических сооружений. Декларация безопасности.
11. Эксплуатация водохранилищ.
12. Планировка мелиоративных земель.
13. Водоучет на мелиоративных системах.
14. Обследование технического состояния мелиоративных систем и гидротехнических сооружений.
15. Мониторинг мелиоративных земель

4.2 Промежуточный контроль (во время сессии)

Оценочное средство (форма контрольного мероприятия)	Балловая стоимость контрольного мероприятия	Критерии начисления баллов
Теоретический вопрос	0-10 баллов	Полнота и последовательность ответа на вопрос (верное, четкое и достаточно глубокое изложение идей, понятий, фактов и т.д.), степень использования и понимания научных, нормативных источников, демонстрация умения анализировать материал, соблюдение норм литературной речи, использование профессиональной лексики

В билете 2 вопроса.

Оценка за ответ на теоретический вопрос определяется простым суммированием баллов:

<i>Критерии оценки ответа на вопрос</i>	<i>Количество баллов</i>
Полнота и последовательность ответа	0-2
Степень использования и понимания научных, нормативных источников	0-2
Умение анализировать материал	0-1
Соблюдение норм литературной речи	0-3
Владение профессиональной лексикой	0-2
Итого	0-10

Количество баллов за промежуточную аттестацию складывается из суммы баллов за каждый вопрос:

10-20 баллов (50-100%) - оценка «зачтено»

0-9 баллов (0-49%) - оценка «не зачтено».

4.2.1 Вопросы для подготовки к зачету

1. Понятие об эксплуатации мелиоративных систем.
2. Водный баланс и его элементы.
3. Атмосферные осадки, их распределение по территории России.
4. Сток. Факторы стока.
5. Методы измерения стока. Единицы измерения стока.
6. Испарение, его изменение по территории страны. Методы определения величин испарения.
7. Гидрологический режим рек. Гидрометрические посты.
8. Режим уровней и расходов воды. Графики частоты и обеспеченности.
9. Методы определения скоростей и расходов воды. Формула Шези и ее практическое значение.
10. Виды воды в почве и грунте. Движение грунтовых вод.
11. Закон Дарси. Коэффициент фильтрации и способы его определения.
12. Причины, вызывающие избыточное увлажнение. Образование болот и их эволюция.
13. Категории осушаемых земель и их характеристика (болота, заболоченные земли, гидроморфные минеральные земли).
14. Требование растений к водно-воздушному режиму почв.
15. Пути расхода почвенной влаги. Особенности расхода влаги на торфяной почве в зависимости от строения почвенного профиля.
16. Норма осушения в лесах, лесопарках, лесных питомниках. Санитарно–техническая норма осушения.
17. Способы и методы осушения в лесном хозяйстве и садово–парковом строительстве.
18. Осушение лесных земель открытыми каналами.
19. Осадка торфа, ее определение и практическое значение.
20. Правила размещения осушительной сети в плане.
21. Методы расчета расстояний между регулируемыми каналами.
22. Элементы поперечного сечения каналов.
23. Способы обеспечения устойчивости каналов. Расчет объемов земляных работ.
24. Дренаж, его виды и сравнительная оценка.
25. Размещение дренажной сети в плане. Систематический, выборочный, кольцевой, головной дренаж и условия их применения.
26. Особенности дренирования парков, садов, лесных питомников, площадок для отдыха, спортивных площадок.
27. Преимущества и недостатки дренажа.
28. Пolderы, кольматаж, вертикальный дренаж, осушение откачкой воды из глубоких скважин.
29. Виды водоприемников и требования, предъявляемые к ним.
30. Методы регулирования водоприемников: спрямление русла, расчистка русла, увеличение поперечного сечения русла, разгрузка водоприемника.
31. Изыскания при проектировании осушительной системы.
32. Производство гидромелиоративных работ.
33. Лесоводственная эффективность и причины разного эффекта осушения. Другие положительные стороны осушения.

34. Ведение хозяйства на осушенных землях.
35. Эксплуатация осушительных систем.
36. Влияние осушения на сток и водное питание рек.
37. Цели и задачи обводнения .
38. Источники водоснабжения. Искусственные водохранилища.
39. Устройство плотинных прудов. Выбор места под пруд.
40. Земляные плотины, их типы.
41. Вычисление объемов пруда и расчет его наполнения водой.
42. Определение высоты плотины.
43. Вычисление объема плотины. Водосбросные сооружения.
44. Источники воды для орошения.
45. Способы орошения. Самотечная подача воды.
46. Основные принципы размещения оросительных каналов.
47. Полив по бороздам, капельное орошение, синхронно–импульсное дождевание, мелко- дисперсное дождевание, лиманное орошение.
48. Потери воды в оросительных каналах и мероприятия по их предупреждению.
49. Предупреждение заболачивания и засоления орошаемых земель.
50. Эксплуатация оросительных систем.
51. Лесные полосы на орошаемых землях.
52. Виды эрозии.
53. Основные понятия о проектировании гидротехнических противоэрозионных сооружений.
54. Меры предупреждения, способы борьбы с оползнями.
55. Способы борьбы с эрозией берегов рек.
56. Определение глубины залегания и качества грунтовых вод.
57. Устройство колодцев.
58. Способы подъема воды.

5 ПЕРЕЧЕНЬ УЧЕБНО-МЕТОДИЧЕСКОГО ОБЕСПЕЧЕНИЯ ДЛЯ САМОСТОЯТЕЛЬНОЙ РАБОТЫ

Основная литература

№ п/п	Наименование	Кол-во экз.
1	Экология : учебник / Владимир Иванович Коробкин В. И., Леонид Васильевич Перельский Л. В. - Ростов-на-Дону : Феникс, 2001	58
2	Экология. Человек - Экономика - Биота - Среда : учебник / Т. А. Акимова, В. В. Хаскин. - 3-е изд., перераб. и доп. - Москва : Юнити-Дана, 2007.	20
3	Тимофеева С. С. Промышленная экология. Практикум/С. С. Тимофеева. – 2014	20
4	Шамраев А.В. Экологический мониторинг и экспертиза [Электронный ресурс] : учебное пособие / А.В. Шамраев. — Электрон. текстовые данные. — Оренбург: Оренбургский государственный университет, ЭБС АСВ, 2014. — 141 с. — 2227-8397. — Режим доступа: http://www.iprbookshop.ru/24348.html	Эл. ресурс
5	Экологический мониторинг [Электронный ресурс] : учебно-методическое пособие / Т.Я. Ашихмина [и др.]. — Электрон. текстовые данные. — М. : Академический Проект, Альма Матер, 2016. — 416 с. — 978-5-8291-2505-9. — Режим доступа: http://www.iprbookshop.ru/60099.html	Эл. ресурс

Дополнительная литература

№ п/п	Наименование	Кол-во экз.
1	Мотузова Г.В. Экологический мониторинг почв [Электронный ресурс] : учебник / Г.В. Мотузова, О.С. Безуглова. — Электрон. текстовые данные. — М. : Академический Проект, 2007. — 240 с. — 978-5-8291-0913-4. — Режим доступа: http://www.iprbookshop.ru/36657.html	Эл. ресурс
2	Латышенко К.П. Информационно-измерительные системы для экологического мониторинга [Электронный ресурс] / К.П. Латышенко, А.А. Попов. — Электрон. текстовые данные. — Саратов: Вузовское образование, 2013. — 309 с. — 2227-8397. — Режим доступа: http://www.iprbookshop.ru/20392.html	Эл. ресурс
3	Стандарты качества окружающей среды/Н. С. Шевцова [и др.] ; ред. М. Г. Ясовеев. – 2015	20
4	Основы научных исследований в геоэкологии : учебно-методическое пособие / А. И. Семячков, А. А. Тереханов ; Министерство образования и науки РФ, Уральский государственный горный университет. - Екатеринбург : УГГУ, 2015.	49
5	Тимофеева С. С. Оценка техногенных рисков/С. С. Тимофеева, Е. А. Хамидуллина. – 2015	20

МИНОБРНАУКИ РОССИИ

ФГБОУ ВО «Уральский государственный горный университет»



УТВЕРЖДАЮ

Проректор по учебно-методическому комплексу

С.А. Управов

**МЕТОДИЧЕСКИЕ МАТЕРИАЛЫ
ПО САМОСТОЯТЕЛЬНОЙ РАБОТЕ
ПО ДИСЦИПЛИНЕ**

МЕЛИОРАТИВНОЕ ЗЕМЛЕДЕЛИЕ

Направление подготовки

20.04.02 Природообустройство и водопользование

Профиль

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Природообустройства и водопользования

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(название кафедры)

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ВВЕДЕНИЕ

Основная задача высшего образования заключается в формировании творческой личности специалиста, способного к саморазвитию, самообразованию, инновационной деятельности.

Самостоятельная работа студентов является одной из важнейших составляющих образовательного процесса. Независимо от полученной профессии и характера работы любой начинающий специалист должен обладать фундаментальными знаниями, профессиональными умениями и навыками деятельности своего профиля, опытом творческой и исследовательской деятельности по решению новых проблем, опытом социально-оценочной деятельности.

Все эти составляющие образования формируются именно в процессе самостоятельной работы студентов, так как предполагает максимальную индивидуализацию деятельности каждого студента и может рассматриваться одновременно и как средство совершенствования творческой индивидуальности.

Основным принципом организации самостоятельной работы является комплексный подход, направленный на формирование навыков репродуктивной и творческой деятельности, при внеаудиторных контактах с преподавателем на консультациях и домашней подготовке.

Среди основных видов самостоятельной работы традиционно выделяют: подготовка к лекциям, семинарским и практическим занятиям, зачетам и экзаменам, презентациям и докладам; написание рефератов, выполнение лабораторных и контрольных работ, написание эссе; решение кейсов и ситуационных задач; проведение деловых игр; участие в научной работе.

Цель самостоятельной работы студента – осмысленно и самостоятельно работать сначала с учебным материалом, затем с научной информацией, заложить основы самоорганизации и самовоспитания с тем, чтобы привить умение в дальнейшем непрерывно повышать свою профессиональную квалификацию.

В учебном процессе выделяют два вида самостоятельной работы:

- аудиторная – самостоятельная работа на учебных занятиях под непосредственным руководством преподавателя и по его заданию;
- внеаудиторная – самостоятельная работа студентом по заданию преподавателя, но без его непосредственного участия, работа с научной литературой.

Самостоятельная работа помогает:

1) овладеть знаниями:

- чтение текста (учебника, первоисточника, дополнительной литературы и т.д.);
- составление плана текста, графическое изображение структуры текста, конспектирование текста, выписки из текста и т.д.;
- работа со справочниками и др. справочной литературой;
- ознакомление с нормативными и правовыми документами;
- учебно-методическая и научно-исследовательская работа;
- использование компьютерной техники и Интернета и др.;

2) закреплять и систематизировать знания:

- работа с конспектом лекции;

- - обработка текста, повторная работа над учебным материалом учебника, первоисточника, дополнительной литературы, аудио и видеозаписей;
- - подготовка плана;
- - составление таблиц для систематизации учебного материала;
- - подготовка ответов на контрольные вопросы;
- - заполнение рабочей тетради;
- - аналитическая обработка текста;
- - подготовка мультимедиа презентации и докладов к выступлению на семинаре (конференции, круглом столе и т.п.);
- - подготовка реферата;
- - составление библиографии использованных литературных источников;
- - разработка тематических кроссвордов и ребусов;
- - тестирование и др.;

3) формировать умения:

- - решение ситуационных задач и упражнений по образцу;
- - выполнение расчетов (графические и расчетные работы);
- - решение профессиональных кейсов и вариативных задач;
- - подготовка к контрольным работам;
- - подготовка к тестированию;
- - подготовка к деловым играм;
- - проектирование и моделирование разных видов и компонентов профессиональной деятельности;
- - опытно-экспериментальная работа;
- - анализ профессиональных умений с использованием аудио- и видеотехники и др.

Самостоятельная работа может осуществляться индивидуально или группами студентов в зависимости от цели, объема, конкретной тематики самостоятельной работы, уровня сложности и уровня умений студентов.

Контроль результатов самостоятельной работы студентов осуществляется в пределах времени, отведенного на обязательные учебные занятия и внеаудиторную самостоятельную работу студентов по дисциплине, может проходить в письменной, устной или смешанной форме.

По оценкам текущего (в течение семестра) и промежуточного (во время сессии) контроля по сформулированным ниже критериям выставляется оценка:

«зачтено» - обучающийся продемонстрировал знания, умения и навыки, являющиеся результатами освоения компетенций по дисциплине (базовый, углубленный, продвинутый показатель);

«не зачтено» - обучающийся продемонстрировал знания, умения и навыки, являющиеся результатами освоения компетенций по дисциплине (недостаточный показатель, не соответствующий базовому).

1 ВИДЫ ВНЕАУДИТОРНОЙ САМОСТОЯТЕЛЬНОЙ РАБОТЫ

1.1 Работа с научной литературой.

При работе с книгой необходимо подобрать литературу, научиться правильно ее читать, вести записи. Для подбора литературы в библиотеке используются алфавитный и систематический каталоги. Важно помнить, что рациональные навыки работы с книгой позволяют экономить время и повышают продуктивность. Правильный подбор учебников рекомендуется преподавателем, читающим лекционный курс. Необходимая литература указана в методических разработках по данному курсу.

Самостоятельная работа с учебниками и книгами (а также самостоятельное теоретическое исследование проблем, обозначенных преподавателем на лекциях) – это важнейшее условие формирования научного способа познания.

Основные приемы работы с учебниками и книгами:

- составить перечень книг, с которыми следует познакомиться;
- перечень должен быть систематизированным (что необходимо для семинаров, что для экзаменов, что пригодится для написания курсовых и дипломных работ, а что выходит за рамки официальной учебной деятельности, и расширяет общую культуру);
- обязательно выписывать все выходные данные по каждой книге (при написании курсовых и дипломных работ это позволит экономить время);
- определить, какие книги (или какие главы книг) следует прочитать более внимательно, а какие – просто просмотреть;
- при составлении перечней литературы следует посоветоваться с преподавателями и научными руководителями, которые помогут сориентироваться, на что стоит обратить большее внимание, а на что вообще не стоит тратить время;
- все прочитанные книги, учебники и статьи следует конспектировать, но это не означает, что надо конспектировать «все подряд»: можно выписывать кратко основные идеи автора и иногда приводить наиболее яркие и показательные цитаты (с указанием страниц);
- если книга – собственная, то допускается делать на полях книги краткие пометки или же в конце книги, на пустых страницах просто сделать свой «предметный указатель», где отмечаются наиболее интересные мысли и обязательно указываются страницы в тексте автора;
- следует выработать способность «воспринимать» сложные тексты; для этого лучший прием – научиться «читать медленно», когда понятно каждое прочитанное слово (а если слово незнакомое, то либо с помощью словаря, либо с помощью преподавателя обязательно его узнать).

Таким образом, чтение научного текста является частью познавательной деятельности. Ее цель – извлечение из текста необходимой информации. От того на сколько осознанна читающим собственная внутренняя установка при обращении к печатному слову (найти нужные сведения, усвоить информацию полностью или частично, критически проанализировать материал и т.п.) во многом зависит эффективность осуществляемого действия.

Грамотная работа с книгой, особенно если речь идет о научной литературе, предполагает соблюдение ряда правил, для овладения которыми необходимо настойчиво

учиться. Прежде всего, при такой работе невозможен формальный, поверхностный подход. Не механическое заучивание, не простое накопление цитат, выдержек, а сознательное усвоение прочитанного, осмысление его, стремление дойти до сути – вот главное правило.

Другое правило – соблюдение при работе над книгой определенной последовательности. Вначале следует ознакомиться с оглавлением, содержанием предисловия или введения. Это дает общую ориентировку, представление о структуре и вопросах, которые рассматриваются в книге.

Следующий этап – чтение. Первый раз целесообразно прочитать книгу с начала до конца, чтобы получить о ней цельное представление. При повторном чтении происходит постепенное глубокое осмысление каждой главы, критического материала и позитивного изложения; выделение основных идей, системы аргументов, наиболее ярких примеров и т.д. Непременным правилом чтения должно быть выяснение незнакомых слов, терминов, выражений, неизвестных имен, названий. С этой целью заводятся специальные тетради или блокноты. Важная роль в связи с этим принадлежит библиографической подготовке. Она включает в себя умение активно, быстро пользоваться научным аппаратом книги, справочными изданиями, каталогами, умение вести поиск необходимой информации, обрабатывать и систематизировать ее.

Выделяют четыре основные установки в чтении научного текста:

- информационно-поисковая (задача – найти, выделить искомую информацию);
- усваивающая (усилия читателя направлены на то, чтобы как можно полнее осознать и запомнить как сами сведения, излагаемые автором, так и всю логику его рассуждений);
- аналитико-критическая (читатель стремится критически осмыслить материал, проанализировав его, определив свое отношение к нему);
- творческая (создает у читателя готовность в том или ином виде – как отправной пункт для своих рассуждений, как образ для действия по аналогии и т.п. – использовать суждения автора, ход его мыслей, результат наблюдения, разработанную методику, дополнить их, подвергнуть новой проверке).

С наличием различных установок обращения к научному тексту связано существование и нескольких **видов чтения:**

- *библиографическое* – просматривание карточек каталога, рекомендательных списков, сводных списков журналов и статей за год и т.п.;
- *просмотровое* – используется для поиска материалов, содержащих нужную информацию, обычно к нему прибегают сразу после работы со списками литературы и каталогами, в результате такого просмотра читатель устанавливает, какие из источников будут использованы в дальнейшей работе;
- *ознакомительное* – подразумевает сплошное, достаточно подробное прочтение отобранных статей, глав, отдельных страниц, цель – познакомиться с характером информации, узнать, какие вопросы вынесены автором на рассмотрение, провести сортировку материала;
- *изучающее* – предполагает доскональное освоение материала; в ходе такого чтения проявляется доверие читателя к автору, готовность принять изложенную информацию, реализуется установка на предельно полное понимание материала;
- *аналитико-критическое и творческое чтение* – два вида чтения близкие между собой тем, что участвуют в решении исследовательских задач.

Первый из них предполагает направленный критический анализ, как самой информации, так и способов ее получения и подачи автором; второе – поиск тех суждений, фактов, по которым или в связи с которыми, читатель считает нужным высказать собственные мысли.

Из всех рассмотренных видов чтения основным является изучающее – именно оно позволяет в работе с учебной литературой накапливать знания в различных областях. Вот почему именно этот вид чтения в рамках учебной деятельности должен быть освоен в первую очередь. Кроме того, при овладении данным видом чтения формируются основные приемы, повышающие эффективность работы с научным текстом.

Научная методика работы с литературой предусматривает также ведение записи прочитанного. Это позволяет привести в систему знания, полученные при чтении, сосредоточить внимание на главных положениях, зафиксировать, закрепить их в памяти, а при необходимости вновь обратиться к ним.

1.2 Конспектирование

Аннотирование – предельно краткое связное описание просмотренной или прочитанной книги (статьи), ее содержания, источников, характера и назначения.

Планирование – краткая логическая организация текста, раскрывающая содержание и структуру изучаемого материала.

Тезирование – лаконичное воспроизведение основных утверждений автора без привлечения фактического материала.

Цитирование – дословное выписывание из текста выдержек, извлечений, наиболее существенно отражающих ту или иную мысль автора.

Конспектирование – краткое и последовательное изложение содержания прочитанного.

Конспект – сложный способ изложения содержания книги или статьи в логической последовательности. Конспект аккумулирует в себе предыдущие виды записи, позволяет всесторонне охватить содержание книги, статьи.

Поэтому умение составлять план, тезисы, делать выписки и другие записи определяет и технологию составления конспекта.

1.2.1 Методические рекомендации по составлению конспекта.

Внимательно прочитайте текст. Уточните в справочной литературе непонятные слова. При записи не забудьте вынести справочные данные на поля конспекта.

Выделите главное, составьте план, представляющий собой перечень заголовков, подзаголовков, вопросов, последовательно раскрываемых затем в конспекте. Это первый элемент конспекта.

Вторым элементом конспекта являются тезисы. **Тезис** - это кратко сформулированное положение. Для лучшего усвоения и запоминания материала следует записывать тезисы своими словами. Тезисы, выдвигаемые в конспекте, нужно доказывать. Поэтому третий элемент конспекта - основные доводы, доказывающие истинность рассматриваемого тезиса. В конспекте могут быть положения и примеры.

Законспектируйте материал, четко следуя пунктам плана. При конспектировании старайтесь выразить мысль своими словами. Записи следует вести четко, ясно.

Грамотно записывайте цитаты. Цитируя, учитывайте лаконичность, значимость мысли.

При оформлении конспекта необходимо стремиться к емкости каждого предложения. Мысли автора книги следует излагать кратко, заботясь о стиле и выразительности

написанного. Число дополнительных элементов конспекта должно быть логически обоснованным, записи должны распределяться в определенной последовательности, отвечающей логической структуре произведения. Для уточнения и дополнения необходимо оставлять поля.

Овладение навыками конспектирования требует целеустремленности, повседневной самостоятельной работы.

Конспект ускоряет повторение материала, экономит время при повторном, после определенного перерыва, обращении к уже знакомой работе.

1.2.2 Общие правила конспектирования:

1. Главное в конспекте не объем, а содержание. В нем должны быть отражены основные принципиальные положения источника, то новое, что внес его автор, основные методологические положения работы. Умение излагать мысли автора сжато, кратко и собственными словами приходит с опытом и знаниями. Но их накоплению помогает соблюдение одного важного правила – не торопиться записывать при первом же чтении, вносить в конспект лишь то, что стало ясным.

2. Форма ведения конспекта может быть самой разнообразной, она может изменяться, совершенствоваться. Но начинаться конспект всегда должен с указания полного наименования работы, фамилии автора, года и места издания; цитаты берутся в кавычки с обязательной ссылкой на страницу книги.

3. Конспект не должен быть «слепым», безликим, состоящим из сплошного текста. Особо важные места, яркие примеры выделяются цветным

подчеркиванием, взятием в рамочку, оттенением, пометками на полях специальными знаками, чтобы можно было быстро найти нужное положение.

Дополнительные материалы из других источников можно давать на полях, где записываются свои суждения, мысли, появившиеся уже после составления конспекта.

1.2.3 Конспект первоисточника

(Первоисточники - лекции, статьи, монографии, учебника, книги и пр.)

Представляет собой вид самостоятельной работы по созданию обзора информации, содержащейся в объекте конспектирования, в более краткой форме. В конспекте должны быть отражены основные принципиальные положения источника, то новое, что внес его автор, основные методологические положения работы, аргументы, этапы доказательства и выводы. Ценность конспекта значительно повышается, если студент излагает мысли своими словами, в лаконичной форме.

Конспект должен начинаться с указания реквизитов источника (фамилии автора, полного наименования работы, места и года издания).

Особо значимые места, примеры выделяются цветным подчеркиванием, взятием в рамку, пометками на полях, чтобы акцентировать на них внимание и прочнее запомнить.

Работа выполняется письменно. Озвучиванию подлежат главные положения и выводы работы в виде краткого устного сообщения (3-4 мин) в рамках теоретических и практических занятий. Контроль может проводиться и в виде проверки конспектов преподавателем.

Задачи студента:

- прочитать материал источника, выбрать главное и второстепенное;
- установить логическую связь между элементами темы;

- записывать только то, что хорошо уяснил;
- выделять ключевые слова и понятия;
- заменять сложные развернутые обороты текста более лаконичными (свертывание);
- разработать и применять свою систему условных сокращений.

Критерии оценки:

- содержательность конспекта, соответствие плану;
- отражение основных положений, результатов работы автора, выводов;
- ясность, лаконичность изложения мыслей;
- наличие схем, графическое выделение особо значимой информации;
- соответствие оформления требованиям;
- грамотность изложения;

1.2.4 Опорный конспект

Представляет собой вид самостоятельной работы по созданию краткой информационной структуры, обобщающей и отражающей суть материала лекции, темы учебника. Опорный конспект призван выделить главные объекты изучения, дать им краткую характеристику, используя символы, отразить связь с другими элементами.

Основная цель опорного конспекта – облегчить запоминание. В его составлении используются различные базовые понятия, термины, знаки (символы) – опорные сигналы. Опорный конспект – это наилучшая форма

подготовки к ответу и в процессе ответа. Составление опорного конспекта к темам особенно эффективно у студентов, которые столкнулись с большим объемом информации при подготовке к занятиям и, не обладая навыками выделять главное, испытывают трудности при ее запоминании. Опорный конспект может быть представлен системой взаимосвязанных геометрических фигур, содержащих блоки концентрированной информации в виде ступенек логической лестницы; рисунка с дополнительными элементами и др. Задание составить опорный конспект по теме может быть как обязательным, так и дополнительным.

Опорные конспекты могут быть проверены в процессе опроса по качеству ответа студента, его составившего, или эффективностью его использования при ответе другими студентами, либо в рамках семинарских занятий.

Задачи студента:

- изучить материалы темы, выбрать главное и второстепенное;
- установить логическую связь между элементами темы;
- представить характеристику элементов в краткой форме;
- выбрать опорные сигналы для акцентирования главной информации и отобразить в структуре работы;
- оформить работу и предоставить в установленный срок.

Критерии оценки:

- соответствие содержания теме;
- правильная структурированность информации;
- наличие логической связи изложенной информации;

- соответствие оформления требованиям;
- аккуратность и грамотность изложения;
- работа сдана в срок.

2 ВИДЫ РАБОТ ДЛЯ АУДИТОРИИ

2.1 Информационное сообщение

Это вид внеаудиторной самостоятельной работы по подготовке небольшого по объему устного сообщения для озвучивания на семинаре, практическом занятии.

Сообщаемая информация может носить характер уточнения или обобщения, , отражать современный взгляд по определенным проблемам.

Возможно письменное оформление задания, оно может включать элементы наглядности (иллюстрации, презентацию).

Регламент времени на озвучивание сообщения – до 5 мин.

Задачи студента:

- собрать и изучить лекции, литературу по теме;
- составить план или графическую структуру сообщения;
- выделить основные понятия;
- ввести в текст дополнительные данные, характеризующие объект изучения;
- оформить текст письменно (если требуется);
- сдать на контроль преподавателю и озвучить в установленный срок.

Критерии оценки:

- актуальность темы;
- соответствие содержания теме;
- глубина проработки материала;
- грамотность и полнота использования источников;
- наличие элементов наглядности.

2.2 Реферат

Это более объемный, чем сообщение, вид самостоятельной работы, содержащий информацию, дополняющую и развивающую основную тему, изучаемую на аудиторных занятиях. Ведущее место занимают темы, представляющие профессиональный интерес, несущие элемент новизны. Реферативные материалы должны представлять письменную модель первичного документа – научной работы, монографии, статьи. Реферат может включать обзор нескольких источников и служить основой для доклада на определенную тему на семинарах, конференциях.

Регламент озвучивания реферата – 7-10 мин.

Слово "реферат" (от латинского – referre – докладывать, сообщать) означает сжатое изложение в устной или письменной форме содержания какого-либо вопроса или темы на основе критического обзора информации.

При подготовке реферата необходимо соблюдать следующие правила.

Определить идею и задачу реферата. Следует помнить, что реферат будут читать другие. Поэтому постоянно задавайте себе вопрос, будет ли понятно написанное остальным, что интересного и нового найдут они в работе.

Ясно и четко сформулировать тему или проблему. Она не должна быть слишком общей.

Найти нужную литературу по выбранной теме. Составить перечень литературы, которая обязательно должна быть прочитана.

Только после предварительной подготовки следует приступать к написанию реферата. Прежде всего, составить план, выделить в нем части.

- **Введение**, в котором раскрывается цель и задачи сообщения; здесь необходимо сформулировать проблему, которая будет проанализирована в реферате, изложить своё отношение к ней, то есть мотивацию выбора; определить особенность постановки данной проблемы авторами изученной литературы; объяснить актуальность и значимость выбранной темы.
- **Основная часть**. Разделы, главы, параграфы основной части должны быть направлены на рассмотрение узловых моментов в теме реферата. Изложение содержания изученной литературы предполагает его критическое осмысление, глубокий логический анализ. Каждый раздел основной части реферата предполагает детальное изучение отдельного вопроса темы и последовательное изложение структуры текстового материала с обязательными ссылками на первоисточник. В целом, содержание основной части должно отражать позиции отдельных авторов, сравнительную характеристику этих позиций, выделение узловых вопросов дискурса по выбранной для исследования теме. Нужно показать свободное владение основными понятиями и категориями авторского текста. Для лучшего изложения сущности анализируемого материала можно проиллюстрировать его таблицами, графиками, сравнением цифр, цитатами.
- **Заключение**. В заключении автор реферата должен сформулировать личную позицию в отношении изученной проблемы и предложить, может быть, свои способы её решения. Целесообразно сделать общие выводы по теме реферата и ещё раз отметить её актуальность и значимость.
- **Список использованных источников и литературы**.

Начать реферат можно с изложения яркого, впечатляющего факта, который требует пояснения. Далее изложение должно идти от простого – к сложному. Не останавливайтесь на подробностях. Главное требование к реферату – максимум пользы для читателя при минимуме информации.

Рефераты можно подразделить на две основные группы (типы): научно-проблемные и обзорно-информационные.

Научно-проблемный реферат. При написании такого реферата надо изучить и кратко изложить имеющиеся в литературе суждения по определенному, спорному в теории, вопросу (проблеме) по данной изучаемой теме, высказать по этому вопросу (проблеме) собственную точку зрения с соответствующим ее обоснованием.

Обзорно-информационный реферат. Разновидностями такого реферата могут быть:

1) краткое изложение основных положений той или иной книги, монографии, другого издания (или их частей: разделов, глав и т.д.) как правило, только что опубликованных, содержащих материалы, относящиеся к изучаемой теме по курсу дисциплины.

2) подбор и краткое изложение содержания статей по определенной проблеме (теме, вопросу), опубликованных в различных журналах за тот или иной период, либо в сборниках («научных трудах», «ученых записках» и т.д.).

Объем реферата должен быть в пределах 15-20 страниц машинописного текста через 1,5 интервала. При оформлении реферата необходимо ориентироваться на правила, установленные для оформления курсовых работ.

Написание реферата и его защита перед преподавателем или группой предполагает, что студент должен знать правила написания и оформления реферата, а также уметь подготовить сообщение по теме своего реферата, быть готовым отвечать на вопросы преподавателя и студентов по содержанию реферата.

Задачи студента: идентичны подготовке информационного сообщения, но имеют особенности, касающиеся:

- выбора литературы (основной и дополнительной);
- изучения информации (уяснение логики материала источника, выбор основного материала, краткое изложение, формулирование выводов);
- оформления реферата согласно установленной форме.

Критерии оценки:

- актуальность темы;
- соответствие содержания теме;
- глубина проработки материала;
- грамотность и полнота использования источников;
- соответствие оформления реферата требованиям.

2.2.1 Создание материалов-презентаций

Это вид самостоятельной работы студентов по созданию наглядных информационных пособий, выполненных с помощью мультимедийной компьютерной программы PowerPoint. Этот вид работы требует координации навыков по сбору, систематизации, переработке информации, оформления ее в виде подборки материалов, кратко отражающих основные вопросы изучаемой темы, в электронном виде. То есть создание материалов презентаций расширяет методы и средства обработки и представления учебной информации, формирует навыки работы на компьютере.

Материалы-презентации готовятся в виде слайдов с использованием программы Microsoft PowerPoint. В качестве материалов презентаций могут быть представлены результаты любого вида внеаудиторной самостоятельной работы, по формату соответствующие режиму презентаций.

2.2.2 Создание реферата-презентации.

Данная форма выполнения самостоятельной работы отличается от написания реферата и доклада тем, что результаты своего исследования представляются в виде презентации. Серия слайдов передаёт содержание темы исследования, её главную проблему и социальную значимость.

Слайды позволяют значительно структурировать содержание материала и, одновременно, заостряют внимание на логике его изложения. Происходит постановка проблемы, определяются цели и задачи, формулируются вероятные подходы её разрешения.

Слайды презентации должны содержать логические схемы реферируемого материала. При выполнении работы можно использовать картографический материал, диаграммы, графики, звуковое сопровождение, фотографии, рисунки и другое.

Каждый слайд должен быть аннотирован, то есть он должен сопровождаться краткими пояснениями того, что он иллюстрирует.

Во время презентации-доклада устно дополняется материал комментариями слайдов.

После проведения демонстрации слайдов реферата студент должен дать личную оценку значимости изученной проблемной ситуации и ответить на заданные вопросы.

Задачи студента:

- изучить материалы темы, выделяя главное и второстепенное;
- установить логическую связь между элементами темы;
- представить характеристику элементов в краткой форме;
- выбрать опорные сигналы для акцентирования главной информации и отобразить в структуре работы;
- оформить работу и предоставить к установленному сроку.

Критерии оценки:

- соответствие содержания теме;
- правильная структурированность информации;
- наличие логической связи изложенной информации;
- эстетичность оформления, его соответствие требованиям;
- работа представлена в срок.

2.3 Кейсы (ситуационные задачи)

Это вид самостоятельной работы по систематизации информации в рамках постановки или решения конкретных проблем.

Решение ситуационных задач – чуть менее сложное действие, чем их создание. И в первом, и во втором случае требуется самостоятельный мыслительный поиск самой проблемы, ее решения. Такой вид самостоятельной работы направлен на развитие мышления, творческих умений, усвоение знаний, добытых в ходе активного поиска и самостоятельного решения проблем. Такие знания более прочные, они позволяют видеть, ставить и разрешать как стандартные, так и не стандартные задачи, которые могут возникнуть в дальнейшем в профессиональной деятельности.

Продумывая систему проблемных вопросов, надо опираться на уже имеющуюся базу данных, но не повторять вопросы уже содержащиеся в прежних заданиях по теме. Проблемные вопросы должны отражать интеллектуальные затруднения и вызывать целенаправленный мыслительный поиск. Решения ситуационных задач относятся к частично поисковому методу и предполагают третий (применение) и четвертый (творчество) уровень знаний. Характеристики выбранной для ситуационной задачи проблемы и способы ее решения являются отправной точкой для оценки качества этого вида работ. Оформляются задачи и эталоны ответов к ним письменно.

Задачи студента:

- изучить учебную информацию по теме;
- провести системно – структурированный анализ содержания темы;
- выделить проблему, имеющую интеллектуальное затруднение, согласовать с преподавателем;
- дать обстоятельную характеристику условий задачи;
- критически осмыслить варианты и попытаться их модифицировать (упростить в плане избыточности);
- выбрать оптимальный вариант (подобрать известные и стандартные алгоритмы действия) или варианты разрешения проблемы (если она не стандартная);
- оформить и сдать на контроль в установленный срок.

Критерии оценки:

- соответствие содержания задачи теме;
- содержание задачи носит проблемный характер;
- решение задачи правильное, демонстрирует применение аналитического и творческого подходов;
- продемонстрированы умения работы в ситуации неоднозначности и неопределенности;
- задача представлена на контроль в срок.

3 СОДЕРЖАНИЕ УЧЕБНОЙ ДИСЦИПЛИНЫ

Тема 1. Научные основы мелиоративного земледелия. Факторы жизни растений. Законы земледелия

Строение растений, их рост и развитие. Требования растений к факторам и условиям жизни, необходимость мелиорации почв. Основные способы наиболее рационального использования сельскохозяйственных угодий и повышения плодородия почв. Законы земледелия как теоретическая основа оптимизации свойств и режимов почв для получения высоких, устойчивых урожаев, обеспечения населения продуктами питания, животноводства - кормами, некоторых отраслей промышленности – сырьем.

Теоретической основой и руководством в практической деятельности мелиоративного земледелия служат законы: закон равнозначности и незаменимости факторов жизни растений; закон минимума, оптимума, максимума; закон совокупного действия факторов жизни растений; закон возврата, определяющий действие и взаимовлияние факторов жизни в процессе роста и развития растений. Система научно обоснованных агротехнических мероприятий формируют эффективные технологические решения мелиоративного земледелия – основа деятельности человека по оптимизации возделывания сельскохозяйственных культур.

Интенсификация мелиоративного земледелия на торфяных почвах путем внесения минерального грунта в обрабатываемый слой. Оценка влияния добавок минерального грунта на водный, воздушный, тепловой и биологический режим торфяной почвы, количество и качество урожая сельскохозяйственных культур. Культуры, возделываемые на осушенных землях: зерновые и зернобобовые, технические культуры, овощные культуры и картофель, многолетние травы.

Биологические основы орошения почв. Требования сельскохозяйственных культур к режиму орошения. Агротехническая оценка способов полива. Особенности орошения сточными водами. Возделывание зерновых, зернобобовых технических культур, овощных культур и картофеля на орошаемых землях. Кормопроизводство на мелиорируемых землях.

Тема 2. Обработка почв в мелиоративном земледелии

Научные основы, задачи и приемы обработки почв. Под обработкой почвы понимают воздействие на неё почвообрабатывающих машин и орудий для улучшения водного, воздушного, теплового и пищевого режимов, уничтожение сорных растений и защита почвы от эрозии и в конечном итоге повышения плодородия почвы и урожайности выращиваемых культур. В задачи обработки почвы входят также создание оптимальной плотности и пористости почвы для обеспечения роста и развития культурных растений; обеспечение жизнедеятельности почвенной микрофлоры; создание и поддержание хорошего фитосанитарного состояния почвы и посевов; увеличение мощности пахотного слоя; сохранение и рациональное использование почвенной влаги; создание оптимальных условий для посева и прорастания семян культурных растений.

Приемам основной обработки почвы: вспашка, безотвальная обработка, чизельная обработка, фрезерование. Значение глубины и окультуренности пахотного слоя почвы для роста и развития растений. Способы углубления пахотного слоя почвы. Приемы поверхностной и мелкой обработки почвы в условиях интенсификации земледелия. Достоинства и недостатки применения минимальной обработки почвы. Контроль качества обработки почвы в интенсивном земледелии.

Система обработки почвы в севооборотах. Принципы построения системы обработки почвы в севооборотах. Технологии обработки почвы в севооборотах. Обработка почвы при улучшении природных кормовых угодий.

Тема 3. Система земледелия в мелиоративном земледелии

Севообороты в мелиоративном земледелии. Система земледелия - комплекс взаимосвязанных организационно-хозяйственных, агротехнических, мелиоративных мероприятий, направленных на рациональное использование, восстановление и повышение почвенного плодородия, для получения максимального возможного урожая с единицы площади. Современные системы земледелия должны быть адаптированы к конкретным ландшафтам и отвечать требованиям экологической безопасности. Этапы развития системы земледелия: примитивная, переходная, интенсивная. Составные части систем земледелия: организация территории землепользования хозяйства и севооборотов; система обработки почв, система удобрений, система защиты растений, система контроля над экологической ситуацией в хозяйстве. Севообороты в мелиоративном земледелии. Химические, биологические, физические экономические причины обуславливающие высокую эффективность научно обоснованного севооборота. Типы и виды севооборотов: полевые, кормовые, специальные. Особенности оборотов на орошаемых землях. Специфика севооборотов на осушение торфяных почвах. Агротехнические принципы чередование культур на торфяных почвах. Виды севооборотов на торфяных почвах

Тема 4. Научные основы питания растений

Питание растений как важный фактор их жизни. Типы питания растений. Воздушное питание растений (фотосинтез). Корневого питания растений: корневой перехват, массовый поток диффузия. Связь между воздушными и корневым питанием растений. Влияние внешней среды на условия питания растений и эффективность удобрений. Значение отдельных химических элементов в питании растений. Азот в почвах. Роль азота в питании растений. Содержание азота в пахотном слое почвы. Содержание азота в почве и динамика его превращения. Уровень обеспеченности сельскохозяйственных культур азотом. Фосфор в почвах. Роль фосфора в питании растений. Содержание фосфора в урожай сельскохозяйственных культур. Содержание фосфора в различных типах почв. Группировка почв по содержанию подвижных форм фосфора карие в почвах. Ну и калия в питании растений. Содержание колец выражается хозяйственных культур. Содержание калия в пахотном и пахотных слоях различных почв. Группировка почв по содержанию обменного калия. Микроэлементы в почвах. Роль микроэлементов в питании растений. Содержание микроэлементов в почве и растениях. Группировка почв по обеспеченности растений микроэлементами. Регулировка режима питания растений. Роль органического вещества в интенсивном земледелие. Содержание гумуса как интегральный показатель плодородия почв. Воспроизводства гумуса в интенсивном земледелии. Окультуривание природных почв - как процесс изменения важных природных свойств в почве в благоприятную для питания растений сторону. Степень окультуренности почв: освоение, окультуривания, сильно окультуривания. Определение окультуренности почв.

Тема 5. Научные основы применения удобрения мелиоративных почв. Виды удобрений, их химический состав и свойства. Методы оптимизации доз и условия повышения их эффективности. Основы рациональной системы удобрений

Минеральные удобрения, пути повышения их эффективности в мелиоративном земледелие. Азотные удобрения. Значение азота в питании растений. Виды азотных удобрений. Эффективность азотных удобрений. Фосфорные удобрения. Значение фосфора в питании растений. Виды фосфорных удобрений. Эффективность фосфорных удобрений

от способа применения. Калийные удобрения. Значение калия в питании растений. Виды калийных удобрений. Эффективность калийных удобрений. Комплексные удобрения их классификация состав свойства. Особенности применения и эффективность комплексных удобрений микроудобрение. Значение микроудобрений в питании удобрение. Виды минеральных удобрений и эффективность их применения.

Оптимизация содержания микроэлементов в почвах. Органические удобрения, их виды, эффективность их применения в мелиоративном земледелии. Зелёное удобрение (сидераты). Воспроизводство почвенного плодородия.

Тема 6. Системы, нормы и дозы удобрений на мелиоративных землях. Экономическая и энергетическая эффективность использования удобрений. Влияние системного применения удобрений на плодородие и свойств почвы

Система удобрений в мелиоративном земледелии. Задачи системы применения удобрений. Расчёт норм и доз удобрений под хозяйственные культуры. Приёмы, сроки, способы и глубина внедрения внесение удобрений в почву. Система удобрений в севообороте. Применение удобрений на планируемый урожай.

Продуктивность мелиоративного земледелия. Расчёт доз удобрений на планируемый урожай. Расчёт доз удобрений на планируемую прибавку урожая. Расчёт доз удобрений по балльной оценке почв.

Влияние смешанного применения удобрений на плодородие свойства почвы. Природно-климатические условия применения удобрений. Научные принципы зональных систем применения удобрений в севооборотах. Зона дерново-подзолистых и серых лесных почв, зона чернозёмных и каштановых почв. Особенности систем удобрения в севооборотах при орошении.

Тема 7. Экологические проблемы агрохимии. Биологизация мелиоративного земледелия на основе использования органических удобрений и получения экологически чистой растениеводческой продукции

Экологические проблемы агрохимии. Причины загрязнения природной среды минеральными удобрениями, пестициды, время. Влияние химических средств на свойство почвы, на качество природных вод. Экологические принципы биологизации мелиоративного земледелия: биологические способы сохранения, улучшение состава и свойств почвы; биологические способы усиления фотосинтеза, биологические способы защиты растений от вредителей и болезней. Приёмы биологизации мелиоративного земледелия: насыщенность почв органическими удобрениями, использование минеральных (зелёных) удобрений, формирование мощного растительного покрова. Опыт биологизации земледелия в зарубежных странах по формированию биологического земледелия: достаточное количество органических удобрений, выставка окультуренные почвы, устойчивых высокой степени энерго земледелия, государственная поддержка аграрного сектора. Разработка и применение экологически и экономически обоснованных технологии при максимальной биологизации земледелия. Оценка оснований условия эффективности биологизация земледелия и применения органических удобрений. Перспективы биологизации земледелия на основе использования органических удобрений на основе торфа.

Тема 8. Химическая мелиорация почв. Известкование почв. Гипсование почв. Сорные Растения и меры борьбы с ними

Известкование почвы. Изменения определение необходимости известкования почв определения доз удобрений. Сроки проведения известкования почв. Оценка эффективно-

сти известкование почв по увеличению урожайности различных культур. Вынос кальция и магния с урожаем сельскохозяйственных культур. Использование известковые материалы в мелиоративном земледелии. Гипсование для улучшения химических, физических и биологических свойств почв. Дозы сроки и способы внесения гипса в почву.

Понятие о сорных растениях и вред наносимый ими сельскому хозяйству. Биологическая особенность сорных растений. Классификация сорных растений. Многолетние сорные растения. Паразитные сорные растения. Меры борьбы с сорными растениями. Борьба с сорными растениями в системе основной обработки почвы. Борьба с сорными растениями в системе предпосевной обработки почвы. Химический методы борьбы с сорными растениями

<i>№</i>	<i>Тема, раздел</i>	<i>Самостоятельная работа, час</i>
1.	Научные основы мелиоративного земледелия. Факторы жизни растений. Законы земледелия	14
2.	Обработка почв в мелиоративном земледелии	14
3.	Система земледелия в мелиоративном земледелии	14
4.	Научные основы питания растений	17
5.	Научные основы применения удобрения мелиоративных почв. Виды удобрений, их химический состав и свойства. Методы оптимизации доз и условия повышения их эффективности. Основы рациональной системы удобрений	15
6.	Системы, нормы и дозы удобрений на мелиоративных землях. Экономическая и энергетическая эффективность использования удобрений. Влияние системного применения удобрений на плодородие и свойств почвы	15
7.	Экологические проблемы агрохимии. Биологизация мелиоративного земледелия на основе использования органических удобрений и получения экологически чистой растениеводческой продукции	14
8.	Химическая мелиорация почв. Известкование почв. Гипсование почв. Сорные Растения и меры борьбы с ними	14
9.	Подготовка к экзамену	27
	ИТОГО	144

4 ТИПОВЫЕ ЗАДАНИЯ И СИСТЕМА ОЦЕНИВАНИЯ

4.1 Текущий контроль (в течение семестра)

Оценочное средство	Балловая стоимость	Критерии начисления баллов
Опрос	0-5 баллов	Полнота и правильность ответа на вопрос, наличие вывода, соблюдение норм литературной речи, владение профессиональной лексикой.
Контрольная работа	0-5 баллов	Качество содержания текста. Грамотность. Наличие реквизитов документа. Соответствие требованиям оформления

Оценка за опрос определяется простым суммированием баллов:

<i>Критерии оценки ответа на вопрос</i>	<i>Количество баллов</i>
правильность ответа	1
всесторонность и глубина ответа (полнота)	1
наличие выводов	1
соблюдение норм литературной речи	1
владение профессиональной лексикой	1
Итого	5

3-5 баллов (90-100%) - «зачтено»

0-2 балла (0-49%) - «не зачтено»

Оценивание выполнения контрольной работы осуществляется следующим образом:

<i>Критерии оценки контрольной работы</i>	<i>Количество баллов</i>
Качество содержания текста	0-2
Грамотность	0-1
Наличие реквизитов документа	0-1
Соответствие требованиям оформления	0-1
Итого	0-5

3-5 баллов (90-100%) - «зачтено»

0-2 балла (0-49%) - «не зачтено»

4.1.1 Контрольная работа. Варианты тем

1. Азот в почвах. Роль азота в питании растений. Содержание азота в пахотном слое почвы. Содержание азота в почве и динамика его превращения. Уровень обеспеченности сельскохозяйственных культур азотом.
2. Фосфор в почвах. Роль фосфора в питании растений. Содержание фосфора в урожае сельскохозяйственных культур. Содержание фосфора в различных типах почв. Группировка почв по содержанию подвижных форм фосфора и калия в почвах.

3. Роль калия в питании растений. Содержание калия в пахотных слоях различных почв. Группировка почв по содержанию обменного калия.
4. Микроэлементы в почвах. Роль микроэлементов в питании растений. Содержание микроэлементов в почве и растениях.
5. Группировка почв по обеспеченности растений микроэлементами. Регулировка режима питания растений.
6. Роль органического вещества в интенсивном земледелии. Содержание гумуса как интегральный показатель плодородия почв. Воспроизводства гумуса в интенсивном земледелии.
7. Окультуривание природных почв. Определение окультуренности почв.
8. Система удобрений в мелиоративном земледелии. Задачи системы применения удобрений.
9. Расчёт норм и доз удобрений под хозяйственные культуры. Приёмы, сроки, способы и глубина внедрения внесение удобрений в почву.
10. Система удобрений в севообороте. Применение удобрений на планируемый урожай.
11. Продуктивность мелиоративного земледелия.
12. Влияние смешанного применения удобрений на плодородие свойства почвы.
13. Природно-климатические условия применения удобрений.
14. Научные принципы зональных систем применения удобрений в севооборотах.
15. Причины загрязнения природной среды минеральными удобрениями, пестициды, время. Влияние химических средств на свойство почвы, на качество природных вод.
16. Экологические принципы биологизации мелиоративного земледелия.
17. Приёмы биологизации мелиоративного земледелия
18. Разработка и применение экологически и экономически обоснованных технологии при максимальной биологизации земледелия.
19. Оценка оснований условия эффективности биологизация земледелия и применения органических удобрений.
20. Известкование почвы. Известковые материалы в мелиоративном земледелии, Сроки проведения известкования почв.
21. Вынос кальция и магния с урожаем сельскохозяйственных культур.
22. Гипсование. Дозы, сроки и способы внесения гипса в почву.
23. Понятие о сорных растениях и вред, наносимый ими сельскому хозяйству. Классификация сорных растений.
24. Меры борьбы с сорными растениями.

Отчет по контрольной оформляется в виде реферата.

4.1.2 Вопросы для проведения опроса

1. Строение растений, их рост и развитие. Требования растений к факторам и условиям жизни.
2. Основные способы наиболее рационального использования сельскохозяйственных угодий и повышения плодородия почв.
3. Законы земледелия.

4. Законы мелиоративного земледелия.
5. Система агротехнических мероприятий, формирующая эффективные технологические решения мелиоративного земледелия.
6. Интенсификация мелиоративного земледелия на торфяных почвах.
7. Оценка влияния добавок минерального грунта на водный, воздушный, тепловой и биологический режим торфяной почвы, количество и качество урожая сельскохозяйственных культур.
8. Культуры, возделываемые на осушенных землях.
9. Биологические основы орошения почв. Требования сельскохозяйственных культур к режиму орошения.
10. Агротехническая оценка способов полива.
11. Особенности орошения сточными водами.
12. Возделывание зерновых, зернобобовых технических культур, овощных культур и картофеля на орошаемых землях.
13. Кормопроизводство на мелиорируемых землях.
14. Научные основы, задачи и приемы обработки почв.
15. Способы создания оптимальной плотности и пористости почвы для обеспечения роста и развития культурных растений; обеспечение жизнедеятельности почвенной микрофлоры;
16. Способы создания и поддержание фитосанитарного состояния почвы и посевов; увеличение мощности пахотного слоя; сохранение и рациональное использование почвенной влаги; создание оптимальных условий для посева и прорастания семян культурных растений.
17. Приемы основной обработки почвы.
18. Значение глубины и окультуренности пахотного слоя почвы для роста и развития растений. Способы углубления пахотного слоя почвы.
19. Приемы поверхностной и мелкой обработки почвы в условиях интенсификации земледелия.
20. Достоинства и недостатки применения минимальной обработки почвы.
21. Контроль качества обработки почвы в интенсивном земледелии.
22. Система обработки почвы в севооборотах.
23. Принципы построения системы обработки почвы в севооборотах.
24. Технологии обработки почвы в севооборотах.
25. Обработка почвы при улучшении природных кормовых угодий.
26. Система земледелия как комплекс мероприятий, направленных на рациональное использование, восстановление и повышение почвенного плодородия.
27. Современные системы земледелия и способы адаптации к ландшафтам
28. Этапы развития системы земледелия. Составные части систем земледелия.
29. Севообороты в мелиоративном земледелии.
30. Особенности оборотов на орошаемых землях.
31. Специфика севооборотов на осушение торфяных почвах.
32. Питание растений. Типы питания растений.
33. Влияние внешней среды на условия питания растений и эффективность удобрений.

4.2 Промежуточный контроль (во время сессии)

Оценочное средство (форма контрольного мероприятия)	Балловая стоимость контрольного мероприятия	Критерии начисления баллов
Теоретический вопрос	0-10 баллов	Полнота и последовательность ответа на вопрос (верное, четкое и достаточно глубокое изложение идей, понятий, фактов и т.д.), степень использования и понимания научных, нормативных источников, демонстрация умения анализировать материал, соблюдение норм литературной речи, использование профессиональной лексики

В билете 3 вопроса.

Оценка за ответ на теоретический вопрос определяется простым суммированием баллов:

<i>Критерии оценки ответа на вопрос</i>	<i>Количество баллов</i>
Полнота и последовательность ответа	0-2
Степень использования и понимания научных, нормативных источников	0-2
Умение анализировать материал	0-1
Соблюдение норм литературной речи	0-3
Владение профессиональной лексикой	0-2
Итого	0-10

Количество баллов за промежуточную аттестацию складывается из суммы баллов за каждый вопрос:

15-30 баллов (50-100%) - оценка «зачтено»

0-14 баллов (0-49%) - оценка «не зачтено».

4.2.1 Вопросы для подготовки к зачету

1. Строение растений, их рост и развитие. Требования растений к факторам и условиям жизни.
2. Основные способы наиболее рационального использования сельскохозяйственных угодий и повышения плодородия почв.
3. Законы земледелия .
4. Законы мелиоративного земледелия.
5. Система агротехнических мероприятий, формирующая эффективные технологические решения мелиоративного земледелия.
6. Интенсификация мелиоративного земледелия на торфяных почвах.
7. Культуры, возделываемые на осушенных землях.
8. Биологические основы орошения почв. Требования сельскохозяйственных культур к режиму орошения.
9. Агротехническая оценка способов полива.
10. Особенности орошения сточными водами.
11. Возделывание зерновых, зернобобовых технических культур, овощных культур и картофеля на орошаемых землях.
12. Кормопроизводство на мелиорируемых землях.
13. Научные основы, задачи и приемы обработки почв.

14. Способы создания оптимальной плотности и пористости почвы для обеспечения роста и развития культурных растений; обеспечение жизнедеятельности почвенной микрофлоры;
15. Способы создания и поддержание фитосанитарного состояния почвы и посевов; увеличение мощности пахотного слоя; сохранение и рациональное использование почвенной влаги; создание оптимальных условий для посева и прорастания семян культурных растений.
16. Приемы основной обработки почвы.
17. Значение глубины и окультуренности пахотного слоя почвы для роста и развития растений. Способы углубления пахотного слоя почвы.
18. Приемы поверхностной и мелкой обработки почвы в условиях интенсификации земледелия.
19. Достоинства и недостатки применения минимальной обработки почвы.
20. Контроль качества обработки почвы в интенсивном земледелии.
21. Система обработки почвы в севооборотах.
22. Принципы построения системы обработки почвы в севооборотах.
23. Технологии обработки почвы в севооборотах.
24. Обработка почвы при улучшении природных кормовых угодий.
25. Система земледелия как комплекс мероприятий, направленных на рациональное использование, восстановление и повышение почвенного плодородия.
26. Современные системы земледелия и способы адаптации к ландшафтам
27. Этапы развития системы земледелия. Составные части систем земледелия.
28. Севообороты в мелиоративном земледелии.
29. Особенности оборотов на орошаемых землях.
30. Специфика севооборотов на осушение торфяных почвах.
31. Питание растений. Типы питания растений.
32. Влияние внешней среды на условия питания растений и эффективность удобрений.
33. Азот в почвах. Роль азота в питании растений. Содержание азота в пахотном слое почвы. Содержание азота в почве и динамика его превращения. Уровень обеспеченности сельскохозяйственных культур азотом.
34. Фосфор в почвах. Роль фосфора в питании растений. Содержание фосфора в урожае сельскохозяйственных культур. Содержание фосфора в различных типах почв. Группировка почв по содержанию подвижных форм фосфора и калия в почвах.
35. Роль калия в питании растений. Содержание калия в пахотных слоях различных почв. Группировка почв по содержанию обменного калия.
36. Микроэлементы в почвах. Роль микроэлементов в питании растений. Содержание микроэлементов в почве и растениях.
37. Группировка почв по обеспеченности растений микроэлементами. Регулировка режима питания растений.
38. Роль органического вещества в интенсивном земледелии. Содержание гумуса как интегральный показатель плодородия почв. Воспроизводства гумуса в интенсивном земледелии.
39. Окультуривание природных почв. Определение окультуренности почв.
40. Система удобрений в мелиоративном земледелии. Задачи системы применения удобрений.
41. Расчёт норм и доз удобрений под хозяйственные культуры. Приёмы, сроки, способы и глубина внедрения внесение удобрений в почву.
42. Система удобрений в севообороте. Применение удобрений на планируемый урожай.
43. Продуктивность мелиоративного земледелия.
44. Влияние смешанного применения удобрений на плодородие свойства почвы.
45. Природно-климатические условия применения удобрений.

46. Научные принципы зональных систем применения удобрений в севооборотах.
47. Причины загрязнения природной среды минеральными удобрениями, пестициды, время. Влияние химических средств на свойство почвы, на качество природных вод.
48. Экологические принципы биологизации мелиоративного земледелия.
49. Приёмы биологизации мелиоративного земледелия
50. Разработка и применение экологически и экономически обоснованных технологий при максимальной биологизации земледелия.
51. Оценка оснований условия эффективности биологизация земледелия и применения органических удобрений.
52. Известкование почвы. Известковые материалы в мелиоративном земледелии, Сроки проведения известкования почв.
53. Вынос кальция и магния с урожаем сельскохозяйственных культур.
54. Гипсование. Дозы, сроки и способы внесения гипса в почву.
55. Понятие о сорных растениях и вред, наносимый ими сельскому хозяйству. Классификация сорных растений.
56. Меры борьбы с сорными растениями.

5 ПЕРЕЧЕНЬ УЧЕБНО-МЕТОДИЧЕСКОГО ОБЕСПЕЧЕНИЯ ДЛЯ САМОСТОЯТЕЛЬНОЙ РАБОТЫ

Основная литература

№ п/п	Наименование	Кол-во экз.
1	Колесников С. И. Почвоведение с основами геологии: Учебное пособие. –М: РИОР, 2005. – 150 с	10
2	Гафуров Ф. Г. Почвы Свердловской области. –Екатеринбург: Издательство Урал. ун-та, 2008. 396 с.	8
3	Тяботов И.А., Гревцев Н.В. Компонентный состав почв и методы его определения: учебное пособие.: Урал.гос. Горный ун-т. – Екатеринбург: Изд-во УГГУ, 2010. – 174 с.	25
4	А. А. Земельный кадастр: в 6 т. Т. 1. Теоретические основы государственного земельного кадастра. –М.: Колос, 2003. 383 с.	8

Дополнительная литература


№ п/п	Наименование	Кол-во экз.
1	Зайдельман Ф.Р. Генезис и экологические основы мелиорации почв и ландшафтов. Учебник/ Ф.Р. Зайдельман. – М.: КДУ. 2009 – 720 с.	1
2	Сметанин В.И., Сметанин В. В., Шибалова Г.В. Организация и производство работ при рекультивации земель, нарушенных антропогенной деятельностью. Учебное пособие. – М. : ФГОУ ВПО МГУП., 2010, 112 с.	4
3	Иванов Е.С. Специальные виды работ на объектах природообустройства и водопользования. Учебное пособие.- М.: ФГБОУ ВПО МГУП, 2013, 214 с.	6
4	Рационализация природопользования в стратегии развития промышленных предприятий / В.И. Голик [и др.]. - М. : Академический Проект : Культура, 2012. - 380 с.	4
5	Ясинецкий В.Г., Шибалова Г.В. Организация строительства объектов природообустройства и водопользования. Учебное пособие. –М.: ФГОУ ВПО МГУП. 2009, 118 с.	5
6	Мальшев Ф.А. Мелиорация легких почв торфом. Под ред. И.И. Лиштвана. - Мн.: –Наука и техника, 1989. – 79 с.	1
7	Наумович В.М. Торфяные ресурсы на службе сельского хозяйства. М.: Недра. 1991. – 111 с.	1

МИНОБРНАУКИ РОССИИ

ФГБОУ ВО «Уральский государственный горный университет»

УТВЕРЖДАЮ

Зав. кафедрой иностранных языков и
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**МЕТОДИЧЕСКИЕ УКАЗАНИЯ ПО ОРГАНИЗАЦИИ
САМОСТОЯТЕЛЬНОЙ РАБОТЫ И ЗАДАНИЯ ДЛЯ
ОБУЧАЮЩИХСЯ**

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ВВЕДЕНИЕ

Самостоятельная работа в высшем учебном заведении - это часть учебного процесса, метод обучения, прием учебно-познавательной деятельности, комплексная целевая стандартизованная учебная деятельность с запланированными видом, типом, формами контроля.

Самостоятельная работа представляет собой плановую деятельность обучающихся по поручению и под методическим руководством преподавателя.

Целью самостоятельной работы студентов является закрепление тех знаний, которые они получили на аудиторных занятиях, а также способствование развитию у студентов творческих навыков, инициативы, умению организовать свое время.

Самостоятельная работа реализует следующие задачи:

- предполагает освоение курса дисциплины;
- помогает освоению навыков учебной и научной работы;
- способствует осознанию ответственности процесса познания;
- способствует углублению и пополнению знаний студентов, освоению ими навыков и умений;
- формирует интерес к познавательным действиям, освоению методов и приемов познавательного процесса,
- создает условия для творческой и научной деятельности обучающихся;
- способствует развитию у студентов таких личных качеств, как целеустремленность, заинтересованность, исследование нового.

Самостоятельная работа обучающегося выполняет следующие функции:

- развивающую (повышение культуры умственного труда, приобщение к творческим видам деятельности, обогащение интеллектуальных способностей студентов);
- информационно-обучающую (учебная деятельность студентов на аудиторных занятиях, неподкрепленная самостоятельной работой, становится мало результативной);
- ориентирующую и стимулирующую (процессу обучения придается ускорение и мотивация);
- воспитательную (формируются и развиваются профессиональные качества бакалавра и гражданина);
- исследовательскую (новый уровень профессионально-творческого мышления).

Организация самостоятельной работы студентов должна опираться на определенные требования, а, именно:

- сложность осваиваемых знаний должна соответствовать уровню развития студентов;
- стандартизация заданий в соответствии с логической системой курса дисциплины;
- объем задания должен соответствовать уровню студента;
- задания должны быть адаптированными к уровню студентов.

Содержание самостоятельной работы студентов представляет собой, с одной стороны, совокупность практических учебных заданий, которые должен выполнить студент в процессе обучения, объект его деятельности; с другой стороны – это способ деятельности студента по выполнению соответствующего практического учебного задания.

Свое внешнее выражение содержание самостоятельной работы студентов находит во всех организационных формах аудиторной и внеаудиторной деятельности, в ходе самостоятельного выполнения различных заданий.

Функциональное предназначение самостоятельной работы студентов в процессе практических занятий по овладению специальными знаниями заключается в самостоятельном прочтении, просмотре, прослушивании, наблюдении, конспектировании, осмыслении, запоминании и воспроизведении определенной информации. Цель и планирование самостоятельной работы студента определяет преподаватель. Вся информация осуществляется на основе ее воспроизведения.

Основные формы организации самостоятельной работы студентов определяются следующими параметрами:

- содержание учебной дисциплины;
- уровень образования и степень подготовленности студентов;
- необходимость упорядочения нагрузки студентов при самостоятельной работе.

Таким образом, самостоятельная работа студентов является важнейшей составной частью процесса обучения.

Методические указания по организации самостоятельной работы и задания для обучающихся по дисциплине «*Профессиональный иностранный язык*» обращают внимание студента на главное, существенное в изучаемой дисциплине, помогают выработать умение анализировать явления и факты, связывать теоретические положения с практикой, а также облегчают подготовку к сдаче экзамена.

Видами самостоятельной работы обучающихся по дисциплине «*Профессиональный иностранный язык*» являются:

- повторение материала аудиторных занятий;
- самостоятельное изучение тем курса (в т.ч. работа с литературой);
- подготовка к практическим занятиям (в т.ч. чтение и перевод учебных текстов, запоминание иноязычной лексики);
- подготовка к экзамену.

В методических указаниях представлены материалы для самостоятельной работы и рекомендации по организации отдельных её видов.

I. Самостоятельная работа, обеспечивающая подготовку к аудиторным занятиям

1.1 Повторение материала практических занятий

Практические занятия направлены на развитие умений иноязычного говорения в рамках заданных РПД тем: Представление и знакомство, Деловая переписка, Наука и образование, Чтение и перевод научной литературы по направлению исследования, Аннотирование научных статей, Основные правила презентации научно-технической информации.

Подготовьте устный рассказ по теме на основе предложенного:

№1

Let me introduce myself. My name is ... Now I work as an economist in a joint-stock company. I graduated from the Ural State Mining University in 2017 and got a qualification of an economist-specialist of Finance and Credit.

I am interested in dealing in securities. I often read such journal as “Money and Credit”, “Money”, “Banks and Banking”.

In order to develop my scientific outlook I have decided to take a master's degree course at the Ural State Mining University. This year is quite difficult; I've had to combine my work and studies, to attend classes in different disciplines, to read a lot of material to get ready for final examinations. I prefer dealing with applied sphere of science. I don't have any articles published yet, but I'm working at.

I have already started collecting and working up the material for my master's thesis. My research deals with the Russian security market and general principles of functioning of similar markets abroad. The subject of my investigation is different kinds of securities and stock exchanges where the given financial instruments circulate. My thesis consists of two chapters. The first chapter is devoted to the analysis of stock price fluctuations, indicators, indices and factors. In the second chapter I am going to develop some new rules and principles to receive legible formulations. The most interesting aspect, I think, is an attempt to formulate some laws of a revolution in the field of securities in the contemporary Russian economic environment. I hope my research will be of great importance and serve as guidance to forecast different situations at the Russian security market. I don't use any special equipment except my notebook. Of course, I'm not satisfied with the result obtained. I have a long way to go. I plan to submit my thesis in two years.

My scientific supervisor is Mr... He is professor, Doctor of Economics.

The English language plays an important role in my life and study. I think of improving my speaking skills, so I'll be able to talk to foreign specialists on my own, to take part in scientific conferences abroad. But now I am reading a lot of specialized and scientific books and journals in English searching the material for my thesis.

№2

We can't imagine business without communication. Business is made through communication. It can be face-to-face conversation organized in the office or at the restaurant or business correspondence. It can be held with the help of regular mail or E-mail.

A business letter is the principal means used by a business firm to keep in touch with its customers. According to the purpose of the letter there may be different kinds, e.g. a letter of request, a memo (memorandum), a letter of advice, an invitation letter, a congratulation letter, a letter of thanks (gratitude), a letter of apology, an enquiry letter, a letter of guarantee, a letter of complaint, a letter of claim, an order letter, etc.

There are special rules to organize a business letter in a right way. The business letter consists of several parts.

First you should write your own name and address (in the right up corner), telephone numbers, and then write down the title, name and address of the recipient.

Always type the date, in the logical order of day, month, year (10th November 20...).

It is important to use the correct title of the person you are addressing to:

Dr. – means doctor (a person, who has Doctor's degree or PhD);

Professor – if you are addressing the professor;
Mr. / Sir – if you are addressing a male, but is not sure in his title;
Mrs. – if you are addressing a female (married);
Miss – if you are addressing a female (single);
Ms – if you are addressing a female (married or unmarried businesswoman);
Madam – addressing a female if you are not sure in her family status.

The salutation is the greeting with which every letter begins. Opening salutation is typed in the left-hand corner. There are several types of opening salutation:

Dear Sirs – to a company;
Dear Sir – to a man if you do not know his name;
Dear Madam – to a woman if you do not know her name;
Dear Sir or Madam – to a person if you know neither the name, nor sex;
Gentlemen – the most common salutation in the United States.

If your correspondent is known to you personally the warmer and more friendly greeting, *Dear Mr ...* is preferred.

The message forms the body of the letter and is the part that really matters. Some letters are very short and may consist of only one paragraph. Many others have three paragraphs: Introduction (why are you writing?), Details (facts, information, instructions), Action (what action will you take?).

Finishing the letter is a polite way of bringing a letter to a close and you should write one of the following phrases:

Yours sincerely; Truly yours, Yours faithfully sign the letter and put your (title), name and surname.

Business letters have to be written (typed) accurately in plain language.

№3

Science is important to world peace in many ways. On one hand, scientists have helped to develop many of the modern tools of war. On the other hand, they have also helped to keep the peace through research which has improved life for people. Scientists have helped us understand the problem of supplying the world with enough energy; they have begun to develop a number of solutions to the energy problem - for example, using energy from the sun and from the atom. Scientists have also analyzed the world's resources. We can begin to learn to share the resources with the knowledge provided to us by science. Science studies the Universe and how to use its possibilities for the benefit of men.

Science is also important to everyone who is affected by modern technology. Many of the things that make our lives easier and better are the results of advances in technology and, if the present patterns continue, technology will affect us even more in the future than it does now. In some cases, such as technology for taking salt out of ocean water, technology may be essential for our lives on Earth.

The study of science also provides people with an understanding of natural world. Scientists are learning to predict earthquakes, are continuing to study many other natural events such as storms. Scientists are also studying various aspects of human biology and the origin and developments of the human race. The study of the natural world may help to improve life for many people all over the world.

A basic knowledge of science is essential for everyone. It helps people find their way in the changing world.

№4

Electromagnetism is everywhere. It is a field that exists throughout space. When particles are electrically charged, the electromagnetic field exerts a force on them. These particles then move and exert a force on the electromagnetic field. By generating these fields when and where we want them and by controlling these forces we have electricity. This gives us the power we use in the modern world. All our TVs, phones, street lights and cars depend on electromagnetism.

So what is electromagnetism? Actually, it is two things, but they are so closely connected that it is convenient for us to think of them as one, as two sides of the same coin. There are two types of field: electric and magnetic. Electrically-charged particles result in an electric field, static electricity. When there is a conductor, a material which will allow electric field to pass through it, then we can create an electric current. In our homes, the conductors are the wires that run through our house to the light bulbs or the TV. A magnetic field results from the motion of an electric current and is used to generate the electricity we use.

In the 19th century, James Clerk Maxwell, the Scottish physicist, produced the equations that proved the two forces acted as one. One effect of this was for physicists all over the world to hurry back to their libraries and laboratories to rewrite the theories on the motion of objects. Maxwell's equations showed that what physicists had believed for centuries was in fact not correct. It was not until Einstein, in the 20th century, that the theory of motion was put right - at least for now.

How do we know the two things are one? Well, sailors had known for centuries that lightning affected the magnetic compasses on their ships. No one, however, made the connection between lightning and electricity until Benjamin Franklin, the American politician and scientist, flew a kite in a thunderstorm to attract the lightning. In other parts of the world, physicists were experimenting with magnets and electricity. Most passed a current across a magnetic needle and watched it move. The Frenchman, Andre Marie Ampere eventually applied mathematics to electromagnetism. It is from his work that we have our modern understanding of electromagnetism.

One piece of the jigsaw remained. No one had discovered a way of generating electricity. True, there were batteries, Alessandro Volta invented the Voltaic pile in 1800, but it was of limited use. Certainly no battery could provide enough electrical power to operate a machine. For that the world would have to wait for Michael Faraday to find a way of creating an electrical current, when and where it was needed.

No 5

When Should You Summarize an Article?

There are a few instances when you might want to summarize an article. These are:

To show how an author's ideas support your argument

To argue against the author's ideas

To condense a lot of information into a small space

To increase your understanding of an article

What Needs to Be Included in a Summary of an Article?

A great summary should include certain important elements that make the reading experience easier on the reader. A good summary will consist of the following elements.

The main idea of the article is conveyed clearly and concisely

The summary is written in the unique style of the writer

The summary is much shorter than the original document

The summary explains all of the important notions and arguments

The summary condenses a lot of information into a small space

How Do You Summarize an Article?

Summarizing an article can be boiled down to three simple steps. By following these steps, you should have a thorough, clear, and concise summary in no time.

Identify the main idea or topic.

Identify the important arguments.

Write your summary.

Continue reading for detailed explanations of each of these steps.

Identify the Main Idea or Topic

The aim of an article is to convey a certain idea or topic through the use of exposition and logic.

In a summary, you want to identify the main idea of the article and put this information into your own words. To do this, you must be willing to read the article several times. On the first reading, try to gain a general notion of what the article is trying to say. Once you've done this write down your

initial impression. This is most likely the thesis, or main idea, of the article. Also, be sure to include the author's first and last name and the title of the article in your notation for later reference.

Example: In the article "Why Two Best Friends Doesn't Work," author Cassandra Grimes argues that most teenage girls can't get along in groups of more than two.

When trying to identify the central idea, you should ask yourself, "Why was this essay written and published?" Clues to help determine this include the following.

How to Identify the Main Idea of an Article

Gather information from the title.

Identify the place it was published, as this can help you determine the intended audience.

Determine the date of publication.

Determine the type of essay. (Is it expository, argumentative, literary, scholarly?)

Take note of the tone of the piece.

Identify certain notions or arguments that seem to be repeated throughout.

Applying these methods of identification, let's take a look at the article "Bypass Cure" by James Johnson. We can assume the subject of the article from the title. Upon further examination, it becomes clear that the author is arguing that new research suggests the best cure for diabetes is the surgical solution of a gastric bypass.

Example: "Bypass Cure" by James Johnson records a recent discovery by researchers that people who have bypass surgery for weight control are also instantly cured of diabetes. Since rising diabetic rates and obesity has become a worldwide concern, the article provides a startling but controversial potential solution.

Now that we have identified the main idea of the article, we can move onto the next step.

Identify Important Arguments

At this point in the preparation process, you should read the article again. This time, read more carefully. Look specifically for the supporting arguments. Some tips on how to identify the important arguments of an article are listed below.

How to Identify Important Arguments in an Article

Read on a paper copy or use a computer program that lets you make annotations.

Underline the topic sentence of each paragraph. (If no one sentence tells the main concept, then write a summary of the main point in the margin.)

Write that sentence in your own words on the side of the page or on another piece of paper.

When you finish the article, read all the topic sentences you marked or wrote down.

In your own words, rewrite those main ideas.

Use complete sentences with good transition words.

Be sure you don't use the same words, phrases, or sentence structure as the original.

You may find you need to leave out some of the unimportant details.

Your summary should be as short and concise as possible.

In short, you want to boil the article down to its main, supporting arguments. Let everything else fall away, and what you are left with is an argument or an opinion, and the arguments that support it.

Write Your Summary

Your summary should start with the author's name and the title of the work. Here are several ways to do this correctly:

Introduction Sentence Examples for an Article Summary

In "Cats Don't Dance," John Wood explains ...

John Wood, in "Cats Don't Dance," explains ...

According to John Wood in "Cats Don't Dance" ...

As John Wood vividly elucidates in his ironic story "Cats Don't Dance" ...

John Wood claims in his ironic story "Cats Don't Dance" that ...

Combine the thesis of the article with the title and author into your first sentence of the summary. Reference the following sentence as an example.

In "Cats Don't Dance," John Wood explains that in spite of the fact that cats are popular pets who seem to like us, felines are not really good at any activities that require cooperation with someone else, whether that is dancing or sharing.

If possible, your first sentence should summarize the article. The rest of your summary should cover some of the central concepts used to support the thesis. Be sure to restate these ideas in your own words, and to make your summary as short and concise as possible. Condense sentences and leave out unimportant details and examples. Stick to the important points.

How to Quote the Author of an Article

When you refer to the author for the first time, you always use their full name. When you refer to the author after that, you always use their last name. The following examples show how to use the author's name in an article summary after you have already introduced them.

Johnson comments ...

According to Wood's perspective ...

As Jones implies in the story about ...

Toller criticizes...

In conclusion, Kessler elaborates about ...

You don't need to use an author's title (Dr., Professor, or Mr. and Mrs.), but it does help to add their credentials to show they are an authoritative source. The sentences below show ways to do this.

In "Global Warming isn't Real," Steven Collins, a professor at the University of Michigan, claims that ...

New York Times critic Johann Bachman argues in "Global Warming is the Next Best Thing for the Earth" that ...

If you are discussing the ideas of the author, you always need to make it clear that you are reciting their ideas, not your own.

How to Introduce the Ideas of the Author in an Article Summary

Use author tags

Use mentions of "the article" or "the text"

Add the page number that the information is found on in parenthesis at the end of the sentence

Using Author Tags

In writing your summary, you need to clearly state the name of the author and the name of the article, essay, book, or other source. The sentence below is a great example of how to do this.

According to Mary Johnson in her essay, "Cats Make Good Pets," the feline domestic companion is far superior to the canine one.

You also need to continue to make it clear to the reader when you are talking about the author's ideas. To do this, use "author tags," which are either the last name of the author or a pronoun (he or she) to show you are still discussing that person's ideas.

Also, try to make use of different verbs and adverbs. Your choice of author tag verbs and adverbs can contribute to the way you analyze the article. Certain words will create a specific tone. See the tables for a selection of different word choices.

How Long Is a Summary of an Article?

The length of an article summary will depend on the length of the article you are writing about.

If the article is long (say, 10-12 pages) then your summary should be about four pages. If the article is shorter, your summary should be about one to two pages. Sometimes, an article summary can be less than one page.

The length of a summary will also depend on the instructions you have been given. If you are writing a summary for yourself, it's up to you how long or short it will be (but remember, a summary is supposed to be a short regurgitation of the information outline in an article). If you are writing a summary for a class assignment, the length should be specified.

How to Edit and Revise Your Summary

Before you are officially done, it is important to edit your work. The steps below explain the process of editing and revision.

Re-read the summary and edit out any obvious mistakes.

Read your summary aloud. If anything sounds off, fix it.

Let one of your peers read your summary. Make changes according to their feedback.

With that, your summary should be complete.

№6

A presentation is the practice of showing and explaining the content of a topic to an audience or learner. In the business world, there are sales presentations, informational and motivational presentations, interviews, status reports, image-building, and training sessions.

Students are often asked to make oral presentations. You might have been asked to research a subject and use a presentation as a means of introducing it to other students for discussion.

Before you prepare for a presentation, it is important that you think about your objectives. There are three basic purposes of giving oral presentations: to inform, to persuade, and to build goodwill.

Decide what you want to achieve:

- inform – to provide information for use in decision making;

- persuade – to reinforce or change a receiver's belief about a topic;

- build relationships – to send some messages which have the simple goal of building good-will between you and the receiver.

Preparation

A successful presentation needs careful background research. Explore as many sources as possible, from press cuttings to the Internet. Once you have completed your research, start writing for speech bearing in mind the difference between spoken and written language. Use simple, direct sentences, active verbs, adjectives and the pronouns "you" and "I".

Structuring a Presentation

A good presentation starts with a brief introduction and ends with a brief conclusion. The introduction is used to welcome your audience, introduce your topic/ subject, outlines the structure of your talk. The introduction may include an icebreaker such as a story, an interesting statement or a fact. Plan an effective opening; use a joke or an anecdote to break the ice. The introduction also needs an objective, that is, the purpose or goal of the presentation. It informs the audience of the purpose of the presentation too.

Next, *the body* of the presentation comes. Do not write it out word for word. All you want is an outline. There are several options for structuring the presentation:

1) Timeline: arrangement in a sequential order.

2) Climax: the main points are delivered in order of increasing importance.

3) Problem/ Solution: a problem is presented, a solution is suggested.

4) Classification: the important items are the major points.

5) Simple to complex: ideas are listed from the simplest to the most complex; it can also be done in a reverse order.

After the body, comes *the closing*. A strong ending to the presentation is as important as an effective beginning. You should summarise the main points. This is where you ask for questions, provide a wrap-up (summary), and thank the participants for attending.

Each successful presentation has three essential objectives: the three Es – to educate, to entertain, to explain.

The main objective of making a presentation is to relay information to your audience and to capture and hold their attention. Adult audience has a limited attention span of about 45 minutes. In that time, they will absorb about a third of what you said, and a maximum of seven concepts. Limit yourself to three or four main points, and emphasise them at the beginning of your speech, in the middle, and again at the end to reiterate your message. You should know your presentation so well that

during the actual presentation you should only have to briefly glance at your notes.

People process information in many ways. Some learn visually, others learn by listening, and the kinesthetic types prefer to learn through movement. It's best to provide something for everyone. Visual learners learn from pictures, graphs, and images. Auditory learners learn from listening to a speaker. And, kinesthetic learners like to be involved and participate.

Практические занятия направлены также на формирование грамматического навыка по темам: Система времен английского глагола действительного залога. Формы выражения будущего времени в придаточных предложениях условия и времени. Категория страдательного залога английского глагола. Образование форм. Модальные глаголы can, could, to be able to, must, have to, will, shall, should, ought to, may, might. Сослагательное наклонение. Три типа условных предложений. Синтаксис: Побудительные предложения, восклицательные предложения, вопросительные предложения. Сложные предложения. Прямая и косвенная речь. Согласование времен в английском предложении. Сравнительно-сопоставительные конструкции и обороты в предложении. Типы придаточных предложений и способы их связи.

Повторите материал практических занятий.

Синтаксис: Побудительные предложения, восклицательные предложения, вопросительные предложения.

В побудительном предложении выражаются различные побуждения к действию – приказ, просьба, запрещение, рекомендация, совет и т.д. Повелительные предложения, выражающие приказания, произносятся с понижающейся интонацией, а предложения, выражающие просьбу, - с повышающейся интонацией.

Повелительное предложение может быть как утвердительным, так и отрицательным. Глагол в повелительном предложении употребляется в форме повелительного наклонения. Подлежащее как правило отсутствует, и предложение начинается прямо со сказуемого. Подразумевается, что действие должен выполнять тот, кому адресовано обращение.

Open the book. *Откройте книгу.*

Translate this article, please. *Переведите, пожалуйста, эту статью.*

Take off your hat! *Снимите шляпу!*

Don't go there. *Не ходите туда.*

Tell me all about it. *Расскажи мне все об этом.*

Put the dictionary on the shelf. *Положите словарь на полку.*

Don't be late, please. *Не опоздайте, пожалуйста.*

Предложение может состоять и из одного сказуемого, выраженного глаголом в повелительном наклонении:

Write! *Пиши(те)!*

Don't talk! *Не разговаривай(те)!*

Для выражения просьбы в конце повелительного предложения часто употребляется **will you?** или **won't you?**, отделяющиеся запятой:

Come here, **will you?** *Идите сюда, пожалуйста.*

Close the window, **will you?** *Закройте, пожалуйста, окно.*

Fetch me a chair, **won't you?** *Принесите мне стул, пожалуйста.*

Come and see me, **won't you?** *Заходите ко мне, пожалуйста.*

Просьба может быть выражена также в форме вопросительного предложения, начинающегося с **will** или **would**. В отличие от общего вопроса, предложение, выражающее просьбу, произносится с падающей интонацией:

- Will** you come here? *Идите сюда, пожалуйста.*
Will you give me that book? *Дайте мне эту книгу, пожалуйста.*
Would you mind lending me your dictionary? *Не будете ли вы добры одолжить мне ваш словарь?*
Would you give me some water? *Дайте мне воды, пожалуйста.*
Will you fetch me a chair, please? *Принесите мне стул, пожалуйста.*
Would you be good enough to close the window? *Не будете ли вы добры закрыть окно?*

Для усиления просьбы перед глаголом в повелительном наклонении употребляется вспомогательный глагол **do**:

- Do write to me! *Пожалуйста, пишите мне!*
 Do listen to me. *Послушайте же меня!*
 Do come with me. *Идемте со мной, ну!*

Восклицательные предложения передают различные эмоциональные чувства – радость, удивление, огорчение и т.д. Любое предложение: повествовательное, вопросительное или повелительное может стать восклицательным, если высказываемая мысль сопровождается сильным чувством и интонацией. На письме оно обычно обозначается восклицательным знаком. Восклицательные предложения произносятся с понижающейся интонацией.

- At last you have returned! *Наконец вы вернулись!*
 Have you ever seen such weather?! *Вы когда-нибудь видели такую погоду?!*
 How can you be so lazy! *Ну как можно быть таким ленивым!*
 Oh, please, forgive me! *О, пожалуйста, прости меня!*
 Hurry up! *Спешите!*
 You are so stupid! *Ты так глуп!*

Среди них выделяют восклицательные предложения, начинающиеся с местоимения **what** – *какой, какая, что за* или наречия **how** – *как*. В этих предложениях сохраняется прямой порядок слов, т.е. сказуемое следует за подлежащим. В отличие от русского языка, слова **what** и **how** всегда стоят непосредственно перед определяемым словом. То есть, если по-русски возможна конструкция: "**Какую** я сделал ошибку!", то в английском возможно лишь: "**Какую** ошибку я сделал!"

Местоимение **what** относится обычно к существительному, перед которым могут находиться еще и определяющие его прилагательное или наречие:

- What** a beautiful house that is! *Какой это красивый дом!*
What beautiful hair she has got! *Какие у нее прекрасные волосы!*
What interesting news I've heard! *Какую интересную новость я узнал!*
What a cold day it is! *Какой холодный день!*
What clever people they are! *Какие они умные люди!*
What a large house that is! *Какой это большой дом!*

А наречие **how** относится к прилагательному или наречию; предложение строится по схеме: **How** + прилагательное (наречие) + подлежащее + сказуемое:

- How** beautifully she sings! *Как красиво она поет!*
How slowly they run! *Как медленно они бегут!*
How far it is! *Как это далеко!*
How hot it was! *Как жарко было!*
How well she sings! *Как хорошо она поет!*
How quickly you walk! *Как быстро вы ходите! = Как вы быстро ходите!*

Если местоимение **what** определяет исчисляемое существительное в единственном числе, то это существительное употребляется с неопределенным артиклем:

What a foolish mistake I have made! *Какую глупую ошибку я сделал!*

What a beautiful girl she is! *Какая она красивая девушка!*

What a fine building that is! *Какое это красивое здание!*

С исчисляемым существительным во множественном числе и с неисчисляемым существительным артикль не употребляется:

What foolish mistakes I have made! *Какие глупые ошибки я сделал!*

What interesting books you have brought! *Какие интересные книги вы принесли!*

What fine weather it is! *Какая хорошая погода!*

What strange ideas he has! *Какие у него странные идеи!*

Чаще всего восклицательные предложения неполные. В них опускаются подлежащее, часть сказуемого, или все сказуемое целиком:

What a fine building (that is)! *Какое прекрасное здание!*

What a silly story (it is)! *Что за глупая история!*

What a funny girl (she is)! *До чего смешная девочка!*

How late (it is)! *Как поздно!*

How wonderful! *Как замечательно!*

How beautiful! *Как красиво!*

What a girl! *Ну и девушка!*

How cold (it is)! *Как холодно!*

Порядок слов в английском предложении

В русском языке, благодаря наличию падежных окончаний, мы можем переставлять члены предложения, не меняя основного смысла высказывания. Например, предложения Студенты изучают эти планы и Эти планы изучают студенты совпадают по своему основному смыслу. Подлежащее в обоих случаях - студенты, хотя в первом предложении это слово стоит на первом месте, а во втором предложении - на последнем.

По-английски такие перестановки невозможны. Возьмём предложение The students study these plans Студенты изучают эти планы. Если подлежащее и дополнение поменяются местами, то получится бессмыслица: These plans study the students Эти планы изучают студентов. Произошло это потому, что слово plans, попав на первое место, стало подлежащим.

Английское предложение имеет твёрдый порядок слов.

Порядок слов в английском предложении показан в этой таблице:

I	II	III Дополнение			IV Обстоятельство
		Косвенное без предлога	Прямое	Косвенное с предлогом	
We Мы	study изучаем		math математику		
He Он	gives дает	us нам	lessons уроки		in this room. в этой комнате
She Она	reads читает		her notes свои заметки	to Peter Петру	every day. каждый день

Вопросительное предложение

Общее правило построения вопросов в английском языке таково: Все вопросы (кроме специальных вопросов к подлежащему предложения) строятся путем инверсии. Инверсией

называется нарушение обычного порядка слов в английском предложении, когда сказуемое следует за подлежащим.

В тех случаях, когда сказуемое предложения образовано без вспомогательных глаголов (в Present и Past Indefinite) используется вспомогательный глагол to do в требуемой форме - do/does/did.

Общие вопросы

Общий вопрос задается с целью получить подтверждение или отрицание высказанной в вопросе мысли. На общий вопрос обычно дается краткий ответ: "да" или "нет".

Для построения общего вопроса вспомогательный или модальный глагол, входящий в состав сказуемого, ставится в начале предложения перед подлежащим.

а) Примеры сказуемого с одним вспомогательным глаголом: Is he speaking to the teacher?
- Он говорит с учителем?

б) Примеры сказуемого с несколькими вспомогательными глаголами:
You will be writing letters to us. – Ты будешь писать нам письма.

Will you be writing letters to us? – Будешь ли ты писать нам письма?

Примеры с модальными глаголами:

She can drive a car. – Она умеет водить машину.

Can she drive a car? - Она умеет водить машину? (Yes, she can.; No, she cannot)

Когда в составе сказуемого нет вспомогательного глагола (т.е. когда сказуемое выражено глаголом в Present или Past Indefinite), то перед подлежащим ставятся соответственно формы do / does или did; смысловой же глагол ставится в форме инфинитива без to (словарная форма) после подлежащего.

С появлением вспомогательного глагола do на него переходит вся грамматическая нагрузка - время, лицо, число: в Present Indefinite в 3-м лице ед. числа окончание -s, -es смыслового глагола переходит на глагол do, превращая его в does; а в Past Indefinite окончание прошедшего времени -ed переходит на do, превращая его в did.

Do you go to school? – Ходишь ли ты в школу?

Do you speak English well? - Ты хорошо говоришь по-английски?

Ответы на общие вопросы

Общий вопрос требует краткого ответа "да" или "нет", которые в английском языке образуются следующим образом:

а) Положительный состоит из слова Yes за которым (после запятой) идет подлежащее, выраженное личным местоимением в им. падеже (никогда не используется существительное) и тот вспомогательный или модальный глагол, который использовался в вопросе (вспомогательный глагол согласуется с местоимением ответа);

б) Отрицательный ответ состоит из слова No, личного местоимения и вспомогательного (или модального) глагола с последующей частицей not

Например: Are you a student? - Ты студент?

Yes, I am. - Да.; No, I am not. - Нет.

Do you know him? – Ты знаешь его?

Yes, I do. – Да (знаю).; No, I don't. – Нет (не знаю).

Специальные вопросы

Специальный вопрос начинается с вопросительного слова и задается с целью получения более подробной уточняющей информации. Вопросительное слово в специальном вопросе заменяет член предложения, к которому ставится вопрос.

Специальные вопросы могут начинаться словами:

who? – кто? whom? – кого? whose? - чей? what? – что? какой? which? –
который?

when? – когда? where? – где? куда? why? – почему? how? – как?

how much? – сколько? how many? – сколько? how long? – как долго?
сколько времени?

how often? – как часто?

Построение специальных вопросов:

1) Специальные вопросы ко всем членам предложения, кроме подлежащего (и его определения) строятся так же, как и общие вопросы – посредством инверсии, когда вспомогательный или модальный глагол ставится перед подлежащим.

Специальный вопрос (кроме вопроса к подлежащему) начинается с вопросительного слова или группы слов за которым следуют вспомогательный или модальный глагол, подлежащее и смысловой глагол (сохраняется структура общего вопроса).

Вопрос к прямому дополнению:

What are you reading? Что ты читаешь?

What do you want to show us? Что вы хотите показать нам?

Вопрос к обстоятельству

Обстоятельства бывают разного типа: времени, места, причины, условия, образа действия и др.

He will come back tomorrow. – Он вернется завтра.

When will he come back? – Когда он вернется?

What did he do it for? Зачем он это сделал?

Where are you from?

Вопрос к определению

Вопрос к определению начинается с вопросительных слов what какой, which (of) который (из), whose чей, how much сколько (с неисчисляемыми существительными), how many сколько (с исчисляемыми существительными). Они ставятся непосредственно перед определяемым существительным (или перед другим определением к этому существительному), а затем уже идет вспомогательный или модальный глагол.

What books do you like to read? Какие книги вы любите читать?

Which books will you take? Какие книги (из имеющихся) вы возьмете?

Вопрос к сказуемому

Вопрос к сказуемому является типовым ко всем предложениям: "Что он (она, оно, они, это) делает (делал, будет делать)?"", например:

What does he do? Что он делает?

Специальные вопросы к подлежащему

Вопрос к подлежащему (как и к определению подлежащего) не требует изменения прямого порядка слов, характерного для повествовательного предложения. Просто подлежащее (со всеми его определениями) заменяется вопросительным местоимением, которое исполняет в вопросе роль подлежащего. Вопросы к подлежащему начинаются с вопросительных местоимений:

who – кто (для одушевленных существительных)

what - что (для неодушевленных существительных)

The teacher read an interesting story to the students yesterday.

Who read an interesting story to the students yesterday?

Сказуемое в таких вопросах (после who, what в роли подлежащего) всегда выражается глаголом в 3-м лице единственного числа (не забудьте про окончание -s в 3-м лице ед. числа в Present Indefinite. Правила образования -s форм см. здесь.):

Who is reading this book? Кто читает эту книгу?

Who goes to school?

Альтернативные вопросы

Альтернативный вопрос задается тогда, когда предлагается сделать выбор, отдать чему-либо предпочтение.

Альтернативный вопрос может начинаться со вспомогательного или модального глагола (как общий вопрос) или с вопросительного слова (как специальный вопрос) и должен обязательно содержать союз or - или. Часть вопроса до союза or произносится с повышающейся интонацией, после союза or - с понижением голоса в конце предложения.

Например вопрос, представляющий собой два общих вопроса, соединенных союзом *or*:
Is he reading or is he writing?
Did he pass the exam or did he fail?

Вторая часть вопроса, как правило, имеет усеченную форму, в которой остается (называется) только та часть, которая обозначает выбор (альтернативу):
Is he reading or writing?

Разделительные вопросы

Основными функциями разделительных вопросов являются: проверка предположения, запрос о согласии собеседника с говорящим, поиски подтверждения своей мысли, выражение сомнения.

Разделительный (или расчлененный) вопрос состоит из двух частей: повествовательной и вопросительной.

Первая часть - повествовательное утвердительное или отрицательное предложение с прямым порядком слов.

Вторая часть, присоединяемая через запятую, представляет собой краткий общий вопрос, состоящий из местоимения, заменяющего подлежащее, и вспомогательного или модального глагола. Повторяется тот вспомогательный или модальный глагол, который входит в состав сказуемого первой части. А в *Present* и *Past Indefinite*, где нет вспомогательного глагола, употребляются соответствующие формы *do/ does/ did*.

В второй части употребляется обратный порядок слов, и она может переводиться на русский язык: не правда ли?, не так ли?, верно ведь?

1. Если первая часть вопроса утвердительная, то глагол во второй части стоит в отрицательной форме, например:

You speak French, don't you? You are looking for something, aren't you? Pete works at a plant, doesn't he?

2. Если первая часть отрицательная, то во второй части употребляется утвердительная форма, например:

It is not very warm today, is it? John doesn't live in London, does he?

Безличные предложения

Поскольку в английском языке подлежащее является обязательным элементом предложения, в безличных предложениях употребляется формальное подлежащее, выраженное местоимением *it*. Оно не имеет лексического значения и на русский язык не переводится.

Безличные предложения используются для выражения:

1. Явлений природы, состояния погоды: It is/(was) winter. (Была) Зима. It often rains in autumn. Осенью часто идет дождь. It was getting dark. Темнело. It is cold. Холодно. It snows. Идет снег.

2. Времени, расстояния, температуры: It is early morning. Ранее утро. It is five o'clock. Пять часов. It is two miles to the lake. До озера две мили. It is late. Поздно.

3. Оценки ситуации в предложениях с составным именным (иногда глагольным) сказуемым, за которым следует подлежащее предложения, выраженное инфинитивом, герундием или придаточным предложением: It was easy to do this. Было легко сделать это. It was clear that he would not come. Было ясно, что он не придет.

4. С некоторыми глаголами в страдательном залоге в оборотах, соответствующих русским неопределенно-личным оборотам: It is said he will come. Говорят, он придет.

Система времен английского глагола действительного залога

Present Simple употребляется для выражения:

1. постоянных состояний,
2. повторяющихся и повседневных действий (часто со следующими наречиями: *always, never, usually* и т.д.). Mr Gibson is a businessman. He lives in New York, (постоянное состояние)

He usually starts work at 9 am. (повседневное действие) He often stays at the office until late in the evening, (повседневное действие)

3. непреложных истин и законов природы, The moon moves round the earth.

4. действий, происходящих по программе или по расписанию (движение поездов, автобусов и т.д.). The bus leaves in ten minutes.

Маркерами present simple являются: usually, always и т.п., every day / week / month / year и т.д., on Mondays / Tuesdays и т.д., in the morning / afternoon / evening, at night / the weekend и т.д.

Present Continuous употребляется для выражения:

1. действий, происходящих в момент речи He is reading a book right now.

2. временных действий, происходящих в настоящий период времени, но не обязательно в момент речи She is practising for a concert these days. (В данный момент она не играет. Она отдыхает.)

3. действий, происходящих слишком часто и по поводу которых мы хотим высказать раздражение или критику (обычно со словом "always") "You're always interrupting me!"(раздражение)

4. действия, заранее запланированных на будущее. He is flying to Milan in an hour. (Это запланировано.)

Маркерами present continuous являются: now, at the moment, these days, at present, always, tonight, still и т.д.

Во времена группы **Continuous** обычно не употребляются глаголы:

1. выражающие восприятия, ощущения (see, hear, feel, taste, smell), Например: This cake tastes delicious. (Но не: This cake is tasting delicious)

2. выражающие мыслительную деятельность [know, think, remember, forget, recognize(ze), believe, understand, notice, realise(ze), seem, sound и др.],
Например: I don't know his name.

3. выражающие эмоции, желания (love, prefer, like, hate, dislike, want и др.), Например: Shirley loves jazz music.

4. include, matter, need, belong, cost, mean, own, appear, have (когда выражает принадлежность) и т.д. Например: That jacket costs a lot of money. (Но не: That jacket is costing a lot of money.)

Present perfect употребляется для выражения:

1. действий, которые произошли в прошлом в неопределенное время. Конкретное время действия не важно, важен результат, Kim has bought a new mobile phone. (Когда она его купила? Мы это не уточняем, поскольку это не важно. Важно, что у нее есть новый мобильный телефон.)

2. действий, которые начались в прошлом и все еще продолжаются в настоящем, We has been a car salesman since /990. (Он стал продавцом автомобилей в 1990 году и до сих пор им является.)

3. действий, которые завершились совсем недавно и их результаты все еще ощущаются в настоящем. They have done their shopping. (Мы видим, что они только что сделали покупки, поскольку они выходят из супермаркета с полной тележкой.)

4. Present perfect simple употребляется также со словами "today", "this morning / afternoon" и т.д., когда обозначенное ими время в момент речи еще не истекло. He has made ten photos this morning. (Сейчас утро. Указанное время не истекло.)

К маркерам present perfect относятся: for, since, already, just, always, recently, ever, how long, yet, lately, never, so far, today, this morning / afternoon / week / month / year и т.д.

Present perfect continuous употребляется для выражения:

1. действий, которые начались в прошлом и продолжаются в настоящее время He has been painting the house for three days. (Он начал красить дом три дня назад и красит его до сих пор.)

2. действий, которые завершились недавно и их результаты заметны (очевидны) сейчас. They're tired. They have been painting the garage door all morning. (Они только что закончили

красить. Результат их действий очевиден. Краска на дверях еще не высохла, люди выглядят усталыми.)

Примечание.

1. С глаголами, не имеющими форм группы Continuous, вместо present perfect continuous употребляется present perfect simple. Например: I've known Sharon since we were at school together. (А не: I've been knowing Sharon since we were at school together.)

2. С глаголами live, feel и work можно употреблять как present perfect continuous, так и present perfect simple, при этом смысл предложения почти не изменяется. Например: He has been living/has lived here since 1994.

К маркерам present perfect continuous относятся: for. since. all morning/afternoon/week/day и т.д., how long (в вопросах).

Past simple употребляется для выражения:

1. действий, произошедших в прошлом в определенное указанное время, то есть нам известно, когда эти действия произошли, They graduated four years ago. (Когда они закончили университет? Четыре года назад. Мы знаем время.)

2. повторяющихся в прошлом действий, которые более не происходят. В этом случае могут использоваться наречия частоты (always, often, usually и т.д.), He often played football with his dad when he was five. (Но теперь он уже не играет в футбол со своим отцом.) Then they ate with their friends.

3. действий, следовавших непосредственно одно за другим в прошлом. They cooked the meal first.

4. Past simple употребляется также, когда речь идет о людях, которых уже нет в живых. Princess Diana visited a lot of schools.

Маркерами past simple являются: yesterday, last night / week / month / year I Monday и т.д., two days I weeks I months I years ago, then, when, in 1992 и т.д.

People used to dress differently in the past. Women used to wear long dresses. Did they use to carry parasols with them? Yes, they did. They didn't use to go out alone at night.

• **Used to** (+ основная форма глагола) употребляется для выражения привычных, повторяющихся в прошлом действий, которые сейчас уже не происходят. Эта конструкция не изменяется по лицам и числам. Например: Peter used to eat a lot of sweets. (= Peter doesn't eat many sweets any more.) Вопросы и отрицания строятся с помощью did / did not (didn't), подлежащего и глагола "use" без -d.

Например: Did Peter use to eat many sweets? Mary didn't use to stay out late.

Вместо "used to" можно употреблять past simple, при этом смысл высказывания не изменяется. Например: She used to live in the countryside. = She lived in the countryside.

Отрицательные и вопросительные формы употребляются редко.

Past continuous употребляется для выражения:

1. временного действия, продолжавшегося в прошлом в момент, о котором мы говорим. Мы не знаем, когда началось и когда закончилось это действие, At three o'clock yesterday afternoon Mike and his son were washing the dog. (Мы не знаем, когда они начали и когда закончили мыть собаку.)

2. временного действия, продолжавшегося в прошлом (longer action) в момент, когда произошло другое действие (shorter action). Для выражения второго действия (shorter action) мы употребляем past simple, He was reading a newspaper when his wife came, (was reading = longer action: came = shorter action)

3. двух и более временных действий, одновременно продолжавшихся в прошлом. The people were watching while the cowboy was riding the bull.

4. Past continuous употребляется также для описания обстановки, на фоне которой происходили события рассказа (повествования). The sun was shining and the birds were singing. Tom was driving his old truck through the forest.

Маркерами past continuous являются: while, when, as, all day / night / morning и т.д.

when/while/as + past continuous (longer action) when + past simple (shorter action)

Past perfect употребляется:

1. для того, чтобы показать, что одно действие произошло раньше другого в прошлом. При этом то действие, которое произошло раньше, выражается *past perfect simple*, а случившееся позже - *past simple*,

They had done their homework before they went out to play yesterday afternoon. (=They did their homework first and then they went out to play.)

2. для выражения действий, которые произошли до указанного момента в прошлом,

She had watered all the flowers by five o'clock in the afternoon.

(=She had finished watering the flowers before five o'clock.)

3. как эквивалент *present perfect simple* в прошлом. То есть, *past perfect simple* употребляется для выражения действия, которое началось и закончилось в прошлом, а *present perfect simple* - для действия, которое началось в прошлом и продолжается (или только что закончилось) в настоящем. Например: Jill wasn't at home. She had gone out. (Тогда ее не было дома.) ЛИ isn't at home. She has gone out. (Сейчас ее нет дома.)

К маркерам *past perfect simple* относятся: before, after, already, just, till/until, when, by, by the time и т.д.

Future simple употребляется:

1. для обозначения будущих действий, которые, возможно, произойдут, а возможно, и нет, We'll visit Disney World one day.

2. для предсказаний будущих событий (predictions), Life will be better fifty years from now.

3. для выражения угроз или предупреждений (threats / warnings), Stop or I'll shoot.

4. для выражения обещаний (promises) и решений, принятых в момент речи (on-the-spot decisions), I'll help you with your homework.

5. с глаголами hope, think, believe, expect и т.п., с выражениями I'm sure, I'm afraid и т.п., а также с наречиями probably, perhaps и т.п. / think he will support me. He will probably go to work.

К маркерам *future simple* относятся: tomorrow, the day after tomorrow, next week I month / year, tonight, soon, in a week / month year и т.д.

ПРИМЕЧАНИЕ

Future simple не употребляется после слов while, before, until, as soon as, after, if и when в придаточных предложениях условия и времени. В таких случаях используется *present simple*. Например: I'll make a phone call while I wait for you. (А не:... while I will wait for you.) Please phone me when you finish work.

В дополнительных придаточных предложениях после "when" и "if" возможно употребление *future simple*. Например: I don't know when I if Helen will be back.

He is going to throw the ball.

Be going to употребляется для:

1. выражения заранее принятых планов и намерений на будущее, Например: Bob is going to drive to Manchester tomorrow morning.

2. предсказаний, когда уже есть доказательства того, что они сбудутся в близком будущем. Например: Look at that tree. It is going to fall down.

We use the **future continuous**:

a) for an action which will be in progress at a stated for an action which will be future time.

This time next week, we'll be cruising round the islands.

b) for an action which will definitely happen in the future as the result of a routine or arrangement. *Don't call Julie. I'll be seeing her later, so I'll pass the message on.*

c) when we ask politely about someone's plans for the near future (what we want to know is if our wishes fit in with their plans.) *Will you be using the photocopier for long?*

No. Why?

I need to make some photocopies.

We use the **future perfect**:

1. For an action which will be finished before a stated future time. *She will have delivered all the newspapers by 8 o'clock.*

2. The future perfect is used with the following time expressions: before, by, by then, by the time, until/till.

We use the **future perfect continuous**:

1. to emphasize the duration of an action up to a certain time in the future. *By the end of next month, she will have been teaching for twenty years.*

The future perfect continuous is used with: by... for.

Формы выражения будущего времени в придаточных предложениях условия и времени

В придаточных времени с союзами when (когда), after (после), before (перед тем как), as soon as (как только), until (до тех пор пока не), относящихся к будущему времени, а также в придаточных условия, вводимых союзами if (если) и unless (если не), будущее время заменяется формой настоящего времени, но на русский язык переводится будущим, например:

If you help me, I shall do this work on time. - Если ты поможешь мне, я сделаю эту работу вовремя.

As soon as I get free, I shall give you a call. - Как только я освобожусь, я вам позвоню.

We shall not sit to dinner until you come. - Мы не сядем обедать, пока ты не придешь.

Иногда в сложносочиненном предложении словами when и if вводится придаточное дополнительное, а не придаточное времени или условия. В этом случае использование настоящего времени в придаточном будет ошибкой. Чтобы определить, какую форму глагола необходимо использовать, достаточно поставить вопрос к придаточному предложению - «при каком условии?» и «когда?» к придаточным условия и времени и «что?» - к придаточному дополнительному.

We shall sit to dinner (Когда?) when he comes. - Мы сядем обедать, когда он придет.

We will go to the movies if he comes. - Мы пойдем в кино, если он придет.

I want to know (что?) when you will come. - Я хочу знать, когда ты придешь.

I want to know (что?) if you will come. - Я хочу знать, придешь ли ты.

Модальные глаголы

Глаголы	Значение	Примеры
CAN	физическая или умственная возможность/умение	I can swim very well. – Я очень хорошо умею плавать.
	возможность	You can go now. — Ты можешь идти сейчас. You cannot play football in the street. – На улице нельзя играть в футбол.
	вероятность	They can arrive any time. – Они могут приехать в любой момент.
	удивление	Can he have said that? – Неужели он это сказал?
	сомнение, недоверчивость	She can't be waiting for us now. – Не может быть, чтобы она сейчас нас ждала.
	разрешение	Can we go home? — Нам можно пойти домой?
	вежливая просьба	Could you tell me what time it is now? – Не могли бы вы подсказать, который сейчас час?
MAY	разрешение	May I borrow your book? – Я могу одолжить у тебя книгу?
	предположение	She may not come. – Она, возможно, не придет.
	возможность	In the museum you may see many interesting things. – В музее вы можете увидеть много интересных вещей.
	упрек – только	You might have told me that. – Ты мог бы мне это сказать.
	MIGHT (+ perfect infinitive)	

MUST	обязательство, необходимость	He must work. He must earn money. – Он должен работать. Он должен зарабатывать деньги.
	вероятность (сильная степень)	He must be sick. — Он, должно быть, заболел.
	запрет	Tourists must not feed animals in the zoo. — Туристы не должны кормить животных в зоопарке.
SHOULD OUGHT TO	моральное долженствование	You ought to be polite. – Вы должны быть любезными.
	совет	You should see a doctor. – Вам следует сходить к врачу.
	упрек, запрет	You should have taken the umbrella. – Тебе следовало взять с собой <u>зонт</u> .
SHALL	указ, обязанность	These rules shall apply in all circumstances. – Эти правила будут действовать при любых обстоятельствах.
	угроза	You shall suffer. — Ты будешь страдать.
	просьба об указании	Shall I open the window? – Мне открыть окно?
WILL	готовность, нежелание/отказ	The door won't open. — Дверь не открывается.
	вежливая просьба	Will you go with me? – Ты сможешь пойти со мной?
WOULD	готовность, нежелание/отказ	He would not answer this question. – Он не будет отвечать на этот вопрос.
	вежливая просьба	Would you please come with me? — Не могли бы вы пройти со мной.
	повторяющееся/привычное действие	We would talk for hours. – Мы беседовали часами.
NEED	необходимость	Do you need to work so hard? – Тебе надо столько работать?
NEEDN'T	отсутствие необходимости	She needn't go there. — Ей не нужно туда идти.
DARE	Посметь	How dare you say that? – Как ты смеешь такое говорить?

Модальные единицы эквивалентного типа		
to be able (to) = can	Возможность соверш-я конкрет-го дей-ия в опред. момент	She was able to change the situation then. (Она тогда была в состоянии (могла) изменить ситуацию).
to be allowed (to) = may	Возмож-ть совер-ия дей-ия в наст.-м, прош-ом или буд-ем + оттенок разрешения	My sister is allowed to play outdoors. (Моей сестре разрешается играть на улице).
to have (to)= ought, must, should	Необходимость совер-я дей-я в наст.-м, прош-ом или буд-ем при опред-х об-вах	They will have to set up in business soon. (Им вскоре придется открыть свое дело).
to be (to)= ought, must, should	Необходимость совер-я дей-я в наст.-м, прош-ом при наличии опред. планов, распис-ий и т.д.	We are to send Nick about his business. (Мы должны (= планируем) выпроводить Ника)

Категория страдательного залога английского глагола. Образование форм. Passive Voice

образуется при помощи вспомогательного глагола to be в соответствующем времени, лице и числе и причастия прошедшего времени смысл. глагола – Participle II (III –я форма или ed-форма).

В страдательном залоге не употребляются:

1) Непереходные глаголы, т.к. при них нет объекта, который испытывал бы воздействие, то есть нет прямых дополнений которые могли бы стать подлежащими при глаголе в форме Passive.

Переходными в англ. языке называются глаголы, после которых в действительном залоге следует прямое дополнение; в русском языке это дополнение, отвечающее на вопросы винительного падежа – кого? что?: to build строить, to see видеть, to take брать, to open открывать и т.п.

Непереходными глаголами называются такие глаголы, которые не требуют после себя прямого дополнения: to live жить, to come приходить, to fly летать, to cry плакать и др.

2) Глаголы-связки: be – быть, become – становиться/стать.

3) Модальные глаголы.

4) Некоторые переходные глаголы не могут использоваться в страдательном залоге. В большинстве случаев это глаголы состояния, такие как:

to fit годиться, быть впору to have иметь to lack не хватать, недоставать to like нравиться

to resemble напоминать, быть похожим to suit годиться, подходить и др.

При изменении глагола из действительного в страдательный залог меняется вся конструкция предложения:

- дополнение предложения в Active становится подлежащим предложения в Passive;

- подлежащее предложения в Active становится предложным дополнением, которое вводится предлогом by или вовсе опускается;

- сказуемое в форме Active становится сказуемым в форме Passive.

Особенности употребления форм Passive:

1. Форма Future Continuous не употребляется в Passive, вместо нее употребляется Future Indefinite:

At ten o'clock this morning Nick will be writing the letter. – At ten o'clock this morning the letter will be written by Nick.

2. В Passive нет форм Perfect Continuous, поэтому в тех случаях, когда нужно передать в Passive действие, начавшееся до какого-то момента и продолжающееся вплоть до этого момента, употребляются формы Perfect:

He has been writing the story for three months. The story has been written by him for three months.

3. Для краткости, во избежание сложных форм, формы Indefinite (Present, Past, Future) часто употребляются вместо форм Perfect и Continuous, как в повседневной речи так и в художественной литературе. Формы Perfect и Continuous чаще употребляются в научной литературе и технических инструкциях.

This letter has been written by Bill. (Present Perfect)

This letter is written by Bill. (Present Indefinite – более употребительно)

Apples are being sold in this shop. (Present Continuous)

Apples are sold in this shop. (Present Indefinite – более употребительно)

4. Если несколько однотипных действий относятся к одному подлежащему, то вспомогательные глаголы обычно употребляются только перед первым действием, например: The new course will be sold in shops and ordered by post.

Прямой пассив (The Direct Passive)

Это конструкция, в которой подлежащее предложения в Passive соответствует прямому дополнению предложения в Active. Прямой пассив образуется от большинства переходных глаголов.

I gave him a book. Я дал ему книгу. A book was given to him. Ему дали книгу. (или Книга была дана ему)

The thief stole my watch yesterday. Вор украл мои часы вчера.

My watch was stolen yesterday. Мои часы были украдены вчера.

В английском языке имеется ряд переходных глаголов, которые соответствуют непереходным глаголам в русском языке. В английском они могут употребляться в прямом пассиве, а в русском – нет. Это: to answer отвечать кому-л.

to believe верить кому-л. to enter входить (в) to follow следовать (за) to help помогать кому-л.

to influence влиять (на) to join присоединяться to need нуждаться to watch наблюдать (за)

Так как соответствующие русские глаголы, являясь непереходными, не могут употребляться в страдательном залоге, то они переводятся на русский язык глаголами в действительном залоге:

Winter is followed by spring.

А при отсутствии дополнения с предлогом by переводятся неопределенно-личными предложениями: Your help is needed.

Косвенный пассив (The Indirect Passive)

Это конструкция, в которой подлежащее предложения в Passive соответствует косвенному дополнению предложения в Active. Она возможна только с глаголами, которые могут иметь и прямое и косвенное дополнения в действительном залоге. Прямое дополнение обычно означает предмет (что?), а косвенное – лицо (кому?).

С такими глаголами в действительном залоге можно образовать две конструкции:

а) глагол + косвенное дополнение + прямое дополнение;

б) глагол + прямое дополнение + предлог + косвенное дополнение:

а) They sent Ann an invitation.- Они послали Анне приглашение.

б) They sent an invitation to Ann. - Они послали приглашение Анне.

В страдательном залоге с ними также можно образовать две конструкции – прямой и косвенный пассив, в зависимости от того, какое дополнение становится подлежащим предложения в Passive. К этим глаголам относятся: to bring приносить

to buy покупать to give давать to invite приглашать to leave оставлять

to lend одалживать to offer предлагать to order приказывать to pay платить

to promise обещать to sell продавать to send посылать to show показывать

to teach учить to tell сказать и др.

Например: Tom gave Mary a book. Том дал Мэри книгу.

Mary was given a book. Мэри дали книгу. (косвенный пассив – более употребителен)

A book was given to Mary. Книгу дали Мэри. (прямой пассив – менее употребителен)

Выбор между прямым или косвенным пассивом зависит от смыслового акцента, вкладываемого в последние, наиболее значимые, слова фразы:

John was offered a good job. (косвенный пассив) Джону предложили хорошую работу.

The job was offered to John. (прямой пассив) Работу предложили Джону.

Глагол to ask спрашивать образует только одну пассивную конструкцию – ту, в которой подлежащим является дополнение, обозначающее лицо (косвенный пассив):

He was asked a lot of questions. Ему задали много вопросов.

Косвенный пассив невозможен с некоторыми глаголами, требующими косвенного дополнения (кому?) с предлогом to. Такое косвенное дополнение не может быть подлежащим в Passive, поэтому в страдательном залоге возможна только одна конструкция – прямой пассив, то есть вариант: Что? объяснили, предложили, повторили...Кому? Это глаголы: to address адресовать

to describe описывать to dictate диктовать to explain объяснять to mention упоминать

to propose предлагать to repeat повторять to suggest предлагать to write писать и др.

Например: The teacher explained the rule to the pupils. – Учитель объяснил правило ученикам.

The rule was explained to the pupils. – Правило объяснили ученикам. (Not: The pupils was explained...)

Употребление Страдательного залога

В английском языке, как и в русском, страдательный залог употр. для того чтобы:

1. Обойтись без упоминания исполнителя действия (70% случаев употребления Passive) в тех случаях когда:

а) Исполнитель неизвестен или его не хотят упоминать:

He was killed in the war. Он был убит на войне.

б) Исполнитель не важен, а интерес представляет лишь объект воздействия и сопутствующие обстоятельства:

The window was broken last night. Окно было разбито прошлой ночью.

в) Исполнитель действия не называется, поскольку он ясен из ситуации или контекста:
The boy was operated on the next day. Мальчика оперировали на следующий день.

г) Безличные пассивные конструкции постоянно используются в научной и учебной литературе, в различных руководствах: The contents of the container should be kept in a cool dry place. Содержимое упаковки следует хранить в сухом прохладном месте.

2. Для того, чтобы специально привлечь внимание к тому, кем или чем осуществлялось действие. В этом случае существительное (одушевленное или неодушевленное.) или местоимение (в объектном падеже) вводится предлогом by после сказуемого в Passive.

В английском языке, как и в русском, смысловой акцент приходится на последнюю часть фразы. He quickly dressed. Он быстро оделся.

Поэтому, если нужно подчеркнуть исполнителя действия, то о нем следует сказать в конце предложения. Из-за строгого порядка слов английского предложения это можно осуществить лишь прибегнув к страдательному залогоу. Сравните:

The flood broke the dam. (Active) Наводнение разрушило плотину. (Наводнение разрушило что? – плотину)

The dam was broken by the flood. (Passive) Плотина была разрушена наводнением. (Плотина разрушена чем? – наводнением)

Чаще всего используется, когда речь идет об авторстве:

The letter was written by my brother. Это письмо было написано моим братом.

И когда исполнитель действия является причиной последующего состояния:

The house was damaged by a storm. Дом был поврежден грозой.

Примечание: Если действие совершается с помощью какого-то предмета, то употребляется предлог with, например:

He was shot with a revolver. Он был убит из револьвера.

Перевод глаголов в форме Passive

В русском языке есть три способа выражения страдательного залога:

1. При помощи глагола "быть" и краткой формы страдательного причастия, причем в настоящем времени "быть" опускается:

I am invited to a party.

Я приглашён на вечеринку.

Иногда при переводе используется обратный порядок слов, когда русское предложение начинается со сказуемого: New technique has been developed. Была разработана новая методика.

2. Глагол в страдательном залоге переводится русским глаголом, оканчивающимся на –ся(-сь):

Bread is made from flour. Хлеб делается из муки.

Answers are given in the written form. Ответы даются в письменном виде.

3. Неопределенно-личным предложением (подлежащее в переводе отсутствует; сказуемое стоит в 3-м лице множественного числа действительного залога). Этот способ перевода возможен только при отсутствии дополнения с предлогом by (производитель действия не упомянут):

The book is much spoken about. Об этой книге много говорят.

I was told that you're ill. Мне сказали, что ты болен.

4. Если в предложении указан субъект действия, то его можно перевести личным предложением с глаголом в действительном залоге (дополнение с by при переводе становится подлежащим). Выбор того или иного способа перевода зависит от значения глагола и всего предложения в целом (от контекста):

They were invited by my friend. Их пригласил мой друг.(или Они были приглашены моим другом.)

Примечание 1: Иногда страдательный оборот можно перевести двумя или даже тремя способами, в зависимости от соответствующего русского глагола и контекста:

The experiments were made last year.

1) Опыты были проведены в прошлом году.

2) Опыты проводились в прошлом году.

3) Опыты проводили в прошлом году.

Примечание 2: При переводе нужно учитывать, что в английском языке, в отличие от русского, при изменении залога не происходит изменение падежа слова, стоящего перед глаголом (например в английском she и she, а переводим на русский - она и ей):

Примечание 3: Обороты, состоящие из местоимения it с глаголом в страдательном залоге переводятся неопределенно-личными оборотами:

It is said... Говорят...

It was said... Говорили...

It is known... Известно...

It was thought... Думали, полагали...

It is reported... Сообщают...

It was reported... Сообщали... и т.п.

В таких оборотах it играет роль формального подлежащего и не имеет самостоятельного значения: It was expected that he would return soon. Ожидали, что он скоро вернется.

Согласование времен в английском предложении (Sequence of Tenses)

Если в главном предложении сказуемое выражено глаголом в одной из форм прошедшего времени, то в придаточном предложении употребление времен ограничено. Правило, которому в этом случае подчиняется употребление времен в придаточном предложении, называется согласованием времен.

Правило 1: Если глагол главного предложения имеет форму настоящего или будущего времени, то глагол придаточного предложения будет иметь любую форму, которая требуется смыслом предложения. То есть никаких изменений не произойдет, согласование времен здесь в силу не вступает.

Правило 2: Если глагол главного предложения имеет форму прошедшего времени (обычно Past Simple), то глагол придаточного предложения должен быть в форме одного из прошедших времен. То есть в данном случае время придаточного предложения изменится. Все эти изменения отражены в нижеследующей таблице:

Переход из одного времени в другое	Примеры	
Present Simple » Past Simple	He can speak French – Он говорит по-французски.	Boris said that he could speak French – Борис сказал, что он говорит по-французски.
Present Continuous » Past Continuous	They are listening to him – Они слушают его	I thought they were listening to him – Я думал, они слушают его.
Present Perfect » Past Perfect	Our teacher has asked my parents to help him – Наш учитель попросил моих родителей помочь ему.	Mary told me that our teacher had asked my parents to help him – Мария сказала мне, что наш учитель попросил моих родителей помочь ему.
Past Simple » Past Perfect	I invited her – Я пригласил ее.	Peter didn't know that I had invited her – Петр не знал, что я пригласил ее.
Past Continuous » Past Perfect Continuous	She was crying – Она плакала	John said that she had been crying – Джон сказал, что она плакала.
Present Perfect Continuous » Past Perfect Continuous	It has been raining for an hour – Дождь идет уже час.	He said that it had been raining for an hour – Он сказал, что уже час шел дождь.
Future Simple » Future in the Past	She will show us the map – Она покажет нам карту.	I didn't expect she would show us the map – Я не ожидал, что она покажет нам карту.

Изменение обстоятельств времени и места при согласовании времен.

Следует запомнить, что при согласовании времен изменяются также некоторые слова (обстоятельства времени и места).

this » that

these » those

here » there

now » then

yesterday » the day before

today » that day

tomorrow » the next (following) day

last week (year) » the previous week (year)

ago » before

next week (year) » the following week (year)

Прямая и косвенная речь

Перевод прямой речи в косвенную в английском языке

Для того чтобы перевести прямую речь в косвенную, нужно сделать определенные действия. Итак, чтобы передать чьи-то слова в английском языке (то есть перевести прямую речь в косвенную), мы:

1. Убираем кавычки и ставим слово *that*

Например, у нас есть предложение:

She said, "I will buy a dress". Она сказала: «Я куплю платье».

Чтобы передать кому-то эти слова, так же как и в русском, мы убираем кавычки и ставим слово *that* – «что».

She said that Она сказала, что....

2. Меняем действующее лицо

В прямой речи обычно человек говорит от своего лица. Но в косвенной речи мы не можем говорить от лица этого человека. Поэтому мы меняем «я» на другое действующее лицо. Вернемся к нашему предложению:

She said, "I will buy a dress". Она сказала: «Я куплю платье».

Так как мы передаем слова девушки, вместо «я» ставим «она»:

She said that she Она сказала, что она....

3. Согласовываем время

В английском языке мы не можем использовать в одном предложении прошедшее время с настоящим или будущим. Поэтому, если мы говорим «сказал» (то есть используем прошедшее время), то следующую часть предложения нужно согласовать с этим прошедшем временем. Возьмем наше предложение:

She said, "I will buy a dress". Она сказала: «Я куплю платье».

Чтобы согласовать первую и вторую части предложения, меняем *will* на *would*. см. таблицу выше.

She said that she would buy a dress. Она сказала, что она купит платье.

4. Меняем некоторые слова

В некоторых случаях мы должны согласовать не только времена, но и отдельные слова. Что это за слова? Давайте рассмотрим небольшой пример.

She said, "I am driving now". Она сказала: «Я за рулем сейчас».

То есть она в данный момент за рулем. Однако, когда мы будем передавать ее слова, мы будем говорить не про данный момент (тот, когда мы говорим сейчас), а про момент времени в прошлом (тот, когда она была за рулем). Поэтому мы меняем *now* (сейчас) на *then* (тогда) см. таблицу выше.

She said that she was driving then. Она сказала, что она была за рулем тогда.

Вопросы в косвенной речи в английском языке

Вопросы в косвенной речи, по сути, не являются вопросами, так как порядок слов в них такой же, как в утвердительном предложении. Мы не используем вспомогательные глаголы (do, does, did) в таких предложениях.

He asked, "Do you like this cafe?" Он спросил: «Тебе нравится это кафе?»

Чтобы задать вопрос в косвенной речи, мы убираем кавычки и ставим if, которые переводятся как «ли». Согласование времен происходит так же, как и в обычных предложениях. Наше предложение будет выглядеть так:

He asked if I liked that cafe. Он спросил, нравится ли мне то кафе.

Давайте рассмотрим еще один пример:

She said, "Will he call back?" Она сказала: «Он перезвонит?»

She said if he would call back. Она сказала, перезвонит ли он.

Специальные вопросы в косвенной речи

Специальные вопросы задаются со следующими вопросительными словами: what – что when – когда how – как why - почему where – где which – который

При переводе таких вопросов в косвенную речь мы оставляем прямой порядок слов (как в утвердительных предложениях), а на место if ставим вопросительное слово.

Например, у нас есть вопрос в прямой речи:

She said, "When will you come?". Она сказала: «Когда ты придешь?»

В косвенной речи такой вопрос будет выглядеть так:

She said when I would come. Она сказала, когда я приду.

He asked, "Where does she work?" Он спросил: «Где она работает?»

He asked where she worked. Он спросил, где она работает.

Сослагательное наклонение. Три типа условных предложений

Conditionals are clauses introduced with if. There are three types of conditional clause: Type 1, Type 2 and Type 3. There is also another common type, Type 0.

Type 0 Conditionals: They are used to express something which is always true. We can use when (whenever) instead of it. *If/When the sun shines, snow melts.*

Type 1 Conditionals: They are used to express real or very probable situations in the present or future. *If he doesn't study hard, he won't pass his exam.*

Type 2 Conditionals: They are used to express imaginary situations which are contrary to facts in the present and, therefore, are unlikely to happen in the present or future. *Bob is daydreaming. If I won the lottery, I would buy an expensive car and I would go on holiday to a tropical island next summer.*

Type 3 Conditionals: They are used to express imaginary situations which are contrary to facts in the past. They are also used to express regrets or criticism. *John got up late, so he missed the bus. If John hadn't got up late, he wouldn't have missed the bus.*

	If-clause (hypothesis)	Main clause (result)	Use
Type 0 general truth	if + present simple	present simple	something which is always true
	If the temperature falls below 0 °C, water turns into ice.		
Type 1 real present	if + present simple, present continuous, present perfect or present perfect continuous	future/imperative can/may/might/must/should/ could + bare infinitive	real - likely to happen in the present or future
	If he doesn't pay the fine, he will go to prison. If you need help, come and see me. If you have finished your work, we can have a break. If you're ever in the area, you should come and visit us.		
Type 2 unreal present	if + past simple or past continuous	would/could/might + bare infinitive	imaginary situation contrary to facts in the present; also used to

			give advice
	If I had time, I would take up a sport. (but I don't have time - untrue in the present) If I were you, I would talk to my parents about it. (giving advice)		
Type 3 unreal past	if + past perfect or past perfect continuous	would/could/might + have + past participle	imaginary situation contrary to facts in the past; also used to express regrets or criticism
	If she had studied harder, she would have passed the test. If he hadn't been acting so foolishly, he wouldn't have been punished.		

Conditional clauses consist of two parts: the if -clause (hypothesis) and the main clause (result). When the if - clause comes before the main clause, the two clauses are separated with a comma. When the main clause comes before the if - clause, then no comma is necessary.

e.g. a) If I see Tim, I'll give him his book.

b) I'll give Tim his book if I see him.

We do not normally use will, would or should in an if - clause. However, we can use will or would after if to make a polite request or express insistence or uncertainty (usually with expressions such as / don't know, I doubt, I wonder, etc.).

We can use should after if to talk about something which is possible, but not very likely to happen.

e.g. a) If the weather is fine tomorrow, will go camping. (NOT: If the weather will be fine...)

b) If you will fill in this form, I'll process your application. (Will you please fill in... - polite request)

c) If you will not stop shouting, you'll have to leave. (If you insist on shouting... - insistence)

d) I don't know if he will pass his exams, (uncertainty)

e) If Tom should call, tell him I'll be late. (We do not think that Tom is very likely to call.)

We can use unless instead of if... not in the if -clause of Type 1 conditionals. The verb is always in the affirmative after unless.

e.g. Unless you leave now, you'll miss the bus. (If you don't leave now, you'll miss the bus.)

(NOT: Unless you don't leave now, ...)

We can use were instead of was for all persons in the if - clause of Type 2 conditionals.

e.g. If Rick was/were here, we could have a party.

We use If I were you ... when we want to give advice.

e.g. If I were you, I wouldn't complain about it.

The following expressions can be used instead of if: provided/providing that, as long as, suppose/supposing, etc.

e.g. a) You can see Mr. Carter provided you have an appointment. (If you have an appointment...)

b) We will all have dinner together providing Mary comes on time. (... if Mary comes ...)

c) Suppose/Supposing the boss came now, ...

We can omit if in the if - clause. When if is omitted, should (Type 1), were (Type 2), had (Type 3) and the subject are inverted.

e.g. a) Should Peter come, tell him to wait. (If Peter should come,...)

b) Were I you, I wouldn't trust him. (If I were you, ...)

c) Had he known, he would have called. (If he had known, ...)

Сравнительно-сопоставительные конструкции и обороты в предложении

Все три формы прилагательных – основная (или положительная), сравнительная и превосходная используются в сравнительных конструкциях.

Положительная степень

(или основная форма прилагательного)

1 Одинаковое качество двух предметов (лиц, явлений) выражается прилагательными в положительной степени (основная форма) в конструкции с союзами **as...as** в значении *такой же ...как, так же...как*:

He is **as tall as** his brother.

Он такой же высокий, как и его брат.

This text is **as difficult as** that one.

Этот текст такой же трудный, как и тот.

Иногда употребляется конструкция с прилагательным **same** *тот же самый, одинаковый*: **the same...as** – *такой же, тот же самый*:

Mary is **the same age as** Jane.

Мэри того же возраста, что и Джейн.

2 Разное качество предметов выражается конструкцией **not so/as...as** в значении *не так...как, не такой...как*:

He is **not so (as) tall as** his brother.

Он не такой высокий, как его брат.

The problem is **not so simple as** it seems.

Эта проблема не такая простая, как кажется.

Если после второго **as** следует личное местоимение в третьем лице, то обычно глагол повторяется:

I am **not as strong as** he is.

Я не такой сильный, как он.

Her sister is **not so pretty as** she is.

Ее сестра не такая хорошенькая, как она.

А если следует личное местоимение в первом или втором лице, то глагол может опускаться:

She is **not so beautiful as** you (are).

Она не такая красивая, как ты.

3 Если один из сравниваемых объектов превосходит другой вдвое (**twice** [twɑɪs]) или в несколько раз (... **times**) по степени проявления какого-либо качества, то употребляется следующая конструкция:

Your room is **twice as large as** mine.

Ваша комната в два раза больше моей.

This box is **three times as heavy as** that.

Этот ящик в три раза тяжелее того.

Когда второй объект сравнения не упомянут, то **as** после прилагательного не употребляется:

This grade is **twice as expensive**.

Этот сорт в два раза дороже.

He is **twice as old**.

Он в два раза старше.

А если один из объектов уступает по качеству в два раза, то употребляется **half** *половина, наполовину, в два раза меньше*. Обратите внимание на то, что стоящее за ним прилагательное в конструкции **as... as** имеет противоположное значение тому, что принято в русском языке:

Your flat is **half as large as** mine.

Ваша квартира вдвое меньше моей.

Moscow is **half as big as** New York.

Москва наполовину меньше Нью-Йорка.

В подобных сравнительных конструкциях союз **as...as** и последующее прилагательное могут вообще опускаться, что должно компенсироваться наличием соответствующего существительного:

Your flat is **three times** the size of mine.

Ваша квартира в три раза больше моей.

He is **half** my age.

Он в два раза моложе меня.

Сравнительная степень

1 При сравнении степени качества одного предмета с другим после прилагательного в сравнительной степени употребляется союз **than** [Dxn] - *чем*, который при переводе на русский язык часто опускается:

He is **older** than I am.

Он старше, чем я. (меня)

This book is **more interesting than** that one. *Эта книга интереснее, чем та (книга).*

Эта конструкция может содержать и количественный компонент сравнения:

My mother is **ten years younger than** my father. *Моя мама на 10 лет моложе отца.*

Уменьшение качества выражается с помощью **less... than**:

I am **less musical than** my sister. *Я менее музыкален, чем моя сестра.*

Если после **than** следует личное местоимение в третьем лице, то глагол обычно повторяется:

She has **more good marks than he has**. *У нее больше хороших отметок, чем у него.*

А если следует личное местоимение в первом или втором лице, то глагол может опускаться:

He is **stronger than** you. *Он сильнее, чем ты.*

В этом случае, если нет второго сказуемого, после **than** обычно употребляется личное местоимение в объектном падеже **me/ him/ her/ them/ us**, а не в именительном:

You are taller **than I am**. или You are taller **than me**. *Ты выше, чем я (меня).*

I got up earlier **than she did**. или I got up earlier **than her**. *Я встал раньше ее (чем она).*

She runs quicker **than him**. *Она бежит быстрее (чем он).*

2 Для усиления сравнительной степени часто употребляются слова **much** [mʌʃ] или **far** [fɑː] со значением - *значительно, гораздо, намного*, а также **still** *еще*, **even** ['iːvən] *даже*, **by far** *намного, безусловно*. Причем **much more** [mʌʃ mɔː] и **far more** употребляется перед неисчисляемыми существительными, а **many more** перед исчисляемыми существительными :

My boyfriend is **much older than** me. *Мой друг гораздо старше меня.*

This book is **far better than** that one. *Эта книга значительно лучше той.*

It is **still colder** today. *Сегодня еще холоднее.*

He has **much more free time than** I have. *У него гораздо больше свободного времени, чем у меня.*

I have **many more** books **than** he (has). *У меня гораздо больше книг, чем у него.*

3 При передаче зависимости одного качества от другого (обычно их параллельное возрастание или убывание) используется конструкция **the... the**, например:

The more you have, **the more** you want. *Чем больше ты имеешь, тем больше ты хочешь.*

The longer I stay here **the better** I like it. *Чем дольше я нахожусь здесь, тем больше мне нравится.*

Превосходная степень

Если один предмет или лицо превосходят остальные в каком-либо качестве, то употребляется прилагательное в превосходной степени с артиклем **the**. Речь обычно идет не о сравнении двух предметов (лиц, явлений), а трех или более.

"Why did you stay at that hotel?" – "It was **the cheapest** (that) we could find." *"Почему вы остановились в той гостинице?" – "Она была самая дешевая, которую мы могли найти".*

Обычно при сравнении употребляется конструкция **the прилагательное... in**, если речь идет о местоположении, например:

Tom is **the cleverest** (boy) **in** the class. *Том – самый умный (парень) в классе.*

What's **the longest** river **in** the world? *Какая самая длинная река в мире?*

Или конструкция **the прилагательное... of**, например:

the happiest day **of** my life *счастливейший день моей жизни*

He is **the best of** my friends. *Он лучший из моих друзей.*

Pete is **the best** student **of** us all. *Пит лучший студент из всех нас.*

She is **the prettiest of** them all.

Она самая хорошенькая из них.

После превосходной степени часто употребляется определительное придаточное предложение со сказуемым в **Present Perfect** (как вы помните, здесь речь идет о свершившемся факте в прошлом, значение которого продолжается до настоящего момента). Это предложение может вводиться относительным местоимением **that** *который*, но оно обычно опускается.

This is **the most interesting** book (that) *Это самая интересная книга, которую я I have ever read.* *когда-либо читал.*

Типы придаточных предложений и способы их связи TIME CLAUSES

They had booked tickets before they went to the cinema. They will go home when the film is over.

◆ We use the following time conjunctions to introduce time clauses.

when - as - while - before - after - since - until/till - whenever - as long as - by the time- as soon as -the moment that - no sooner ...than - hardly... when - once - immediately - the first/last/next time etc.

◆ When the time clause precedes the main clause, a comma is used.

e.g. *Whenever he is in town, he visits us.*

He visits us whenever he is in town.

Sequence of Tenses

◆ Time clauses follow the rule of the sequence of tenses. That is, when the verb of the main clause is in a present or future form, the verb of the time clause is in a present form. When the verb of the main clause is in a past form, the verb of the time clause is in a past form too.

Main clause

Time clause

present / future / imperative → present simple or present perfect

She takes off her shoes the moment that she gets home.

I'll call you as soon as I get to my hotel.

Turn off the lights before you leave.

past simple/ past perfect → past simple or past perfect

He took a shower after he had finished painting the room.

They had reserved a table before they went to the restaurant.

TIME CONJUNCTIONS

◆ **ago - before**

ago = before now

e.g. *My parents got married twenty years ago. (= twenty years before now)*

before = before a past time

e.g. *Helen and Mike got married last month.*

They had met six months before. (= six months before last month)

◆ **until/till - by the time**

until/till = up to the time when

e.g. *You must stay in the office until/till you finish/have finished the report.*

(= up to the time when you finish the report) They'll be at their summer house until/till Sunday.

(= up to Sunday)

by the time + clause = not later than the moment something happens

e.g. *I will have set the table by the time you come home. (= before, not later than the moment you come home)*

by = not later than

e.g. *I'll let you know my decision by Friday. (= not later than Friday)*

Note: a) **not... until/till**

e.g. *I won't have finished my work until/till/ before Thursday.*

b) Both until/till and before can be used to say how far away a future event is.

e.g. *There's only one week until/till/before my summer holidays.*

◆ **during - while/as**

during + noun = in the time period

e.g. *We learnt several interesting facts during the lecture.*

while/as + clause = in the time period

e.g. *We learnt several interesting facts while/as we were listening to the lecture.*

◆ **when = (time conjunction) + present tense**

e.g. *We'll order some pizzas when our friends get here.*

when = (question word) + will/would

e.g. *I'm not sure when his next book will be published.*

CLAUSES OF RESULT

Dolphins are so appealing (that) it is hard not to like them.

They are such intelligent creatures (that) they can communicate with each other.

Clauses of result are used to express the result of something. They are introduced with the following words/expressions:

as a result - therefore - consequently/as a consequence - so - so/such ... that etc.

◆ **as a result/therefore/consequently**

e.g. *The president was taken ill and, as a result/ therefore/consequently the summit meeting was cancelled.*

The president was taken ill. As a result/therefore/ consequently, the summit meeting was cancelled.

◆ **so** e.g. *It was hot, so I turned on the air-conditioning.*

◆ **such a/an + adjective + singular countable noun**

e.g. *It was such an interesting book (that) I couldn't put it down.*

◆ **such + adjective + plural/uncountable noun**

e.g. *They are such good friends (that) they've never had an argument.*

It was such expensive jewellery (that) it was kept in a safe.

◆ **such a lot of + plural/uncountable noun**

e.g. *She invited such a lot of guests to her party that there wasn't enough room for all of them.*

He has such a lot of money (that) he doesn't know what to do with it.

◆ **so + adjective/adverb**

e.g. *He is so devoted that he deserves praise.*

He speaks so quickly that I can't understand him.

◆ **so much/little + uncountable noun**

so many/few + plural noun

e.g. *There is so much traffic that we won't be on time. He pays so little attention to what I say that it makes me angry.*

He made so many mistakes that he failed. There are so few wolves left that we have to protect them.

CLAUSES OF REASON

Traffic is getting worse because/as more people are buying cars. Traffic is getting worse on account of the fact that more people are buying cars.

Causes of reason are used to express the reason for something. They are introduced with the following words/expressions:

because - as/since - the reason for/why - because of /on account of/due to - now that - for etc.

◆ **because** e.g. *I took a taxi because it was raining.*

Because it was raining, I took a taxi.

◆ **as/since (=because)** e.g. *They bought him a gift as/since it was his birthday. As/Since it was his birthday, they bought him a gift.*

◆ **the reason for + noun/-ing form**

the reason why + clause

e.g. *The reason for his resignation was (the fact) that he had been offered a better job. The fact that he had been offered a better job was the reason for his resigning. The reason why he resigned was (the fact) that he had been offered a better job.*

◆ **because of/on account of/due to + noun**

because of/on account of/due to the fact that + clause

e.g. *All flights were cancelled because of /on account of the thick fog.
All flights were cancelled due to the thick fog. He asked for a few days off because of /on account of the fact that he was exhausted. He asked for a few days off due to the fact that he was exhausted.*

◆ **now (that) + clause** e.g. *Now (that) they have children, they have less free time.*

◆ **for = because (in formal written style)**

A clause of reason introduced with for always comes after the main clause.

e.g. *The citizens of Harbridge were upset, for a new factory was to be built near their town.*

CLAUSES OF PURPOSE

They met in a café to discuss their holiday.

They met in a café so that they could discuss their holiday.

Clauses of purpose are used to express the purpose of an action. That is, they explain why someone does something. They are introduced with the following words/expressions:

to - in order to/so as to-so that/in order that - in case-for etc.

◆ **to - infinitive**

e.g. *She went shopping to look for some new clothes.*

◆ **in order to/so as to + infinitive (formal)**

e.g. *He did a postgraduate course in order to/so as to widen his knowledge of international politics.*

In negative sentences we use in order not to or so as not to. We never use not to alone.

e.g. *He wrote the number down in order not to/so as not to forget it.*

◆ **so that + can/will (present or future reference)**

e.g. *Emma has booked a first-class ticket so that she can travel in comfort.*

so that + could/would (past reference)

e.g. *He recorded the match so that he could watch it later.*

Note: In order that has the same structure as so that. However, it is not used very often as it is formal.

e.g. *We will send you the forms in order that you can make your application.*

◆ **in case + present tense (present or future reference)**

in case + past tense (past reference)

In case is never used with will or would.

e.g. *Take your credit card in case you run out of cash. He took a jumper in case it got cold.*

◆ **for + noun (when we want to express the purpose of an action)**

e.g. *He went to the doctor's for a check-up.*

for + -ing form (when we want to express the purpose or function of something)

e.g. *We use a spade for digging.*

Clauses of purpose follow the rule of the sequence of tenses, like time clauses.

e.g. *He borrowed some money so that he could pay his phone bill.*

Note: We can express negative purpose by using:

a) **prevent + noun/pronoun + (from) + -ing form**

e.g. *She covered the sofa with a sheet to prevent it (from) getting dirty.*

b) **avoid + -ing form**

e.g. *They set off early in the morning to avoid getting stuck in traffic.*

EXCLAMATIONS

Exclamations are words or sentences used to express admiration, surprise, etc.

To form exclamatory sentences we can use what (a/an), how, such, so or a negative question.

◆ **so + adjective/adverb**

e.g. *This cake is so tasty! He works so hard!*

◆ **such + a/an (+ adjective) + singular countable noun**

e.g. *This is such an original design!*

◆ **such (+ adjective) + uncountable/plural noun**

e.g. *You gave me such valuable information!*

She's wearing such elegant clothes!

◆ **what + a/an (+ adjective) + singular countable noun**

e.g. *What a lovely view!*

What an unusual pattern! What a day!

◆ **what (+ adjective) + uncountable/plural noun**

e.g. *What expensive furniture!*

What comfortable shoes!

◆ **how + adjective/adverb**

e.g. *How clever he is! How well she behaved!*

◆ **negative question (+ exclamation mark)**

e.g. *Isn't she a graceful dancer!*

CLAUSES OF CONTRAST

He prefers to make things by hand although/even though he could use a machine.

Clauses of contrast are used to express a contrast. They are introduced with the following words/phrases:

but - although/even though/though - in spite of/despite - however - while/whereas - yet - nevertheless - on the other hand

◆ **but** e.g. *It was cold, but she wasn't wearing a coat.*

◆ **although/even though/though + clause**

Even though is more emphatic than although. Though is informal and is often used in everyday speech. It can also be put at the end of a sentence.

e.g. *Although/Even though/Though it was summer, it was chilly.*

It was chilly although/even though/though it was summer.

It was summer. It was chilly, though.

◆ **in spite of/despite + noun/-ing form**

e.g. *In spite of/Despite his qualifications, he couldn't get a job.*

He couldn't get a job in spite of/despite (his) being qualified.

in spite of/despite the fact that + clause

e.g. *In spite of/Despite the fact that he was qualified, he couldn't get a job.*

◆ **however/nevertheless** A comma is always used after however/nevertheless.

e.g. *The man fell off the ladder. However/Nevertheless, he wasn't hurt.*

◆ **while/whereas**

e.g. *She is tall, while/whereas her brother is rather short.*

◆ **yet (formal)/still**

e.g. *The fire was widespread, yet no property was damaged. My car is old. Still, it is in very good condition.*

◆ **on the other hand**

e.g. *Cars aren't environmentally friendly.*

On the other hand, bicycles are. / Bicycles, on the other hand, are.

CLAUSES OF MANNER

They look as if/as though they are in a hurry.

Clauses of manner are introduced with *as if/as though* and are used to express the way in which something is done/said, etc.

◆ We use **as if /as though** after verbs such as *act, appear, be, behave, feel, look, seem, smell, sound, taste* to say how somebody or something looks, behaves, etc.

e.g. *He is acting as if/as though he's had bad news.*

We also use **as if /as though** with other verbs to say how somebody does something.

e.g. *She talks as if/as though she knows everything.*

◆ We use **as if /as though + past tense** when we are talking about an unreal present situation. *Were* can be used instead of *was* in all persons.

e.g. *He spends his money as if /as though he was I were a millionaire. (But he isn't.) He behaves as if/as though he owned the place. (But he doesn't.)*

Note: We can use *like* instead of *as if/as though* in spoken English.

e.g. *She looks like she's going to faint, (informal spoken English).*

RELATIVE CLAUSES

A camel is an animal which/that lives in hot countries.

A computer is something which/ that we use for storing information.

A firefighter is someone who/that puts out fires and whose job is very risky.

Relative clauses are introduced with a) relative pronouns (*who(m), which, whose, that*) and b) relative adverbs (*when, where, why*).

We use:

◆ **who/that to refer to people.**

◆ **which/that to refer to objects or animals.**

Who/which/that can be omitted when it is the object of the relative clause; that is, when there is a noun or subject pronoun between the relative pronoun and the verb. It cannot be omitted when it is the subject of the relative clause. We can use *whom* instead of *who* when it is the object of the relative clause. *Whom* is not often used in everyday English.

e.g. a) *I saw a friend. I hadn't seen him for years.*

I saw a friend (who/whom/that) I hadn't seen for years. (Who/whom/that is the object, therefore it can be omitted.)

b) *I met a woman. She was from Japan.*

I met a woman who/that was from Japan. (Who/that is the subject, therefore it cannot be omitted.)

◆ **whose instead of possessive adjectives** (*my, your, his, etc.*) with people, objects and animals in order to show possession.

e.g. a) *That's the boy — his bicycle was stolen yesterday.*

That's the boy whose bicycle was stolen yesterday.

b) *That's the building —its windows were smashed.*

That's the building whose windows were smashed.

◆ We usually avoid using prepositions before relative pronouns.

e.g. a) *The person to whom the money will be entrusted must be reliable, (formal English — unusual structure)*

b) *The chair that you are sitting on is an antique. (usual structure)*

c) *The chair you are sitting on is an antique. (everyday English)*

◆ **Which** can refer back to a whole clause.

e.g. *He helped me do the washing-up. That was kind of him. He helped me do the washing-up, which was kind of him. (Which refers back to the whole clause. That is, it refers to the fact that he helped the speaker do the washing-up.)*

◆ We can use the structure *all/most/some/a few/half/none/two, etc. + of + whom/which*.

e.g. a) *He invited a lot of people. All of them were his friends.*

He invited a lot of people, all of whom were his friends.

b) *He has a number of watches. Three of them are solid gold.*

He has a number of watches, three of which are solid gold.

◆ That is never used after a comma or preposition.

e.g. a) *The Chinese vase, which is on the coffee table, is very expensive. (NOT: ...that is on the coffee table ...)*

b) *The bank in which the money was deposited is across the street. (NOT: The bank in that the money...)*

◆ We use that with words such as all, everything, something, anything, no(thing), none, few, little, much, only and with the superlative form.

e.g. *Is this all that you can do for me? (more natural than ...all which you can do ...)* *The only thing that is important to me is my family. It's the best song that I've ever heard.*

who/that (people) subject — cannot be omitted

who/whom/that(people) object — can be omitted

which/that (objects, animals) subject — cannot be omitted

object — can be omitted

whose (people, objects, animals) possession — cannot be omitted

RELATIVE ADVERBS

We use:

◆ **where** to refer to place, usually after nouns such as place, house, street, town, country, etc. It can be replaced by **which/that + preposition** and, in this case, which/that can be omitted.

e.g. *The house where he was born has been demolished.*

The house (which/that) he was born in has been demolished.

◆ **when** to refer to time, usually after nouns such as **time, period, moment, day, year, summer**, etc. It can either be replaced by **that** or can be omitted.

e.g. *That was the year when she graduated.*

That was the year (that) she graduated.

◆ **why** to give reason, usually after the word **reason**. It can either be replaced by **that** or can be omitted.

e.g. *The reason why she left her job was that she didn't get on with her boss.*

The reason (that) she left her job was that she didn't get on with her boss.

IDENTIFYING/NON-IDENTIFYING CLAUSES

There are two types of relative clause: identifying relative clauses and non-identifying relative clauses. An identifying relative clause gives necessary information and is essential to the meaning of the main sentence. It is not put in commas. A non-identifying relative clause gives extra information and is not essential to the meaning of the main sentence. It is put in commas.

Identifying relative clauses are introduced with:

◆ **who, which, that.** They can be omitted if they are the object of the relative clause.

e.g. a) *People are prosecuted. (Which people? We don't know. The meaning of the sentence is not clear.)*

People who/that lie in court are prosecuted. (Which people? Those who lie in court. The meaning of the sentence is clear.)

b) *The papers are missing. (Which papers? We don't know. The meaning of the sentence is not clear.)*

The papers (which/that) you gave me to check are missing. (Which papers? The ones you gave me to check. The meaning of the sentence is clear.)

◆ **whose, where, when, (the reason) why.** Whose cannot be omitted. Where can be omitted when there is a preposition. When and why can either be replaced by **that** or can be omitted.

e.g. a) *The man was angry. (Which man? We don't know. The meaning of the sentence is not clear.)*

The man whose car was damaged was angry. (Which man? The one whose car was damaged. The meaning of the sentence is clear.)

b) *The shop is near my house. (Which shop? We don't know.)*

The shop where I bought this shirt is near my house. OR The shop I bought this shirt from is near my house. (Which shop? The one I bought this shirt from.)

c) *The day was the happiest day of my life. (Which day? We don't know.)*

The day (when/that) I got married was the happiest day of my life. (Which day? The day I got married.)

d) *I was upset. This is the reason. (The reason for what? We don't know.)*

I was upset. This is the reason (why/that) I didn't call you. (The reason I didn't call you.)

Non-identifying relative clauses are introduced with:

◆ **who, whom, which.** They cannot be omitted or replaced by that.

e.g. a) *Jenny Ladd is my favourite author. (The meaning of the sentence is clear.) Jenny Ladd, who has written a lot of successful books, is my favourite author. (The relative clause gives extra information.)*

b) *My cousin Peter is a doctor. (The meaning of the sentence is clear.)*

My cousin Peter, who(m) you have just met, is a doctor. (The relative clause gives extra information.)

c) *His flat is modern and spacious.*

His flat, which he bought two years ago, is modern and spacious.

◆ **whose, where, when.** They cannot be omitted.

e.g. a) *The bride looked stunning. (The meaning of the sentence is clear.)*

The bride, whose wedding dress was designed by Valentino, looked stunning. (The relative clause gives extra information.)

b) *Stratford-upon-Avon is visited by thousands of tourists every year.*

Stratford-upon-Avon, where Shakespeare was born, is visited by thousands of tourists every year.

c) *The best time to visit the island is in May. The best time to visit the island is in May, when it isn't too crowded.*

LINKING WORDS

Linking words show the logical relationship between sentences or parts of a sentence.

Positive Addition

and, both ... and, too, besides (this/that), moreover, what is more, in addition (to), also, as well as (this/that) furthermore etc.

She is both intelligent and beautiful.

Negative Addition

neither... nor, nor, neither, either

Neither John nor David goes to university.

Contrast

but, although, in spite of, despite, while, whereas, ever though, on the other hand, however, yet, still etc.

Sarah is kind but not very reliable.

Giving Examples

such as, like, for example, for instance, especially, in particular etc.

All the food was delicious, but the steak in particular was excellent.

Cause/Reason

as, because, because of, since, for this reason, due to, so, as a result (of) etc.

I stayed in bed because I felt ill.

Condition

if, whether, only if, in case of, in case, provided (that providing (that), unless, as/so long as, otherwise, or (else on condition (that) etc.

We took an umbrella with us in case it rained.

Purpose

to, so that, so as (not) to, in order (not) to, in order that, in case etc.

I took some paper and a pen so that I could make notes.

Effect/Result

such/so ... that, so, consequently, as a result, therefore, for this reason etc.

It was so cold that we decided to light a fire.

Time

when, whenever, as, as soon as, while, before, until/till after, since etc.

We did not leave until/till the babysitter arrived.

Place

where, wherever

We can't decide where to go on holiday this year.

Exception

except (for), apart from

The party was good fun, apart from the problem with the stereo.

Relatives

who, whom, whose, which, what, that

That's the horse which/that won the Grand National.

Listing Points/Events

To begin: initially, first, at first, firstly, to start/begin with, first of all etc.

First of all, we greeted the guests.

To continue: secondly, after this/that, second, afterwards, then, next etc.

Then, we offered them drinks.

To conclude: finally, lastly, in the end, at last, eventually etc.

Finally, we served them the meal.

Summarising

in conclusion, in summary, to sum up, on the whole, all in all, altogether, in short etc.

To sum up, I firmly believe that animals have the right to a happy life.

1.2 Чтение и перевод учебных текстов

№1

YOUR FIRST INTERVIEW

With unemployment so high, and often scores of applicants chasing every job, you have to count yourself lucky to be called for an interview. If it's your first, you're bound to be nervous. (In fact if you're not nervous maybe your attitude is wrong!) But don't let the jitters side-track you from the main issue - which is getting this job. The only way you can do that is by creating a good impression on the person who is interviewing you. Here's how:

DO: ☞ Find out as much as you can about the job beforehand. Ask the job centre or employment agency for as much information as possible; ☞ Jot down your qualifications and experience and think about how they relate to the job. Why should the employer employ you and not somebody else? ☞ Choose your interview clothing with care; no one is going to employ you if you look as though you've wandered out of a disco. Whether you like it or not, appearance counts. ☞ Make sure you know where the interview office is and how to get there. Be on time, or better, a few minutes early. ☞ Bring a pen; you will probably be asked to fill in an application form. Answer all the questions as best you can. And write neatly. The interviewer will be looking at the application during the interview; he or she must be able to read it. ☞ Have a light meal to eat, and go to the toilet. If you don't, you may well be thinking about your inside during the interview.

DON'T: † Ever walk into the interview chewing gum, sucking on a sweet or smoking. † Forget to bring with you any school certificates, samples of your work or letters of recommendation from your teachers or anyone else you might have worked part-time for. † Have a drink beforehand to give you courage. † The interview is designed to find out more about you and to see if you are suitable for the job. The interviewer will do this by asking you questions. The way you answer will show what kind of person you are and if your education, skills and experience match what they're looking for.

DO: † Make a real effort to answer every question the interviewer asks. Be clear and concise. Never answer 'Yes' or 'No' or shrug. † Admit it if you do not know something about the more technical aspects of the job. Stress that you are willing to learn. † Show some enthusiasm when the job is explained to you. Concentrate on what the interviewer is saying, and if he or she asks if you have any questions, have at least one ready to show that you're interested and have done your homework. † Sell yourself. This doesn't mean exaggerating (you'll just get caught out) or making your experience or interests seem unimportant (if you sell yourself short no one will employ you). † Ask questions at the close of the interview. For instance, about the pay, hours, holidays, or if there is a training programme.

DON'T: † Forget to shake hands with the interviewer. † Smoke or sit down until you are invited to. † Give the interviewer a hard time by giggling, yawning, rambling on unnecessarily or appearing cocky or argumentative. † Ever stress poor aspects of yourself, like your problem of getting up in the morning. Always show your best side: especially your keenness to work and your sense of responsibility.

After the interview:

Think about how you presented yourself: could you have done better? If so, and you do not get the job, you can be better prepared when you are next called for an interview. Good luck!

READING: According to the text below, are the following statements true or false?

1. Good-looking people are often more successful than others.
2. British Airways does not allow its pilots to work if they are 20 per cent overweight.
3. Attractive women have problems reaching managerial positions.
4. Morphopsychology is sometimes used as the only criterion when selecting candidates.
5. Employers' attitudes to 'unfair' recruitment practices have not changed.

*No*2

Structure of the Business Letter

We can't imagine business without communication. Business is made through communication. It can be face-to-face conversation organized in the office or at the restaurant or business correspondence. It can be held with the help of regular mail or E-mail.

A business letter is the principal means used by a business firm to keep in touch with its customers. According to the purpose of the letter there may be different kinds, e.g. a letter of request, a memo (memorandum), a letter of advice, an invitation letter, a congratulation letter, a letter of thanks (gratitude), a letter of apology, an enquiry letter, a letter of guarantee, a letter of complaint, a letter of claim, an order letter, etc.

There are special rules to organize a business letter in a right way. The business letter consists of several parts.

First you should write your own name and address (in the right up corner), telephone numbers, and then write down the title, name and address of the recipient. Always type the date, in the logical order of day, month, year (*10th November 20...*).

It is important to use the correct title of the person you are addressing to:

Dr. – means doctor (a person, who has Doctor's degree or PhD);

Professor – if you are addressing the professor;

Mr. / Sir – if you are addressing a male, but is not sure in his title;

Mrs. – if you are addressing a female (married);

Miss – if you are addressing a female (single);

Ms – if you are addressing a female (married or unmarried businesswoman);

Madam – addressing a female if you are not sure in her family status.

The salutation is the greeting with which every letter begins. **Opening salutation** is typed in the left-hand corner. There are several types of opening salutation:

Dear Sirs – to a company;

Dear Sir – to a man if you do not know his name;

Dear Madam – to a woman if you do not know her name;

Dear Sir or Madam – to a person if you know neither the name, nor sex;

Gentlemen – the most common salutation in the United States.

If your correspondent is known to you personally the warmer and more friendly greeting, *Dear Mr ...* is preferred.

The message forms the body of the letter and is the part that really matters.

Some letters are very short and may consist of only one paragraph. Many others have three paragraphs: *Introduction* (why are you writing?), *Details* (facts, information, instructions), *Action* (what action will you take?).

Finishing the letter is a polite way of bringing a letter to a close and you should write one of the following phrases:

Yours sincerely; Truly yours, Yours faithfully sign the letter and put your (title), name and surname.

Business letters have to be written (typed) accurately in plain language.

Post-Reading

1. Explain the following.

- 1) face-to-face conversation
- 2) the principal means
- 3) the salutation
- 4) the message
- 5) plain language

2. Match the following attributes on the left with a suitable noun on the right.

- | | |
|--------------|-------------|
| 1. logical | a. address |
| 2. capital | b. sirs |
| 3. mailing | c. order |
| 4. dear | d. greeting |
| 5. customary | e. letter |

3. Match the English word combinations with the Russian equivalents.

- | | |
|--------------------------|---------------------------------|
| 1. to sign a letter | a. поддерживать контакт |
| 2. to refer to a letter | b. иметь значение для кого-либо |
| 3. to enclose documents | c. подписать письмо |
| 4. to keep in touch with | d. расположить адрес |
| 5. to match a style | e. прилагать документы |
| 6. to matter to somebody | f. соответствовать стилю |
| 7. to set out an address | g. ссылаться на письмо |

4. Complete the sentences with the words: *to mean* (значить; подразумевать); *meaning* (значение; смысл); *means* (средство; способ); *by means of* (посредством)

1. Business letters may be defined as a _____ through which information is communicated in writing in the process of business activities.

2. One word can have several _____ (s).

3. Doing business _____ (s) working out agreements with other people.

4. Students are selected for scholarships _____ an open competition.

5. What does business _____?

5. Answer the questions below.

- What is a business letter?
- What types of business letters do you know?
- What parts does a business letter consist of?

- Why is the language style very important for business letter writing?

6. Find in the text the information about the parts of a business letter and describe them:

- a) the date;
- b) the name and address;
- c) the salutation;
- d) the message;
- e) the complimentary closure;
- f) the signature.

№3

An Academic Conference

The best way to exchange ideas, learn new things and expand your network is to become involved in groups relevant to your craft. This can be through user groups for a particular software environment you work with, or professional associations.

There are plenty of websites and forums that enable professionals to engage with one another online, but nothing seals a bond like face-to-face activities.

The ability to communicate your ideas to audiences will raise your profile to new levels.

The Academic Conference presents a challenge to interaction with other scientists. They regularly take part in conferences and discussions around the world.

A researcher receives an email about the opportunity to submit a proposal to be a presenter at the conference.

An academic conference or symposium is a conference for scholars and scientists to present and discuss their work. Together with academic or scientific journals, conferences provide an important channel for exchange of information among researchers.

Conferences are usually composed of various presentations. They tend to be short and concise, with a time span of about 10 to 30 minutes. The work may be bundled in written form as academic papers and published as the conference proceedings. They are published to inform a wider audience of the material presented at the conference.

A conference usually includes a keynote speaker (основной докладчик). The keynote lecture is longer, lasting up to an hour and a half. Conferences also feature panel discussions, round tables on various issues and workshops.

Prospective presenters are usually asked to submit a short abstract of their presentation. Nowadays, presenters usually base their talk around a visual presentation that displays key figures and research results.

At some conferences, social or entertainment activities such as tours and receptions can be part of the programme. Business meetings for learned societies (научное общество) or interest groups can also be part of the conference activities.

Academic publishing houses may set up displays at large conferences. Academic conferences fall into three categories:

- a) the themed conference, a small conference organised around a particular topic;
- b) the general conference, a conference with sessions on a wide variety of topics, often organised by regional, national, or international learned societies, and held annually or on some other regular basis;
- c) the professional conference, large conferences not limited to academics (научные работники) but with academically related issues.

Traditional conferences mean participants have to travel and stay in a particular place. This takes time. And an online conference uses the Internet, and participants can access the conference from anywhere in the world and can do this at any time, using browser software. Participants are given a password to access the conference and seminar groups.

The conference is announced by way of a Call for Abstracts, which lists the topics of the meeting and tells prospective presenters how to submit their abstracts.

Submissions take place online. An abstract is a brief summary of a research article, and is often used to help the reader quickly ascertain the purpose of the paper.

An academic abstract typically outlines four elements of the work:

a) the research focus (statement of the problem) – an opening sentence placing the work in context, and one or two sentences giving the purpose of the work ;

b) the research methods used – one or two sentences explaining what was (or will) be done;

c) the results of the research – one or two sentences indicating the main findings;

d) the main conclusions – one sentence giving the most important consequence of the work.

The typical abstract length ranges from 100 to 500 words.

Post-Reading

1. Explain the following.

- 1) to submit a proposal
- 2) scholars and scientists
- 3) tend to be short and concise
- 4) a time span
- 5) the conference proceedings
- 6) submissions

2. Match the pairs of synonyms from A and B and translate them.

A

1. brief
2. scientist
3. paper
4. because of
5. summary
6. have a tendency

B

- a. article
- b. due to
- c. abstract
- d. scholar
- e. tend
- f. concise

3. Match the verb on the left with a suitable item on the right. Use each item once.

- | | |
|----------------|---------------------------|
| 1. run | a. to a conclusion |
| 2. participate | b. a deadline for papers |
| 3. announce | c. a keynote speaker |
| 4. introduce | d. in a panel discussion |
| 5. publish | e. on the screen |
| 6. come | f. conference proceedings |
| 7. display | g. a workshop |

4. Translate the words in brackets.

1. Our university hosted an (научная конференция) last week.
2. Write your (аннотация) after the rest of the (статья) is completed.
3. (Статьи) accepted for the conferences were published in the (материалы конференции).
4. This (научное общество) offers its membership to those who have an interest in civil engineering.
- 5 The conference committee decided to postpone the (крайний срок) for submitting (тезисы) by one week.

5. Answer the questions below.

- What types of academic conferences are there?
- What are presenters usually asked to do?
- What is a call for abstracts?
- What does an academic abstract outline?

6. Find in the text the information about the organisation of academic conference and describe it:

- a) a keynote lecture;
- b) the submission of abstracts;
- c) social and entertainment activities at conferences;
- d) types of academic conferences;

e) a call for abstracts.

№ 4

INNOVATION

The term innovation derives from the Latin word *innovatus* (to renew or change). Although the term is broadly used, innovation generally refers to the creation of better or more effective products, processes, technologies, or ideas that are accepted by markets, governments, and society. Innovation differs from invention or renovation in that innovation generally signifies a substantial positive change compared to incremental changes.

Inter-Disciplinary Views. Due to its widespread effect, innovation is an important topic in the study of economics, business, entrepreneurship, design, technology, sociology, and engineering. In society, innovation aids in comfort, convenience, and efficiency in everyday life. For instance, the benchmarks in railroad equipment and infrastructure added to greater safety, maintenance, speed, and weight capacity for passenger services. These innovations included changing from wood to steel cars, from iron to steel rails, stove-heated to steam-heated cars, gas lighting to electric lighting, diesel-powered to electric-diesel locomotives. By mid-20th century, trains were making longer, more comfortable, and faster trips at lower costs for passengers. Other areas that add to everyday quality of life include: the innovations to the light bulb from incandescent to compact fluorescent and LEDs which offer longer-lasting, less energy-intensive, brighter technology; adoption of modems to cellular phones, paving the way to smart phones which meets anyone's internet needs at any time or place; cathode-ray tube to flat-screen LCD televisions and others.

Business and Economics. In business and economics, innovation is the catalyst to growth. With rapid advancements in transportation and communications over the past few decades, the old world concepts of factor endowments and comparative advantage which focused on an area's unique inputs are outmoded for today's global economy. Now, as Harvard economist Michael Porter points out competitive advantage, or the productive use of any inputs, which requires continual innovation, is paramount for any specialized firm to succeed. Economist Joseph Schumpeter, who contributed greatly to the study of innovation, argued that industries must incessantly revolutionize the economic structure from within, that is innovate with better or more effective processes and products, such as the shift from the craft shop to factory. In addition, entrepreneurs continuously look for better ways to satisfy their consumer base with improved quality, durability, service, and price which come to fruition in innovation with advanced technologies and organizational strategies.

One prime example is the explosive boom of Silicon startups out of the Stanford Industrial Park. In 1957, dissatisfied employees of Shockley Semiconductor, the company of Nobel laureate and co-inventor of the transistor William Shockley, left to form an independent firm, Fairchild Semiconductor. After several years, Fairchild developed into a formidable presence in the sector.

Eventually, these founders left to start their own companies based on their own, unique, latest ideas, and then leading employees started their own firms. Over the next 20 years, this snowball process launched the momentous startup company explosion of information technology firms. Essentially, Silicon Valley began as 65 new enterprises born out of Shockley's eight former employees.

Organizations. In the organizational context, innovation may be linked to positive changes in efficiency, productivity, quality, competitiveness, market share, and others. All organizations can innovate, including for example hospitals, universities, and local governments. For instance, former Mayor Martin O'Malley pushed the City of Baltimore to use CitiStat, a performance-measurement data and management system that allows city officials to maintain statistics on crime trends to condition of potholes. This system aids in better evaluation of policies and procedures with accountability and efficiency in terms of time and money. In its first year, CitiStat saved the city \$13.2 million. Even mass transit systems have innovated with hybrid bus fleets to real-time tracking at bus stands. In addition, the growing use of mobile data terminals in vehicles that serves as communication hubs between vehicles and control center automatically send data on location, passenger counts,

engine performance, mileage and other information. This tool helps to deliver and manage transportation systems.

Sources of Innovation. There are several sources of innovation. General sources of innovations are different changes in industry structure, in market structure, in local and global demographics, in human perception, mood and meaning, in the amount of already available scientific knowledge, etc. These also include internet research, developing of people skills, language development, cultural background, Skype, Facebook, etc. In the simplest linear model of innovation the traditionally recognized source is manufacturer innovation. This is where an agent (person or business) innovates in order to sell the innovation. Another source of innovation, only now becoming widely recognized, is end-user innovation. This is where an agent (person or company) develops an innovation for their own (personal or in-house) use because existing products do not meet their needs. End-user¹³ innovation is, by far, the most important and critical source of innovation. In addition, the famous robotics engineer Joseph F. Engelberger asserts that innovations require only three things: 1) a recognized need; 2) competent people with relevant technology; and 3) financial support.

Innovation by businesses is achieved in many ways, with much attention now given to formal research and development (R&D)¹⁴ for "breakthrough innovations. "R&D help spur on patents and other scientific innovations that leads to productive growth in such areas as industry, medicine, engineering, and government. Yet, innovations can be developed by less formal on-the-job modifications of practice, through exchange and combination of professional experience and by many other routes. The more radical and revolutionary innovations tend to emerge from R&D, while more incremental innovations may emerge from practice – but there are many exceptions to each of these trends.

An important innovation factor includes customers buying products or using services. As a result, firms may incorporate users in focus groups (user centred approach), work closely with so called lead users (lead user approach) or users might adapt their products themselves. Regarding this user innovation, a great deal of innovation is done by those actually implementing and using technologies and products as part of their normal activities. In most of the times user innovators have some personal record motivating them. Sometimes user-innovators may become entrepreneurs, selling their product, they may choose to trade their innovation in exchange for other innovations, or they may be adopted by their suppliers.

Nowadays, they may also choose to freely reveal their innovations, using methods like open source. In such networks of innovation the users or communities of users can further develop technologies and reinvent their social meaning.

Notes:

1. Renovation – 1) восстановление, реконструкция; 2) обновление, освежение.
2. Incremental – поэтапный (напр. о внедрении технических средств).
3. Benchmark – эталон, стандарт.
4. LED – (light-emitting diode) светодиод, СИД.
5. Cathode-ray tube –электронно-лучевая трубка, ЭЛТ.
6. Flat-screen LCD television – ЖК-телевидение.
7. Comparative advantage – сравнительное преимущество/отличие.
8. Inputs – вложения, затраты, инвестиции.
9. Start(-)up – "стартап" (недавно созданная фирма, обычно интернеткомпания).
10. Performance-measurement – измерение производительности.
11. Mass transit – общественный транспорт.
12. Data terminal – терминал данных.
13. End-user – конечный пользователь.
14. Research and development (R&D) – научно-исследовательские и опытноконструкторские работы; НИР и ОКР.

№5

АННОТАЦИЯ НАУЧНОЙ СТАТЬИ (Abstract)

Аннотацией называется краткое и вместе с тем исчерпывающее изложение содержания научной статьи, помещаемое непосредственно после заглавия и понятное возможно более широкому кругу читателей. Как правило, аннотация не содержит каких-либо формул или цифровых данных, имеет объем, не превышающий 1200-1600 печатных знаков, и является законченной логической единицей, дающей читателю возможность обоснованно решить, следует ему читать данную научную статью или нет. По сравнению с остальным текстом научной статьи аннотация набирается более мелким жирным шрифтом (bold face, lower case print) и по объему вводимой информации занимает промежуточное положение между заглавием (Title) и введением (Introduction).

В аннотации помещаются сведения об общем направлении, задачах и целях исследования, приводится более конкретное описание тематики работ, выполненных данным автором, поясняется метод исследования, кратко излагаются полученные теоретические и экспериментальные результаты и формулируются общие выводы, которые можно сделать на основании этих результатов. По своему содержанию и методам исследования аннотации научных статей подразделяются на три основных типа:

- (а) Аннотации научных статей, излагающих результаты оригинальных теоретических и (или) экспериментальных исследований, выполненных авторами;
- (б) Аннотации обобщающих научных статей, посвященных распространению полученных результатов на другие области и занимающих промежуточное положение между оригинальными исследованиями и обзорами литературы;
- (в) Аннотации обзорных научных статей.

Примером аннотации научной статьи, в которой излагаются результаты выполненной автором оригинальной исследовательской работы, может являться следующий текст:

TEXT 1

Supersonic Aerodynamic Characteristics of a Tail-Control Cruciform Maneuverable Missile With and Without Wings

The aerodynamic characteristics for a winged and a wingless cruciform missile are examined. The body was an ogive-cylinder with a forebody and had cruciform tails that were trapezoidal in planform. Tests were made both with and without cruciform delta wings for different Mach numbers, roll attitudes, angles of attack, and tail control deflections. The obtained experimental results indicate that the winged missile with its more linear aerodynamic characteristics and higher lift-curve slope, should provide the highest maneuverability over a large operational range. The wingless missile, with a lower lift-curve slope and more nonlinear characteristics but with lower minimum drag, might be more suitable for missions where acceleration time is important and where lift can be generated from high dynamic pressure incurred at low altitudes or at higher Mach numbers.

Примером аннотации обобщающей научной статьи, посвященной распространению уже известных результатов на близкие или соседние области исследований, может служить следующий текст

TEXT 2

Prospects for Advanced Rocket-Powered Launch Vehicles

The potential for advanced rocket-powered launch vehicles to meet the challenging cost operational, and performance demands of space transportation in the early 21st century is examined. Space transportation requirements from recent studies underscoring the need for growth in capacity in support of an increasing diversity of space activities and the need for significant reductions in operational and life-cycle costs are reviewed. Fully reusable rocket powered concepts based on moderate levels of evolutionary advanced technology are described. These vehicles provide a broad range of attractive concept alternatives with the potential to meet demanding operational and cost goals and the flexibility to satisfy a variety of vehicle architecture, mission, vehicle concept, and technology options.

Приводимый ниже текст может служить примером аннотации обзорной научной статьи:

ТЕХТ 3

An Overview of Ejector Theory

A summary/overview of ejector augmentor theory is presented. The results of the study are presented first in a description of the fundamental considerations relevant to ejector augmentor design and performance and second in a discussion of the physical Phenomena associated with the various components comprising an ejector augmentor: primary nozzles, secondary inlet, mixing section and diffuser. In the theoretical discussion a limit value of static augmentation ratio which depends only on the ratio of Primary to secondary stagnation pressure is formulated, and is shown that the best published experimental results approach 90% of that limit value. Conclusions regarding theoretical ejector technology based on this study are made and recommendations for needed theoretical ejector technology research and development programs are presented.

В результате ознакомления с содержанием аннотаций (и, при необходимости, обращения к соответствующей шорной литературе переводчик выясняет, что в первом случае (Текст 1) речь идет об оригинальном исследовании, посвященном определению сверхзвуковых аэрокосмических характеристик для крылатого и бескрылого вариантов высокоманевренной управляемой ракеты нормальной крестообразной схемы с хвостовыми рулями. Во втором случае (Текст 2) исследование носит обобщающий характер и в основном посвящено сопоставительному анализу наиболее перспективных для начала XXI века схем полностью спасаемых ракет-носителей. В третьем случае (Текст 3) исследование носит обзорный характер и посвящено рассмотрению современного состояния теоретических и экспериментальных исследований в области газовых эжекторов. В результате обращения к соответствующей опорной литературе переводчик может выяснить, то в данном случае речь идет об устройствах увеличения тяги, работающих по принципу струйного насоса, т.е. подсоса внешнего воздуха газовой струей воздушно-реактивного двигателя.

Исходя из приведенных выше примеров, а также из результатов анализа достаточно большого массива аннотаций современных научных статей по аэрокосмической тематике, можно прийти к заключению, что основной лексико-стилистической особенностью аннотации является наличие большого количества так называемых конечных парольных форм типа:

...is/are arrived at, developed, inferred, discussed introduced, formulated, outlined, made, considered summarised и т.д.

Для аннотаций оригинальных научных статей, содержащих результаты научных исследований, выполненных непосредственно автором, характерны следующие типовые структурные формы и обороты:

(1) The results of the theoretical (experimental) study of... are presented / Приводятся результаты теоретического (экспериментального) исследования...

(2) It is shown that .../Показано, что...

(3) A theoretical (experimental) dependence of... vs... is formulated / Формулируется теоретическая (полученная экспериментально) зависимость... от...

(4) Recommendations for ... are presented/Приводятся рекомендации по...

(5) Conclusions regarding ... are made (arrived at/Делаются выводы о том, что...

Аннотации обобщающих научных статей по своим лексико-стилистическим особенностям занимают промежуточное положение между аннотациями оригинальных и обзорных научных статей и, помимо характерных для этих двух категорий типовых структурных форм, могут также содержать специфические для данной категории типовые структурные формы, такие как:

(1) In this general paper the role of... in... is discussed/В данной обобщающей научной статье рассматривается роль... В...

(2) The extension of... and possibility of its practical application to ... are considered / Рассматриваются распространение ... на ... и возможность его практического приложения к...

(3) A generalized version of... for ... is introduced/Вводится обобщенный вариант... для...

(4) Subject matter related to ... as well as to ... is considered/Обсуждаются вопросы, относящиеся как к ..., так и к...

Для аннотаций обзорных научных статей, содержащих обзор (или сопоставительный анализ) результатов, полученных другими исследователями, характерны следующие типовые структурные формы и обороты:

(1) A review of... essential for ... is presented/Приводится обзор..., представляющих интерес для ...

(2) Present status and theoretical (experimental, test) results of ... are summarised/Рассматривается современное состояние и приводятся результаты теоретических исследований (экспериментальной проверки, натурных испытаний)...

(3) The current research programs for... are outlined/Приводится обзор проводимых в настоящее время исследований по...

(4) The factors (parameters) considered include .../Рассмотрено влияние таких факторов (параметров), как...

(5) Special attention is given to ... methods (techniques, solutions) used by... for .../Особое внимание уделяется ...методам (способам решения), применяемым... для...

(6) A bibliography of ... references is included/Библиография включает... наименований

Из рассмотренных примеров следует, что при передаче характерных для аннотаций типовых структурных форм на русский язык сказуемое, как правило, переходит с последнего места на первое. Приведенные 15 типовых структурных форм являются наиболее частотными для рассмотренных трех категорий аннотаций научных статей, публикуемых AIAA, IEEE, ACM и NASA.

При составлении каталогов, библиографий, тематических подборок литературы, выполнении работ по информационному обеспечению научных исследований часто возникает необходимость в определении категории и примерного содержания научной статьи по ее внешним признакам, без вникания в сущность вопросов, излагаемых в аннотации и других разделах статьи.

Внешними признаками оригинальной научной статьи могут являться: наличие снабженного сквозной нумерацией развитого математического аппарата; большой объем иллюстративно-графических материалов; сравнительно небольшая библиография, в состав которой входят предыдущие публикации автора и объем которой не превышает 8-10 наименований. Авторами оригинальных научных статей обычно оказываются работники низших и средних иерархических уровней (Design Engineer, Research Engineer, Analytical Engineer, Structural Engineer, System Engineer, Member of the Technical Staff).

Внешними признаками обобщающей научной статьи являются: отсутствие сквозной нумерации у имеющегося математического аппарата, который обычно имеет иллюстративный характер; большой объем текстового и сравнительно небольшой объем иллюстративно-графического материала; развитая библиография, включающая до 25-30 наименований, в том числе одну - две работы автора. Авторами обобщающих научных статей обычно являются работники среднего иерархического уровня (Senior Engineer, Lead Engineer, Technical Coordinator, Group Leader, Company Officer, Technical Manager, Research Manager).

Внешними признаками обзорной научной статьи являются: отсутствие раздела принятых обозначений, отсутствие математического аппарата; большой объем текстового и сравнительно небольшой объем иллюстративно-графического материала, очень развитая библиография, включающая до 150-200 наименований. Авторами обзорных научных статей большей частью являются руководители среднего и высшего иерархических уровней (Chief Engineer, Chief Scientist, Project Manager, Program Manager, Technical Director, Research Director, Deputy Director, Associate Director, Director-General).

РЕКОМЕНДАЦИИ ПО ПОДГОТОВКЕ АННОТАЦИИ К СТАТЬЕ НА АНГЛИЙСКОМ ЯЗЫКЕ

Аннотация — это независимый от статьи источник информации. Ее пишут после завершения работы над основным текстом статьи. Она включает характеристику основной темы, проблемы, объекта, цели работы и ее результаты. В ней указывают, что нового несет в

себе данный документ в сравнении с другими, родственными по тематике и целевому назначению. Рекомендуемый объем — 150-200 слов.

Аннотация выполняет следующие функции:

- позволяет определить основное содержание статьи, его релевантность и решить, следует ли обращаться к полному тексту публикации;
- предоставляет информацию о статье и устраняет необходимость чтения ее полного текста в случае, если статья представляет для читателя второстепенный интерес;
- используется в информационных, в том числе автоматизированных, системах для поиска документов и информации.

Аннотации должны быть оформлены по международным стандартам и включать следующие моменты:

- вступительное слово о теме исследования;
- цель научного исследования;
- описание научной и практической значимости работы;
- описание методологии исследования;
- основные результаты, выводы исследовательской работы.
- ценность проведенного исследования (какой вклад данная работа внесла в соответствующую область знаний);
- практическое значение итогов работы.

В аннотации не должен повторяться текст самой статьи (нельзя брать предложения из статьи и переносить их в аннотацию), а также ее название.

В аннотации должны излагаться существенные факты работы, и не должна содержать материал, который отсутствует в самой статье.

В тексте аннотации следует употреблять синтаксические конструкции, свойственные языку научных и технических документов, избегать сложных грамматических конструкций. Он должен быть лаконичен и четок, без лишних вводных слов, общих формулировок.

Чтобы перевести аннотацию, лучше воспользоваться онлайн переводчиком (мы рекомендуем translate.google.ru), после чего исправить полученный текст вручную. Но, ни в коем случае не стоит представлять непроверенный перевод.

Обратите внимание, если полученный в результате автоматического перевода текст очень сложно понять, возможно, это знак того, что аннотация написана очень сложным языком. Избегайте слишком длинных предложений и старайтесь составлять предложения по стилю ближе к нормальной разговорной речи.

Заглавие на английском языке

В переводе заглавия статьи на английский язык не должно быть никаких транслитераций с русского языка, кроме неперебиваемых названий собственных имен, приборов и других объектов, имеющих собственные названия; также не используется неперебиваемый сленг, известный только русскоговорящим специалистам. Это также касается авторских резюме (аннотаций) и ключевых слов.

Необходимо указать:

- фамилию и инициалы автора;
- ученую степень, звание, должность;
- полное наименование организации которой автора статьи работает или учится;

Фамилия – дается в транслитерации

Русская буква	Английская(ие) буква(ы)	Русская буква	Английская(ие) буква(ы)
А	A	Р	R
Б	B	С	S
В	V	Т	T
Г	G	У	U
Д	D	Ф	F

Е	Е	Х	КН
Ё	Е	Ц	TS
Ж	ZH	Ч	CH
З	Z	Ш	SH
И	I	Щ	SCH
Й	У	Ъ	опускается
К	К	Ы	У
Л	L	Ь	опускается
М	M	Э	Е
Н	N	Ю	YU
О	O	Я	YA
П	P		

Перевод ученых степеней и званий на английский язык

Научные отрасли	Branches of science
кандидат биологических наук	Candidate of biological sciences
кандидат исторических наук	Candidate of historical sciences
кандидат культурологии	Candidate of culturology
кандидат педагогических наук	Candidate of pedagogic sciences
кандидат психологических наук	Candidate of psychological sciences
кандидат социологических наук	Candidate of sociological sciences
кандидат технических наук	Candidate of technical sciences
кандидат физико-математических наук	Candidate of physico-mathematical sciences
кандидат филологических наук	Candidate of philological sciences
кандидат философских наук	Candidate of philosophical sciences
кандидат химических наук	Candidate of chemical sciences
кандидат экономических наук	Candidate of economic sciences
кандидат юридических наук	Candidate of juridical sciences
кандидат политических наук	Candidate of political sciences
соискатель	Degree-seeking student
аспирант	Post-graduate student

При переводе степени доктора наук заменяем слово **Candidate** на слово **Doctor**.

академик	Academician
профессор	Professor
доцент	Assistant Professor
старший преподаватель	Senior lecturer
ассистент	Lecturer
любой научный сотрудник	Researcher
председатель	Chair (of...)
директор	Director (of...)
заместитель директора	Deputy Director
член РАН	Member of Russian Academy of Sciences
член-корреспондент РАН	Corresponding Member of Russian Academy of Sciences
ответственный секретарь	Assistant Editor
заведующий лабораторией	Head of (the) laboratory (of...)
заведующий отделом, кафедрой	Head of (the) chair (of...)
старший научный сотрудник	Senior Researcher
ведущий научный сотрудник	Leading Researcher

Для перевода специализированных материалов и терминов рекомендуем объемный, оснащенный примерами и богатых с точки зрения словарного состава и лексической сочетаемости словарь ABBYY Lingvo <http://www.abbyy.ru/business/lingvo-windows/>

№6

Making a Presentation

A presentation is the practice of showing and explaining the content of a topic to an audience or learner. In the business world, there are sales presentations, informational and motivational presentations, interviews, status reports, image-building, and training sessions.

Students are often asked to make oral presentations. You might have been asked to research a subject and use a presentation as a means of introducing it to other students for discussion.

Before you prepare for a presentation, it is important that you think about your objectives.

There are three basic purposes of giving oral presentations: to inform, to persuade, and to build goodwill.

Decide what you want to achieve:

inform – to provide information for use in decision making;

persuade – to reinforce or change a receiver's belief about a topic;

build relationships – to send some messages which have the simple goal of building good-will between you and the receiver.

Preparation

A successful presentation needs careful background research. Explore as many sources as possible, from press cuttings to the Internet. Once you have completed your research, start writing for speech bearing in mind the difference between spoken and written language. Use simple, direct sentences, active verbs, adjectives and the pronouns "you" and "I".

Structuring a Presentation

A good presentation starts with a brief **introduction** and ends with a brief conclusion. The introduction is used to welcome your audience, introduce your topic/ subject, outlines the structure of your talk. The introduction may include an icebreaker such as a story, an interesting statement or a fact. Plan an effective opening; use a joke or an anecdote to break the ice. The introduction also needs an objective, that is, the purpose or goal of the presentation. It informs the audience of the purpose of the presentation too.

Next, **the body** of the presentation comes. Do not write it out word for word. All you want is an outline. There are several options for structuring the presentation:

1) Timeline: arrangement in a sequential order.

2) Climax: the main points are delivered in order of increasing importance.

3) Problem/ Solution: a problem is presented, a solution is suggested.

4) Classification: the important items are the major points.

5) Simple to complex: ideas are listed from the simplest to the most complex; it can also be done in a reverse order.

After the body, comes **the closing**. A strong ending to the presentation is as important as an effective beginning. You should summarise the main points. This is where you ask for questions, provide a wrap-up (summary), and thank the participants for attending.

Each successful presentation has three essential objectives: the three Es – to educate, to entertain, to explain.

The main objective of making a presentation is to relay information to your audience and to capture and hold their attention. Adult audience has a limited attention span of about 45 minutes. In that time, they will absorb about a third of what you said, and a maximum of seven concepts. Limit yourself to three or four main points, and emphasise them at the beginning of your speech, in the middle, and again at the end to reiterate your message. You should know your presentation so well that during the actual presentation you should only have to briefly glance at your notes.

People process information in many ways. Some learn visually, others learn by listening, and the kinesthetic types prefer to learn through movement. It's best to provide something for everyone.

Visual learners learn from pictures, graphs, and images. Auditory learners learn from listening to a speaker. And, kinesthetic learners like to be involved and participate.

Post-Reading

1. Explain the following.

- 1) to build goodwill
- 2) to persuade
- 3) background research
- 4) outlines the structure
- 5) to break the ice
- 6) attention span
- 7) to briefly glance

2. Match the pairs of synonyms from A and B and translate them.

A	B
1. objective	a. item
2. inform	b. repeat
3. point	c. purpose; aim; goal
4. conclusion	d. provide information
5. reiterate	e. opening; beginning
6. wrap-up	f. closing; ending
7. introduction	g. summary

3. Match the noun on the left with a suitable item on the right. Use each item once.

1. The solutions a. was in written form.
2. Goodwill b. often glanced at his notes.
3. The content c. was built with my colleagues.
4. The speaker d. were suggested to do it better.

4. Read the text and find the English for:

пояснить цель выступления

растопить лед; установить доверительные отношения

от простого к сложному

завладеть вниманием аудитории и удерживать его

повторять основную мысль

5. Translate the words in brackets.

- 1) The information in your presentation is (важна) to the audience.
- 2) His (задача) is to get a university education.
- 3) The (содержание) of his speech is new.
- 4) He is trying to (убедить) local business to invest in the project.
- 5) That was a chance to create (доброжелательные отношения) within your company.
- 6) This is the (основное содержание) of your presentation.
- 7) The buying process is a series of (последовательных) steps.

6. Answer the questions below.

- Have you ever made any presentations?
- What is the purpose of giving oral presentations?
- Do you know how to structure a presentation?
- Do you sometimes have to speak in public? On what occasions?
- What ends do presentations usually serve?

1.3 Подготовка к практическим занятиям (запоминание иноязычных лексических единиц и грамматических конструкций)

Грамматические конструкции представлены на стр. 11 – 38.

Запомните слова и выражения, необходимые для освоения тем курса:

Представление и знакомство

1.

- Hi, Sarah! What's up? - I just got a new job! - Really? What's the job? - A brand-manager at Global Fashion. - That's great! Good luck with your new job!	/ Привет, Сара! Как дела? / Я только что нашла новую работу! / Правда? И что за работа? / Бренд-менеджер в компании «Глобал Фэшн». / Здорово! Удачи с твоей новой работой!
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2.

- Hi, Nick! What's new? - Oh, I just got a promotion at work! They bumped me up to Sales Director. - Really? That's great news! Congratulations! - Thanks.	/ Привет, Ник! Что нового? / Я только что получил повышение по работе. Меня повысили до директора по продажам. / Правда? Это хорошие новости! Поздравляю! / Спасибо.
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3.

- Hi, Pam! How're you? - Good, thanks. - I've got news for you! Jack and I are getting married next month! - Oh, really! That's wonderful news! I'm glad for you!	/ Привет, Пэм! Как дела? / Спасибо, хорошо. / У меня для тебя новости! Мы с Джеком собираемся пожениться в следующем месяце! / Правда? Отличные новости! Я рада за вас.
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4.

- Hi! How are you doing? - I'm good! Yourself? - I'm also good, thanks. I hear you got a new job! - That's right! - So, how is it? Do you like it? - It's OK, but it pays less than my last job.	/ Привет! Как поживаешь? / Хорошо. Ты как? / Тоже хорошо, спасибо. Я слышал, ты нашел новую работу! / Это верно. / И как? Тебе нравится? / Нормально, но платят меньше, чем на предыдущей работе.
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5.

— Gosh, Kate! Is that you? It's been a long time! How've you been? — I'm fine. Yourself? — Good, thanks. It is so good to see you! You look great! You haven't changed a bit! — Neither have you. So, how's life? What's new? — Sorry, I'm in a bit of a rush right now. Mmm... How about we go out for a drink some night? What do you say? — Sounds good! Do you have my number? — No. — Here it is. 698 765 46 34. — Great! I'll call you tomorrow afternoon to make a time for this weekend.	/ Боже! Кейт! Ты ли это? Давно не виделись! Как ты? / Прекрасно! А ты? / Хорошо, спасибо. Отлично выглядишь. Ты совсем не изменилась / Ты тоже не изменилась. Как жизнь? Что нового? / Прости, но я сейчас немного спешу. Ммм.... Как насчет того, чтобы сходить куда-нибудь как-нибудь вечером? Что скажешь? / Отличная мысль! У тебя есть мой номер? / Нет. / Записывай. 698 765 4634. / Отлично! Я позвоню тебе завтра днем, и мы договоримся о времени на выходные.
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6.

— Hey, Paul! How are you? — I'm good. Yourself? I haven't seen you around lately. Where have you been? — Oh, I was out of town. I spent three	/ Привет, Пол! Как дела? / Хорошо. А у тебя? Тебя не видно в последнее время. Где ты был? / Меня не было в городе. Я провел три недели в
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weeks in Switzerland.	<i>Швейцарии.</i>
— Was it for business or travel?	<i>/ Это была деловая поездка или отпуск?</i>
— I was visiting my friends in Geneva.	<i>/ Я навещал друзей в Женеве.</i>

7.

— Jessica! Hello!	<i>/ Джессика! Привет!</i>
— Hi! How are you?	<i>/ Привет! Как дела ?</i>
— Good, thanks. You look great! It's been ages since I last saw you.	<i>/ Спасибо, хорошо. Ты выглядишь прекрасно! Сто лет тебя не видел.</i>
— Three years exactly.	<i>/ Три года, если точно.</i>
— Right. You haven't changed a bit! So, what's up? What's been happening in your life?	<i>/ Верно. Ты совсем не изменилась. Ну, как дела? Что происходит?</i>
— Not much has been going on. Same old.	<i>/ Ничего особенно и не произошло. Все по-старому.</i>

8.

— Hey, Peter!	<i>/ Привет, Питер!</i>
— Hey! What's up? You are so tan! Where have you been?	<i>/ Привет! Как дела? Ты такой загорелый! (А ты загорел!) Где это ты был?</i>
— I just got back from Australia.	<i>/ Я только вернулся из Австралии.</i>
— Australia?! Cool! What did you do there?	<i>/ Из Австралии? Круто! Что ты там делал?</i>
— It was another surf-trip. You know, I'm a huge fan of surfing.	<i>/ Это была еще одна поездка для занятий серфингом. Ты же знаешь, что я большой фанат серфинга.</i>
— How was it?	<i>/ Ну и как ?</i>
— Oh, it was fantastic! You know, it's never long enough.	<i>/ О, это было потрясающе! Знаешь, отдых всегда проходит быстро.</i>

9.

- Hi! What's your name?	<i>/ Привет! Как вас зовут ?</i>
- Carol. What's yours?	<i>/ Кэрол. А вас как зовут ?</i>
- Peter. Where are you from, Carol?	<i>/ Питер. Откуда вы, Кэрол?</i>
- I'm from the US. And you?	<i>/ Я из США. А вы?</i>
- I'm from Russia. Nice to meet you, Carol.	<i>/ Я из России. Приятно с вами познакомиться, Кэрол.</i>
- Nice to meet you.	<i>/ Взаимно.</i>

10.

- Hi! I'm George. And you are...?	<i>/ Привет! Меня зовут Джордж. А вы...?</i>
- I'm Gina.	<i>/ Я Джина.</i>
- How are you, Gina?	<i>/ Как ваши дела, Джина?</i>
- Good, thanks.	<i>/ Спасибо, хорошо.</i>
- Where are you from?	<i>/ Откуда вы?</i>
- I'm from Britain. How about you? Where are you from?	<i>/ Из Великобритании. А вы? Откуда вы?</i>
- And I'm from Israel. Nice to meet you, Gina.	<i>/ А я из Израиля. Приятно познакомиться, Джина.</i>
- Nice to meet you.	<i>/ Взаимно.</i>
- Is this your first time here?	<i>/ Вы здесь в первый раз?</i>
- No, it's my second time.	<i>/ Нет, второй.</i>
- Where are you staying here?	<i>/ Где вы остановились?</i>
- I'm staying at a hotel.	<i>/ В отеле.</i>

11.

- Hi! What's your name?	<i>/ Привет! Как тебя зовут ?</i>
- Jess. It's short for Jessica. And you are...?	<i>/ Джесс. Это сокращенное от Джессика. А</i>

<ul style="list-style-type: none"> - I'm Brant. How are you doing, Jess? - I'm fine! Yourself? - Good, thanks. Where are you staying? - I'm staying at a hotel. It's up there on the hill. Where are you staying? - My hotel is right here, across the road. - Where are you from? - I'm from Holland. How about you? Where are you from? - I'm from Australia. - Australia?! I thought you were French. I heard you speak French to your friend over there. - I am French, but I live in Australia. 	<p><i>тебя...?</i></p> <p><i>/ Брант. Как поживаешь, Джесс?</i></p> <p><i>/ Прекрасно! А ты?</i></p> <p><i>/ Хорошо, спасибо. Где ты остановилась?</i></p> <p><i>/ Я остановилась в отеле. Он там, на холме. А где ты остановился?</i></p> <p><i>/ Мой отель здесь рядом, через дорогу.</i></p> <p><i>/ Откуда ты?</i></p> <p><i>/ Я из Голландии. А ты откуда?</i></p> <p><i>/ Я из Австралии.</i></p> <p><i>/ Австралия?! Я подумал, что ты французженка. Я слышал, как ты разговаривала по-французски со своей подругой вон там.</i></p> <p><i>/ Я и есть французженка, но живу в Австралии.</i></p>
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12.

<ul style="list-style-type: none"> - Hi! How're you? - Good, thanks. What's your name? - Sveta. What's yours? - I'm Peter. Nice to meet you. - Nice to meet you. - Are you Russian? - Yes, I am. - Where are you from in Russia? - I'm from Nizhniy Novgorod. - I have some friends in Nizhniy Novgorod. - Oh, really? And where are you from? - I'm from Norway. 	<p><i>/ Привет! Как дела?</i></p> <p><i>/ Хорошо, спасибо. Как вас зовут?</i></p> <p><i>/ Света. А вас как?</i></p> <p><i>/ Меня Питер. Приятно с вами познакомиться.</i></p> <p><i>/ Взаимно.</i></p> <p><i>/ Вы русская?</i></p> <p><i>/ Да.</i></p> <p><i>/ Где вы живете в России?</i></p> <p><i>/ В Нижнем Новгороде.</i></p> <p><i>/ У меня есть друзья в Нижнем Новгороде.</i></p> <p><i>/ Правда? А вы откуда?</i></p> <p><i>/ Из Норвегии.</i></p>
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13.

<ul style="list-style-type: none"> - Hi! How're you? - Good, thanks. - What's your name? - Kate. - And I'm Paolo. Where are you from, Kate? - I'm from Moscow, Russia. - Really? I've been there once. - And where are you from? - I'm from Italy. - Oh, I love Italy. I've been there six or seven times. - That's great! - Where do you live in Italy? - I live in Venice. - Well, Venice is a beautiful place. 	<p><i>/ Привет! Как дела?</i></p> <p><i>/ Спасибо, хорошо.</i></p> <p><i>/ Как вас зовут?</i></p> <p><i>/ Кейт.</i></p> <p><i>/ А меня Паоло. Откуда вы, Кейт?</i></p> <p><i>/ Из России, из Москвы.</i></p> <p><i>/ Правда? Я был там однажды.</i></p> <p><i>/ А вы откуда?</i></p> <p><i>/ Я из Италии.</i></p> <p><i>/ О, я обожаю Италию. Я была там 6 или 7 раз.</i></p> <p><i>/ Это здорово!</i></p> <p><i>/ Где вы живете в Италии?</i></p> <p><i>/ Я живу в Венеции.</i></p> <p><i>/ Венеция — это красивое место.</i></p>
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14.

<ul style="list-style-type: none"> - Hi! What's your name? - Nick. What's yours? - Sandra. Nice to meet you. - Nice to meet you. Where are you from? - I'm from Germany. And you? / 	<p><i>/ Привет! Как вас зовут ?</i></p> <p><i>/ Ник. А вас как?</i></p> <p><i>/ Сандра. Приятно познакомиться.</i></p> <p><i>/ Взаимно. Откуда вы?</i></p> <p><i>/ Из Германии. А вы?</i></p>
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<ul style="list-style-type: none"> - I'm from the US. - Is this your first time in Moscow? - No, I've been here a couple of times. - Are you here on business or vacation? - I'm here for work. How about you? - I'm here on vacation. - Do you like it here? - Yeah! I like it a lot! - Where are you staying here? - I'm staying with some friends of mine. How about you? - I'm staying at the Hayatt. It's the new hotel next to Red Square. - It must be very expensive. - It is very expensive. You can't find a cheap hotel in Moscow. 	<ul style="list-style-type: none"> / Я из США. / Вы в первый раз в Москве? / Нет, я был здесь пару раз. / Вы здесь по делам или на отдыхе ? / Я здесь по работе. Как насчет вас? (А вы?) / Я здесь на отдыхе. / Вам здесь нравится? / Очень нравится! / Где вы остановились? / Я остановилась у друзей. А вы ? / Я остановился в «Хаяте». Это новый отель рядом с Красной площадью. / Должно быть, он очень дорогой. / Он действительно очень дорогой. В Москве нет дешевых отелей.
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15.

<ul style="list-style-type: none"> - Hi! What's your name? - David. What's yours? - Fred. Nice to meet you. - Nice to meet you. Where are you from? - I'm from Canada. And you? - I'm from Sweden. - Is this your first time in Shanghai? - Yes, this is my first time. - Are you here on business or vacation? - I'm here for a business convention. How about you? Are you here on business or vacation? - Both. We've come here for the film festival. I'm also looking for some property to buy. - Are you here by yourself? - No, I'm here with my wife. She's gone shopping. - Where are you staying? / - We're staying at the Marriott. 	<ul style="list-style-type: none"> / Привет! Как вас зовут? / Дэвид. А вас? / Фред. Приятно познакомиться. / Взаимно. Откуда вы? / Я из Канады. А вы? / Я из Швеции. / Вы первый раз в Шанхае? / Да, первый. / Вы здесь по делам или на отдыхе? / Я приехал на бизнес-конференцию. А вы? Вы здесь по делам или на отдыхе? / И то и другое. Мы приехали на кинофестиваль, и еще я хочу купить недвижимость. / Вы здесь один? / Нет, с женой. Она отправилась по магазинам. / Где вы остановились? / Мы остановились в «Мариотте».
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16.

<ul style="list-style-type: none"> - Hello! I'm Liz. And you are....,? - I'm Henry. How are you doing, Liz? - Good, thanks. - Are you staying in this hotel? - Yes, I am. Are you staying here too? - No. Hotels are expensive here. I'm renting an apartment in the city center. - Oh, OK! Are you here by yourself? - No, I'm here with my family. How about you? - I'm here with a friend. - Is this your first time in Colombo? - Actually, yes. This is my first time. - Do you like it here? - Yeah! It's a nice place. It's too hot though. 	<ul style="list-style-type: none"> / Привет! Меня зовут Лиз. А вас? / Я Генри. Как ваши дела, Лиз? / Хорошо, спасибо. / Вы остановились в этом отеле? / Да. Вы тоже здесь остановились ? / Нет. Отели здесь дорогие. Я снимаю квартиру в центре города. / Ясно. Вы здесь один? / Нет, я здесь с семьей. А вы? / Я здесь с другом. / В первый раз в Коломбо? / В общем, да. В первый раз. / Вам здесь нравится? / Да! Хорошее место. Только слишком жарко.
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<ul style="list-style-type: none"> - How long will you be in Sri Lanka? - Until the end of next week. - Will you stay in Colombo the whole time? - No, we'll stay here two more days and then we'll go to the Hikkaduwa resort. - Oh, it's a long way from here. - Five hours by car. OK, it was nice chatting with you. I've got to get going now. / - OK. Have a good time! 	<ul style="list-style-type: none"> / Сколько вы пробудете в Шри-Ланке? / До конца следующей недели. / И все это время будете в Коломбо? / Нет, мы пробудем здесь еще два дня, а потом поедem на курорт Хиккадува. / О, это далеко отсюда. / Пять часов на машине. Ладно, приятно было с вами поболтать. Мне пора идти. / Ладно. Хорошо вам провести время!
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17.

<ul style="list-style-type: none"> - Hi! How are you? - Good, thanks. - I think I saw you yesterday at reception. - Yeah, I was trying to book tickets for a water-park. My kids want to go splash around. - Which one do you want to go to? There are three water parks in Dubai. - I hear Wild Wadi is pretty good. - Are you staying in this hotel? - Yes, we are. - In that case you should go to Ice-Land. It's closer, and then it's new. Wild Wadi is rather old. - OK, thank you. We'll go to Ice-Land then. Do we need to book tickets in advance? - No, you usually buy tickets there. - Do you live in Dubai? - No, I actually work here for my husband's company. Your English is very good. Where are you from? Are you Russian? - That's right. I'm from Saint Petersburg. - Really? I've been there once. Ten years ago. It's a beautiful city. You speak very good English for a Russian person. Where did you learn it? - I spent some time in the US. And now I'm working for an American company. OK. Thanks again for your recommendation. - You are welcome. Have a nice day! 	<ul style="list-style-type: none"> / Здравствуйте! Как ваши дела? / Спасибо, хорошо. / Мне кажется, я видела вас вчера на ресепшине. / Да, я пытался заказать билеты в аквапарк. Мои дети хотят поплескаться в воде. / В какой аквапарк вы хотите поехать? В Дубае три аквапарка. / Я слышал, что «Вайлд Вади» — неплохой аквапарк. / Вы проживаете в этом отеле? / Да. / В таком случае вам следует поехать в «Ай-сленд». Он ближе, и потом, он более новый. «Вайлд Вади» довольно старый. / Хорошо, спасибо. Тогда мы поедem в «Айсленд». Нам надо бронировать билеты заранее? / Нет, обычно вы покупаете билеты в аквапарке. / Вы живете в Дубае? / Нет, я здесь работаю в компании моего мужа. Вы хорошо говорите по-английски. Откуда вы? Вы русский? / Верно. Я из Санкт-Петербурга. / Правда? Я была там однажды. Десять лет назад. Это красивый город. Вы хорошо говорите по-английски для русского человека. Где вы его учили? / Я жил какое-то время в США. А сейчас я работаю в американской компании. Спасибо еще раз за вашу рекомендацию. / Пожалуйста. Хорошего дня.
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2. Деловая переписка

1. Обращение

Dear Sirs, Dear Sir or Madam

Dear Mr, Mrs, Miss or Ms

Dear Frank,

(если вам не известно имя адресата)

(если вам известно имя адресата; в том случае когда вы не знаете семейное положение женщины следует писать Ms, грубой ошибкой является использование фразы “Mrs or Miss”)
(В обращении к знакомому человеку)

2. Вступление, предыдущее общение.

Thank you for your e-mail of (date)...

Further to your last e-mail...

I apologise for not getting in contact with you before now...

Thank you for your letter of the 5th of March.

With reference to your letter of 23rd March

With reference to your advertisement in «The Times»

3. Указание причин написания письма

I am writing to enquire about

I am writing to apologise for

I am writing to confirm

I am writing in connection with

We would like to point out that...

4. Просьба

Could you possibly...

I would be grateful if you could ...

I would like to receive

Please could you send me...

5. Соглашение с условиями.

I would be delighted to ...

I would be happy to

I would be glad to

6. Сообщение плохих новостей

Unfortunately ...

I am afraid that ...

I am sorry to inform you that

We regret to inform you that...

7. Приложение к письму дополнительных материалов

We are pleased to enclose ...

Attached you will find ...

We enclose ...

Please find attached (for e-mails)

8. Высказывание благодарности за проявленный интерес.

Thank you for your letter of

Thank you for enquiring

We would like to thank you for your letter of ...

9. Переход к другой теме.

We would also like to inform you ...

Regarding your question about ...

In answer to your question (enquiry) about ...

I also wonder if...

10. Дополнительные вопросы.

I am a little unsure about...

I do not fully understand what...

Could you possibly explain...

11. Передача информации

I'm writing to let you know that...

We are able to confirm to you...

Спасибо за ваше письмо от (числа)

Отвечая на ваше письмо...

Я прошу прощения, что до сих пор не написал вам...

Спасибо за ваше письмо от 5 Марта

Относительно вашего письма от 23 Марта

Относительно вашей рекламы в Таймс

Я пишу вам, чтобы узнать...

Я пишу вам, чтобы извиниться за...

Я пишу вам, что бы подтвердить...

Я пишу вам в связи с ...

Мы хотели бы обратить ваше внимание на ...

Не могли бы вы...

Я был бы признателен вам, если бы вы ...

Я бы хотел получить.....

Не могли бы вы выслать мне...

Я был бы рад ...

Я был бы счастлив...

Я был бы рад...

К сожалению...

Боюсь, что...

Мне тяжело сообщать вам, но ...

К сожалению, мы вынуждены сообщить вам о...

Мы с удовольствием вкладываем...

В прикрепленном файле вы найдете...

Мы прилагаем...

Вы найдете прикрепленный файл...

Спасибо за ваше письмо

Спасибо за проявленный интерес...

Мы хотели бы поблагодарить вас за...

Мы так же хотели бы сообщить вам о...

Относительно вашего вопроса о...

В ответ на ваш вопрос о...

Меня также интересует...

Я немного не уверен в ...

Я не до конца понял...

Не могли бы вы объяснить...

Я пишу, чтобы сообщить о ...

Мы можем подтвердить ...

I am delighted to tell you that...

Мы с удовольствием сообщаем о ...

We regret to inform you that...

К сожалению, мы вынуждены сообщить вам о...

12. Предложение своей помощи

Would you like me to...?

Могу ли я (сделать)...?

If you wish, I would be happy to...

Если хотите, я с радостью...

Let me know whether you would like me to...

Сообщите, если вам понадобится моя помощь.

13. Напоминание о намеченной встрече или ожидание ответа

I look forward to ...

Я с нетерпением жду,

hearing from you soon

когда смогу снова услышать вас

meeting you next Tuesday

встречи с вами в следующий Вторник

seeing you next Thursday

встречи с вами в Четверг

14. Подпись

Kind regards,

С уважением...

Yours faithfully,

Искренне Ваш (если имя человека Вам не известно)

Yours sincerely,

(если имя Вам известно)

3. Наука и образование

analysis - анализ, исследование;

critical analysis — критический анализ;

advanced research — перспективные исследования;

basic research — фундаментальные исследования;

to be engaged in research — заниматься научно-исследовательской работой;

This researches cover a wide field — исследования охватывают широкую область;

after the study of the matter — после изучения этого вопроса;

humane studies — гуманитарные науки;

history and allied studies — история и родственные ей предметы;

a new study of Shakespeare — новая работа /книга/ о Шекспире;

pilot study - предварительное, экспериментальное исследование

desk study - чисто теоретическое исследование;

thorough examination — а) всестороннее исследование; б) тщательное изучение

(материала);

to carry on an investigation — проводить исследовательскую работу;

the scientific method of inquiry — научный метод исследования;

we must apply to find a solution — мы должны применить....., чтобы решить;

comparative [experimental] method of investigation — сравнительный [экспериментальный]

метод исследования;

his method is to compare different versions — его метод состоит в сопоставлении разных

вариантов;

there are several methods of doing this — существует несколько способов сделать это;

ampliative inference — индуктивный метод;

a method that is attended by some risk — метод, связанный с некоторым риском;

convenient method — подходящий метод;

to approximate to a solution of the problem — подходить к решению задачи;

to use ... approach(to) - подход interdisciplinary approach — подход с точки зрения

различных наук;

we began the work by collecting material — Мы начали работу со сбора материала;

we have two problems before us — перед нами две задачи;

data for study — материал исследования;

laboratory data — данные лабораторных исследований;

adequacy of data — достоверность данных;

acceptance of a theory — согласие с какой-л. теорией;
application of a theory in actual practice — применение теории в практической деятельности;
the backbone of a theory — основа теории;
to back up a theory with facts — подкрепить теорию фактами;
to construct a theory — создать теорию;
the results of the experiment contradicted this theory/agreed with the theory — результаты опыта шли вразрез с этой теорией/согласовывались с теорией;

professor – профессор;
lecturer – лектор;
researcher – исследователь;
research – исследование;
graduate - имеющий учёную степень; выпускник;
post-graduate или post-graduate student – аспирант;
masters student – магистрант;
PhD student – докторант;
master's degree - степень магистра;
bachelor's degree - бакалаврская степень;
degree – степень;
thesis - диссертация; исследовательская работа;
dissertation – диссертация;
lecture – лекция;
higher education - высшее образование;
semester – семестр;
student union - студенческий союз;
tuition fees - плата за обучение;
university campus - университетский район; кампус;

4. Чтение и перевод научной литературы по направлению исследования КОМПЬЮТЕРНОЕ ОБОРУДОВАНИЕ

laptop - лэптоп; ноутбук; портативный компьютер;
desktop computer (часто используется сокращение desktop) - персональный компьютер;
tablet computer (часто используется сокращение tablet) – планшет;
PC (сокращённо от personal computer) - персональный компьютер;
screen – экран;
keyboard – клавиатура;
mouse – мышка;
monitor – монитор;
printer – принтер;
wireless router - беспроводной роутер; маршрутизатор;
cable – кабель;
hard drive - жёсткий диск;
speakers – громкоговорители;
power cable - кабель питания;
ЭЛЕКТРОННАЯ ПОЧТА
Email - электронная почта;
to email - посылать письма по электронной почте;
to send an email – послать;
email address - адрес электронной почты, email;
username - имя пользователя;
password – пароль;

to reply – ответить;
to forward – переслать;
new message - новое сообщение;
attachment – приложение;
ИСПОЛЬЗОВАНИЕ КОМПЬЮТЕРА
to plug in - подключить что-либо к компьютеру;
to unplug - отсоединить; вытащить из розетки;
to switch on или to turn on – включить;
to switch off или to turn off – выключить;
to start up - запустить систему;
to shut down - выключить систему;
to restart – перезагрузить;

ИНТЕРНЕТ

the Internet – интернет;
website – сайт;
ISP (сокращённо от internet service provider) - поставщик услуг интернета;
Firewall - система защиты доступа; средство сетевой защиты;
web hosting - Web-хостинг;
wireless internet или WiFi – беспроводной;
to download – скачивать;
to browse the Internet - плавать в интернете;

file – файл;
folder – папка;
document – документ;
hardware - элементы электронных устройств; жарг. железо;
software - программное обеспечение;
network – сеть;
to scroll up - прокрутить вверх;
to scroll down - прокрутить вниз;
to log on – войти;
to log off – выйти;
space bar - клавиша для пробела;
virus – вирус;
antivirus software - антивирусная программа;
processor speed - скорость процессора;
memory – память;
word processor - текстовый процессор;
database - база данных;
spreadsheet - электронная таблица;
to print – распечатать;
to type – печатать;
lower case letter - нижний регистр (клавиатуры);
upper case letter или capital letter - заглавные буквы;

5. Аннотирование научных статей

Основные штампы (key-patterns) аннотаций на английском и русском языках

1. The article (paper, book, etc.) deals with... - Эта статья (работа, книга и т.д.) касается...
2. As the title implies the article describes.... - Согласно названию, в статье описывается...
3. It is specially noted... - Особенно отмечается...
4. A mention should be made... - Упоминается...
5. It is spoken in detail... - Подробно описывается...

6. ...are noted - Упомянутся...
7. It is reported... - Сообщается...
8. The text gives a valuable information on... - Текст дает ценную информацию...
9. Much attention is given to... - Большое внимание уделяется...
10. The article is of great help to ... - Эта статья окажет большую помощь...
11. The article is of interest to... - Эта статья представляет интерес для...
12. It (the article) gives a detailed analysis of - 12. Она (статья) дает детальный анализ...
13. It draws our attention to...- Она (статья, работа) привлекает наше внимание к...
14. The difference between the terms...and...should be stressed - Следует подчеркнуть различие между терминами ...и...
15. It should be stressed (emphasized) that... - Следует подчеркнуть, что...
16. ...is proposed - Предлагается...
17. ...are examined - Проверяются (рассматриваются)
18. ...are discussed - Обсуждаются...
19. An option permits... - Выбор позволяет...
20. The method proposed ... etc. - Предлагаемый метод... и т.д.
21. It is described in short ... - Кратко описывается ...
22. It is introduced - Вводится ...
23. It is shown that - Показано, что ...
24. It is given ... - Дается (предлагается) ...
25. It is dealt with - Рассматривается ...
26. It is provided for ... - Обеспечивается ...
27. It is designed for - Предназначен для ...
28. It is examined, investigated ... - Исследуется ...
29. It is analyzed ... - Анализируется ...
30. It is formulated - Формулируется ...
31. The need is stressed to employ... - Подчеркивается необходимость использования...
32. Attention is drawn to... - Обращается внимание на ...
33. Data are given about... - Приведены данные о ...
34. Attempts are made to analyze, formulate ... - Делаются попытки проанализировать, сформулировать ...
35. Conclusions are drawn.... - Делаются выводы ...
36. Recommendations are given ... - Даны рекомендации ...

Образцы клише для аннотаций на английском языке

- The article deals with ...
- As the title implies the article describes ...
- The paper is concerned with...
- It is known that...
- It should be noted about...
- The fact that ... is stressed.
- A mention should be made about ...
- It is spoken in detail about...
- It is reported that ...
- The text gives valuable information on...
- Much attention is given to...
- It is shown that...
- The following conclusions are drawn...
- The paper looks at recent research dealing with...
- The main idea of the article is...
- It gives a detailed analysis of...

- It draws our attention to...
- It is stressed that...
- The article is of great help to ...
- The article is of interest to ...
- is/are noted, examined, discussed in detail, stressed, reported, considered.

6. Основные правила презентации научно-технической информации

Начало презентации

Good morning / afternoon / evening ladies and gentlemen	Доброе утро / день / вечер дамы и господа
My name is... I am ...	Меня зовут ... Я являюсь ...
Today I would like to talk with you about ...	Сегодня я хотел бы поговорить с вами о...
My aim for today's presentation is to give you information about ...	Цель моей сегодняшней презентации – проинформировать вас о...
I have been asked to comment on what I think of the way ...	Меня попросили сказать / прокомментировать, что я думаю о способе ...
Please feel free to interrupt me if there are any questions.	Пожалуйста, не стесняйтесь прерывать меня, если возникнут любые вопросы.
If you have any questions, please feel free to ask me at the end of the presentation.	Если у вас есть какие-либо вопросы, пожалуйста, задайте их по окончании презентации.

Сообщение о плане презентации

At the outset ...	Вначале ...
First of all, ... / Above all, ...	Прежде всего ...
First I would like to talk about ...	Сначала я хотел бы сказать о ...
I'd like to start by saying ...	Я бы хотел начать с ...
Before discussing ...	Перед тем как обсуждать ...
Describing this process, it is necessary to start with ...	Описывая этот процесс, необходимо начать с ...
Firstly, we must become accustomed to the terminology, which uses ...	Сначала мы должны ознакомиться с терминологией, которую использует ...
I'd like to come to the right point ...	Я бы хотел сразу приступить к делу ...
I am going to divide my review / report / article into 3 areas / parts ...	Я собираюсь разделить свой обзор / доклад / статью на 3 части ...
I will begin with a definition of ..., then go on to a brief review ...	Я начну с определения ..., затем перейду к краткому обзору ...
Let us start by mentioning a few facts ...	Давайте начнем с упоминания некоторых фактов ...
Then I would like to take a look at...	Затем я хотел бы взглянуть на ...
Following that we should talk about ...	Вслед за этим мы должны поговорить о ...
Lastly we are going to discuss ...	В заключение мы обсудим ...
I would like to talk to you today about _____ for ____ minutes.	Сегодня я хотел бы поговорить с вами о _____ в течение _____ минут.
We should be finished here today by _____ o'clock.	Мы должны закончить сегодня к _____ часам.

Управление презентацией

Now we will look at ...	Сейчас мы посмотрим на ...
I'd like now to discuss...	Я бы хотел обсудить сейчас ...
Before moving to the next point I need to ...	Прежде чем перейти к следующему вопросу, мне необходимо ...
Let's now talk about...	Давайте сейчас поговорим о ...
Let's now turn to...	Давайте перейдем сейчас к ...

Let's move on to...	Давайте перейдем к ...
That will bring us to our next point ...	Это приведет нас к нашему следующему пункту ...
Moving on to our next point ...	Переходим к нашему следующему пункту ...
Let us now turn to ..., namely to ...	Теперь перейдем к ..., а именно к ...
We come now to the description of ...	Теперь мы подошли к описанию ...
Let's switch to another topic ...	Перейдем на другую тему ...
Let us now proceed to consider how ...	Давайте перейдем к рассмотрению того, как ...
Firstly ...	Во-первых ...
Secondly ...	Во-вторых ...
Thirdly ...	В-третьих ...
I'd like to describe in detail ...	Я бы хотел подробно описать ...
Let's face the fact ...	Давайте обратимся к факту ...
Consider another situation.	Рассмотрим другую ситуацию ...
Let's go back a bit to ...	Давайте немного вернемся к ...
It will take up too much time / space ...	Это займет слишком много времени / места ...
This point will be discussed later / after ...	Этот вопрос будет обсуждаться позднее / после ...
Lastly ...	Наконец / в заключение ...
Eventually we must confess ...	В конечном итоге, мы должны признаться ...
Now we come to the final phase of ...	Теперь перейдем к заключительному этапу ...
One more question remains to discuss ...	Остается еще один вопрос для обсуждения ...
And the last point, ...	И последний вопрос / замечание, ...
A final remark.	Последнее замечание.
Подведение итогов	
I would just like to sum up the main points again ...	Я бы еще раз хотел подвести итоги основных пунктов ...
If I could just summarize our main points before your questions. So, in conclusion ...	Я хочу только подвести итоги наших главных пунктов перед тем, как вы начнете задавать вопросы. Итак, в заключение ...
Finally let me just sum up today's main topics ...	В заключение, позвольте мне подвести итоги сегодняшних основных тем ...
Concluding what has been said above, I want to stress that ...	Подводя итог тому, что было сказано выше, я хочу подчеркнуть, что ...
I will sum up what has been said ...	Я подытожу все сказанное ...
To conclude this work ...	В завершение этой работы ...
To summarize, the approach to ... described here is ...	Резюмируем: подход к ..., описанный здесь, состоит в ...
We arrived at the conclusion that ...	Мы пришли к заключению, что ...
We shouldn't rush to a conclusion ...	Мы не должны делать поспешный вывод ...
We find the following points significant ...	Мы находим важными следующие моменты ...
We can draw just one conclusion since ...	Мы можем сделать лишь один вывод, поскольку ...
As a summary I would like to say that ...	В качестве обобщения, я бы хотел сказать, что ...
Finally, the results are given in ...	И, наконец, результаты представлены в ...
Уточнения	
I'm sorry, could you expand on that a little?	Простите, можно немножко поподробнее?
Could you clarify your question for me?	Могли бы вы прояснить этот вопрос для меня?
I'm sorry I don't think I've understood your question, could you rephrase it for me?	Извините, по-моему, я не понял вашего вопроса. Могли бы вы изложить его иначе (перефразировать) для меня?
I think what you are asking is ...	Я думаю то, о чем вы спрашиваете, это ...

If I've understood you correctly you are asking about ...	Если я правильно вас понял, вы спрашиваете о ...
So you are asking about ...	Итак, вы спрашиваете о ...
Thus ...	Таким образом ...
Thus we see ...	Таким образом, мы видим ...
In consequence ...	В результате ...
In consequence of ...	Вследствие ...
Turning now to possible variants ...	Переходя теперь к возможным вариантам ...
We can further divide this category into two types ...	В дальнейшем мы можем разделить эту категорию на два типа ...
>We can now go one step further ...	Теперь мы можем продвинуться на шаг вперед ...
That is why we have repeatedly suggested that ...	Вот почему мы неоднократно предлагали ...
However this conclusion may turn out to be hasty, if ...	Однако этот вывод может оказаться поспешным, если ...
Maybe we could get definite results at an earlier date ...	Возможно, мы могли бы получить определенные результаты на более раннюю дату (раньше) ...
No definite conclusions have so far been reached in these discussions ...	В ходе этих дискуссий так и не были сделаны какие-либо определенные выводы ...
Results are encouraging for ...	Результаты обнадеживающие, поскольку ...
Results from such research should provide ...	Результаты такого исследования должны обеспечить ...
That yields no results ...	Это не дает никаких результатов ...
The logical conclusion is that ...	Логическим заключением является то, что ...
The result was astounding ...	Результат был ошеломляющим ...
The results are not surprising ...	Результаты неудивительны ...
Then eventually I came to the conclusion that ...	Затем, со временем, я пришел к выводу, о том что ...
There are two important consequences of ...	Есть два важных следствия ...
The first step is to develop ...	Первый шаг состоит в том, чтобы разработать ...
The second phase of is that ...	Второй этап ... в том, чтобы ...
There are two main stages in the procedure ...	В данной процедуре есть два главных этапа ...
Although I think that ...	Хотя я полагаю, что ...
I strongly believe that ...	Я решительно полагаю, что ...
In order to understand ...	Для того чтобы понять ...
It has to be said that ...	Необходимо сказать, что ...
Many experts are coming to believe that only ...	Многие эксперты все больше приходят к убеждению, что только ...
Some experts, however, think that ...	Некоторые эксперты, однако, думают, что ...
Someone may say that ...	Кто-то может сказать, что ...
Though we used to think ...	Хотя мы привыкли полагать ...
It is generally considered that ...	Обычно полагают, что ...
We should realize that ...	Мы должны осознавать, что ...
Now we understand why it is so hard to ...	Теперь мы понимаем, почему так трудно ...
Consider how it can be done ...	Рассмотрим, как это может быть сделано ...
At first glance it would seem that ...	На первый взгляд могло бы показаться, что ...
It can be viewed in a different light ...	Можно иначе смотреть на это ...
It has been assumed that ...	Предполагалось, что ...
Let us assume for a moment that ...	Предположим на минуту, что ...
Suppose, for example, that ...	Предположим, например, что ...
Though it might seem paradoxical, ...	Хотя это могло бы показаться парадоксальным

You might know that
But it can be claimed that ...	Вы, возможно, знаете, что ...
Let us not forget that ...	Но можно утверждать, что ...
This simplified approach ignores the importance of ...	Давайте не будем забывать, что ...
	Этот упрощенный подход игнорирует важность ...

1.4 Самостоятельное изучение тем курса (для заочной формы обучения)

Самостоятельное изучение тем курса предполагает изучение тем практических занятий, представленных в разделе 1, 2, 3 данных методических указаний студентами заочной формы обучения в межсессионный период.

II. Другие виды самостоятельной работы

2.1 Выполнение самостоятельного письменного домашнего задания

2.1.1 Подготовка к ролевой игре

Студенты получают ролевые карточки. Им необходимо обдумать свою роль, стратегию своей роли, вопросы и ответы.

1. Вы устраиваетесь на работу. Ответить на вопросы интервьюера. You are applying for a job as ... (a manager, a book-keeper, an accountant, a financial analyst assistant, any job you want). Practice the following interview questions.

1. Can you tell me a little about yourself?
2. What kind of training or experience do you have in this field?
3. Do you have a job now?
4. What are your responsibilities?
5. Why do you want to change your job?
6. Why did you leave your last job?
7. What do you think are your strong points (greatest strengths)?
8. What do you consider to be your weak points (greatest weaknesses)?
9. Why are you interested in this job?
10. Do you want to work full-time or part-time?
11. What salary do you want?
12. Do you have any questions?

Образец интервью:

Andrew Brandon has a job interview.

Interviewer: Good morning, Mr. Brandon. My name is Ms. Martin. Please have a seat.

Andrew: Good morning, Ms. Martin. It's a pleasure to meet you.

I.: You've applied for the Saturday position, haven't you?

A.: Yes, Ms. Martin.

I.: Can you tell me what made you reply to our advertisement?

A.: Well, I am looking for a part-time job to help me through university. I think that I'd be really good at this kind of work.

I.: Do you know exactly what you would be doing as a shop assistant?

A.: Well, I imagine I would be helping customers, keeping a check on the supplies in the store, and preparing the shop for business.

I.: What sort of student do you regard yourself as? Do you enjoy studying?

A.: I suppose I'm a reasonable student. I passed all my exams and I enjoy my studies a lot.

I.: Have you any previous work experience?

A.: No. I've been too busy with all the subjects to get a good result. But last summer holidays I worked part-time at a take-away food store.

I.: Now, do you have any questions you'd like to ask me about the position?

A.: Yes. Could you tell me what hours I'd have to work?

I.: We open at 9.00, but you would be expected to arrive at 8.30 and we close at 6.00 pm. You would be able to leave then. I think I have asked you everything I wanted to. Thank you for coming to the interview.

A.: Thank you, Ms. Martin. When will I know if I have been successful?

I.: We'll be making our decision next Monday. We'll give you a call.

A.: Thank you. Goodbye.

I.: Goodbye, Mr. Brandon.

2. Беседа – устройство на работу. Ответьте на вопросы интервьюера. Job Interview. Decide the best response to your interviewer's questions.

1. Why should we hire you and not someone with experience?
 - a) I offer energy, intelligence and loyalty.
 - b) First come, first served.
 - c) You need to hire me to get the answer.
2. What do you consider loyalty to a firm?
 - a) No stealing stationery.
 - b) Confidentiality and dependability.
 - c) Coming to work.
3. What are your weaknesses?
 - a) I can't resist chocolate cake.
 - b) Expecting others to be as honest as I am.
 - c) Always arriving late for meetings.
4. Why do you want this job?
 - a) It is a job with prospects.
 - b) It pays well.
 - c) My friend works here; he likes the company.
5. Where would you like to be in five years?
 - a) I don't know.
 - b) Running the company.
 - c) In a challenging position with responsibility.
6. Why do you want to work for this company?
 - a) I've been unemployed for too long.
 - b) Well, I've heard that it's a company that pays its employees well.
 - c) It's a company with future.
7. How did you hear about this vacancy?
 - a) I researched your company and rang Human Resources.
 - b) A friend of a friend told me about it.
 - c) My brother works here.
8. Have you looked at our website?
 - a) Yes. It is very comprehensive.
 - b) Not yet, but I will after the interview.
 - c) Do you have a website?
9. We need someone now, not in three months. Could you begin earlier if you were offered the job?
 - a) My present company will not allow it.
 - b) Well, that is a question I didn't expect.
 - c) If I were offered this job, I would try.
10. Do you like working with your current boss?
 - a) No. I think he can't manage people.
 - b) No. He is too aggressive and lazy.

c) No. However, I've learnt a lot from him.

11. During the busy summer period we all work every weekend. Would you have a problem with this?

a) I would hope to arrange a system so that not everyone has to work every weekend.

b) I'm a team player and would be prepared to work when necessary.

c) I have holidays booked and enjoy my free time too much.

12. Why do you think we should employ you?

a) Some other company will if you don't.

b) I believe you won't find anyone better than me.

c) I believe I'm the best person for the job.

2.1.2 Подготовка к практико-ориентированному заданию

1. Составьте деловое письмо, выдержите структуру и стиль: Напишите письмо – поздравление: Вы только что узнали, что Мистер Грин назначен новым управляющим директором компании «Браун и Грин ЛТД». Отправьте свои искренние поздравления по этому поводу. Пожелайте успехов на новом посту. Выразите надежду на плодотворное сотрудничество с этой фирмой в будущем.

Примерный ответ:

Dear Mr N. Green,

I have just read of your promotion to Production Manager of "Brown and Green LTD". Let me offer my warmest congratulations.

I don't have to tell you that all of us here wish you the best of luck in your new position.

We are sure that we'll establish good trade relations with you and our cooperation will be to the mutual benefit of the companies.

Yours faithfully,

I. Petrov

2. Составьте деловое письмо, выдержите структуру и стиль: Письмо – сообщение. Сообщите вашему деловому партнеру, что ваш менеджер по продажам прибудет к ним 4 Мая. Попросите организовать для него посещение вашего предприятия. Сообщите, что он уполномочен заключить контракт на закупку их продукции. Поблагодарите заранее.

Useful Phrases

We would be very much obliged ...	Мы были бы весьма признательны ...
I shall be grateful to you ...	Мы будем Вам благодарны ...
We shall appreciate it if...	Мы будем Вам признательны, если ...
We are indebted to the Chamber of Commerce and Industry for your address.	Мы обязаны за Ваш адрес Торгово-промышленной палате.
We owe your address to ... a certain company.	Мы обязаны за Ваш адрес ... такой-то фирме.
Please let us know...	Просим Вас сообщить нам ...
We would ask (request) you to ...	Мы просили бы Вас ...
We'd be obliged if...	Мы были бы обязаны, если бы ...
We'd be glad to have your latest catalogue.	Мы были бы рады получить Ваш последний каталог.
Kindly inform us of the position of the order.	Просим Вас ставить нас в известность о ходе выполнения заказа.
We confirm our consent to the alterations.	Подтверждаем свое согласие с данными изменениями.
Please acknowledge receipt of our Invoice.	Просим Вас подтвердить получение нашего счета-фактуры.

3. Составьте деловое письмо, выдержите структуру и стиль: Письмо – приглашение. Напишите приглашение от имени ректора УГГУ на конференцию, на которой будут обсуждаться вопросы об использовании нового компьютерного оборудования на открытых карьерах. Конференция состоится в понедельник 20 мая 2019 с 9.00 до 17.00 в УГГУ. Попросите дать ответ.

Примерный ответ:

Dear Charles Milton,
I would like to invite you to a seminar that I'm confident will interest you.
The 3D Technologies Seminar held at the Moscow Crocus Congress Centre on June 13 will feature lectures by several key programmers and designers in the field of 3D modeling, with topics including trilinear filtering, anti-aliasing and mipmapping.
I am enclosing 3 tickets for you. I hope that you decide to attend and I am looking forward to seeing you there.
Best regards,
Igor Petrov,
Managing Director Ltd. The company "Center"

4. Составьте деловое письмо, выдержите структуру и стиль: Письмо – заказ. Напишите письмо менеджеру отеля и закажите 1 комнату с ванной для менеджера по сбыту Мистера Мартина, указав, что он прибывает по делам фирмы с 30 октября по 9 ноября. Попросите подтвердить заказ как можно быстрее.

Useful Phrases

I would like to reserve a single room / double room / twin room / suite for 2. Я хотел бы номер на одного / на двоих / номер с двумя кроватями / люкс на 2.

I would like a room with a bath / shower / balcony / sea view. Я хотел бы номер с ванной / душем / балконом / видом на море.

Does the room have internet access / air conditioning / television? В номере есть интернет / кондиционер / телевизор?

Please confirm my booking via fax / e-mail. Прошу подтвердить мою бронь по факсу / электронной почте.

Please send me the price list for the transfer services (airport, etc.). Пожалуйста, пришлите мне цены на трансферы (в / из аэропорта и пр.).

The arrival date is ... – дата прибытия ...

Please include breakfast – Прошу включить завтрак в стоимость.

Does the room have a shared bathroom? - Туалет и ванная в номере общие?

I would like to make a reservation - Я хотел бы забронировать номер.

I have a reservation under ... - У меня забронирован номер на фамилию ...

I need to change my reservation for the following dates: arrival - ..., departure - ... Please confirm my new reservation if the room is (rooms are – если номеров несколько) available for these dates. Мне нужно изменить даты моего бронирования на следующие: дата приезда - ... дата отъезда - ... Пожалуйста, подтвердите бронирование на эти даты, если у вас есть свободные номера.

Please be informed that it will be a late arrival. We plan to arrive at _____ o'clock p.m. Please keep our room till that time. Пожалуйста, имейте ввиду, что мы приедем поздно. Планируемое время прибытия _____ (в 12-часовом формате). Пожалуйста, оставьте за нами забронированный номер.

Please be informed that it will be an early arrival. We would like to check in at _____. Please inform us if it possible. Пожалуйста, обратите внимание, что мы прибываем рано. Мы хотели бы заселиться в _____ (время в 12-часовом формате). Если это возможно, пожалуйста, подтвердите.

What is the price per night? - Какова цена за 1 ночь?

Is breakfast included? - Входит ли в стоимость завтрак?

Can you offer me any discount? - Вы можете сделать скидку?

What time do I need to check out? - Во сколько я должен освободить номер?

Would it be possible to have a late check-out? - Возможно ли освободить номер попозже?

Could you send me some photos of the room? - Не могли бы вы выслать мне несколько фотографий номера?

5. Составьте деловое письмо, выдержите структуру и стиль: Письмо – извинение. Известите вашего делового партнера, что к сожалению вы не можете осуществить поставку, о которой договаривались раньше, в поставленный срок в связи с забастовкой на вашем заводе. Вы сожалеете, что не своевременная поставка заказа причинит им большие неудобства. Вы предлагаете осуществить эту поставку за пол-цены и компенсировать причиненные неудобства. Выразите уверенность, что такая ситуация больше не повториться и сообщите, что точный срок данной поставки сообщите электронной почтой в течение 2 дней.

Примерный ответ:

Dear Bernard Bishop,

This is to acknowledge that we are in receipt of your notice, whereby you informed us that the goods shipped

to you on June 25, 2011 did not conform to our agreement dated 16 May, 2011.

We regret this unintentional mistake on our part. In this fault our service department.

While we recognize that the time for performing under this agreement has expired, we are requesting that you

extend the time to July 20, 2011, in order that we may cure the defect by replacing the shipment with goods that conform to our agreement.

Please accept our apology for this inconvenience. We will be looking forward to your response.

Very truly yours,

Igor Petrov,

Managing Director

6. Составьте деловое письмо, выдержите структуру и стиль: Письмо – запрос. Вы узнали из газеты «Таймс» от 25 января 2007 о производстве нового магнитофона «Филипс». Попросите выслать дополнительную информацию, в том числе сведения о стоимости, размерах скидки в случаях оптовой закупки, сроках поставки и условиях оплаты. Срочно попросите ответить.

Useful Phrases

<p>We are interested in... and would ask you to send us your offer (tender, quotation) for these goods (for this machine, for this equipment).</p> <p>We require ...</p> <p>We are regular buyers of...</p> <p>Please send us samples of your goods stating your lowest prices and best terms of payment.</p> <p>Please let us know if you can send us your quotation for... (if you can offer us...)</p> <p>Please inform us by return at what price, on what terms and when you could deliver...</p> <p>We are interested in ... advertised by you in...</p> <p>We have seen your machine, Model 5 at the exhibition and...</p> <p>We have read your advertisement in...</p> <p>We have received your address from ...</p> <p>We learn from ... that you are exporters of...</p>	<p>Мы заинтересованы в ... и просили бы Вас выслать нам Ваше предложение на этот товар (котировку и на эту машину, на это оборудование) ...</p> <p>Нам требуются ...</p> <p>Мы являемся постоянными покупателями ...</p> <p>Просим Вас выслать нам образцы Вашего товара с указанием Ваших крайних цен и лучших условий платежа.</p> <p>Просим Вас сообщить нам, сможете ли Вы сделать нам предложение на ... (сможете ли Вы предложить нам ...)</p> <p>Просим Вас сообщить нам обратной почтой, по какой цене, на каких условиях и в какой срок Вы могли бы поставить ...</p> <p>Мы заинтересованы в ... разрекламированной Вами в ...</p> <p>Мы видели Вашу машину модели № 5 на выставке и ...</p> <p>Мы прочитали Ваше рекламное объявление в ...</p> <p>Мы получили Ваш адрес от ...</p> <p>Мы узнали от .., что Вы являетесь экспортерами ...</p>
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7. Составьте деловое письмо, выдержите структуру и стиль: Письмо – жалоба. С сожалением сообщите, что из полученной партии товара, вы не сможете принять 2 контейнера, т.к. качество товара в них не соответствует стандарту качества. Сообщите, что вынуждены вернуть эту часть товара и хотите получить взамен товар надлежащего качества. Попросите поскорее вам ответить.

Useful phrases and sentences

<p>We regret to inform you that you have supplied goods below the standard we expected from the samples.</p> <p>The bulk of the goods delivered is not up to sample (is inferior to sample).</p> <p>Unfortunately, we find that you have sent us the wrong goods.</p> <p>We have had an analysis made and the report says that the chemical content is ... % less than guaranteed.</p> <p>We cannot accept these containers as they are not the size and shape we ordered.</p> <p>Although the quality of the goods is not up to sample, we are prepared to accept them if you reduce the price by 12 %.</p> <p>We much regret that we have to complain about the insufficient (inadequate) packing (or carelessness in packing, or packing of the wrong type, i.e. unsuitable to local conditions).</p>	<p>С сожалением сообщаем Вам, что Вы поставили товар, качество которого ниже стандарта, ожидавшегося нами судя по образцам.</p> <p>Большая часть поставленного Вами товара по качеству ниже образца.</p> <p>К сожалению мы обнаружили, что Вы поставили нам не тот товар.</p> <p>Мы произвели анализ, и из акта видно, что ее (напр, руды) химическое содержание на ... % хуже, чем гарантировано.</p> <p>Мы не можем принять эти контейнеры, так как и по размеру и по форме они отличаются от заказанных нами.</p> <p>Хотя качество товара не соответствует образцу, мы готовы принять его, если Вы снизите цену на 12 %.</p> <p>Мы очень сожалеем, что нам приходится заявлять Вам жалобу о недостаточной упаковке (или о небрежности при упаковке, или об упаковке, не соответствующей</p>
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<p>The packing inside the case was too loose with the result that there was some shifting of the contents and several things have been broken; the attached list will give you all the details.</p> <p>We hope you will pay more attention to packing to avoid any breakage in future.</p> <p>A number of cases arrived in a badly damaged condition, the lids were broken and the contents were crushed.</p> <p>As the period of guarantee has not expired yet, we ask you to replace the machine by another one.</p> <p>We cannot make use of the goods and are very sorry to have to return them to you.</p> <p>We regret that unless we hear from you soon, we shall have to cancel our order.</p>	<p>местным условиям).</p> <p>Упаковка внутри ящика была не совсем жесткой, в результате чего содержимое, ящика перемещалось, и часть его была сломана. Из прилагаемого списка Вы можете узнать все подробности.</p> <p>Мы надеемся, что впредь Вы будете уделять больше внимания упаковке, с тем чтобы избегать каких-либо поломок.</p> <p>Ряд ящиков прибыли в сильно поврежденном состоянии, были сломаны крышки и попорчено (помято) содержимое.</p> <p>Поскольку еще не истек срок гарантии, просим Вас заменить данную машину другой.</p> <p>Мы не можем использовать этот товар и, к сожалению, должны вернуть его Вам.</p> <p>Мы сожалеем, но если в ближайшем будущем мы не получим от Вас известий, нам придется аннулировать наш заказ.</p>
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8. Составьте деловое письмо, выдержите структуру и стиль: Напишите рекомендательное письмо Мистеру Кристину Рейли, которого вы хорошо знаете о том, что ваш хороший друг Мистер Энтони Дуглас примерно в конце сентября приезжает в Лондон и что ему очень хотелось бы познакомиться с Мистером Рейли и осмотреть его завод по производству мебели для офисов. Сообщите, что Мистер Дуглас является управляющим директором компании по производству лаков и красок «Дуглас и сын ЛТД». Они открывают новый отдел фирмы и хотели бы узнать во что обойдется обставить новые офисы. Упомяните, что таким образом Мистер Дуглас может стать новым клиентом Мистера Рейли. Передайте наилучшие пожелания Мистеру Рейли и его жене.

Примерный ответ:

Reference for Mr Alexandr Ivanov

Alexandr Ivanov joined the Ltd. The company "Center" in July 2008. Since then he has proved to be a most reliable and effective member of the sales team.

Alexandr is professional and efficient in his approach to work and very well-liked by his colleagues and executive clients. He is well-presented and able to work both independently and as part of a team. His contribution to all areas of company activity in which he has been involved have been much appreciated.

I believe that Alexandr will make a valuable addition to any organization that he may join. We deeply regret his decision to move on and I recommend him without hesitation.

I would gladly answer any request for further information.

Sincerely,
Igor Petrov
Managing Director

2.1.3 Подготовка к опросу

Подготовьте высказывания на иностранном языке:

1. Расскажите, что вы знаете о получении степени магистра, истории возникновения присуждения степеней.

Примерный ответ:

Master's Degrees

Students and employers demand for advanced education and certification within professional fields of study has sparked much of the growth in master's degree enrollments.

The master's degree is designed to provide additional education or training in the student's specialised branch of knowledge. Master's degrees are offered in many different fields, and there are two main types of programs: academic and professional.

Academic Master's: The master of arts (M.A.) and the master of science (M.S.) degrees are usually awarded in the traditional arts, sciences, and humanities disciplines. The M.S. is also awarded in technical fields such as engineering and agriculture. Original research, research methodology, and field investigation are emphasised. These programs are usually completed in one or two academic years of full-time study. They may lead directly to the doctoral level.

Professional Master's: These degree programs are designed to lead the student from the first degree to a particular profession. They do not lead to doctoral programs. Such master's degrees are often designated by specific descriptive titles, such as master of business administration (M.B.A.), master of social work (M.S.W.), master of education (M.Ed.), or master of fine arts (M.F.A.). Other subjects of professional master's programs include journalism, international relations, architecture, and urban planning. Professional master's degrees are oriented more toward direct application of knowledge than toward original research.

They often require that every student take a similar or identical program of study that lasts from one to three years, depending on the institution and the field of study.

History of Academic Degree

An academic degree is a college or university diploma, often associated with a title and sometimes associated with an academic position, which is usually awarded.

The most common degrees awarded today are Bachelor's, Master's and Doctoral degrees. Most higher education institutions generally offer certificates and programs of Master of Advanced Studies, which is known as a *Diplôme d'études supérieures spécialisées* under its original French name.

The modern academic system of academic degrees evolved and expanded in the medieval university, spreading everywhere across the globe. No other European institution has spread over the entire world in the way in which the traditional form of the European university has done. The degrees awarded by European universities – the bachelor's degree, the licentiate, the master's degree, and the doctorate – have been adopted in the most diverse societies throughout the world.

The doctorate (Latin: *doceo*, I teach) appeared in medieval Europe as a license to teach at a medieval university. Its roots can be traced to the early church when the term "doctor" referred to the Apostles, church father and other Christian authorities who taught and interpreted the Bible.

Originally the terms "master" and "doctor" were synonymous, but over time the doctorate came to be regarded as a higher qualification than the master degree.

In the medieval European universities, candidates who had completed three or four years of study in the prescribed texts of the trivium (grammar, rhetoric, and logic), and the quadrivium (mathematics, geometry, astronomy and music), together known as the Liberal Arts, and who had successfully passed examinations held by their master, would be admitted to the degree of bachelor of arts.

Further study would earn one the Master of Arts degree. Master of Arts was eligible to enter study under the "higher faculties" of Law, Medicine or Theology, and earn first a bachelor's and then master or doctor's degrees in these subjects. Thus a degree was only a step on the way to becoming a fully qualified master – hence the English word "graduate", which is based on the Latin *gradus* ("step").

Today the terms "master", "doctor" (from the Latin "teacher") and "professor" signify different levels of academic achievement, but in the Medieval university they were equivalent terms, the use of them in the degree name being a matter of custom at a university. (Most universities conferred the Master of Arts, although the highest degree was often termed Master of Theology or Doctor of Theology depending on the place).

The earliest doctoral degrees (theology - *Divinitatis Doctor* (D.D.), philosophy - *Doctor of philosophy* (D.Phil., Ph.D.) and medicine - *Medicinæ Doctor* (M.D., D.M.) reflected the historical separation of all University study into these three fields. Over time the D.D. has gradually become less common and studies outside theology and medicine have become more common (such studies were

then called "philosophy", but are now classified as sciences and humanities - however this usage survives in the degree of Doctor of Philosophy).

2. Прочитайте текст и выделите существенно значимую научную и второстепенную информацию.

Summary Making

Summaries are often found in academic work. A summary is the shortest account of the main content and conclusions of the original text. In fact it is enumeration of the main thematic point of the original paper which is made up of the words and phrases borrowed from the text and your own wording of them into a very small number of sentences.

When writing a summary, you may adhere to the following plan:

- 1) the heading;
- 2) the theme of the paper;
- 3) the key problems (thematic points) discussed;
- 4) the conclusion at which the author arrives.

The manner of presenting the material is very concise and it tends to be critical. The summary writer appreciates the material from his point of view and uses as a rule a wide range of clichés, which can be divided into several groups:

- 1) those introducing the heading and the author:

The article (text) is head-lined ...

The head-line of the article (I have read) is ...

The article is entitled ...

The author of the article (text) is ...

The article is written by ...

- 2) those introducing the leading theme of the original paper:

The text deals with ...

The article is devoted to...

The chapter is about..

The article touches upon...

- 3) those drawing the reader's attention to the major points of the contents:

The author emphasizes the idea of...

The author points out that ...

Attention is drawn to the fact...

In the opinion of the author it is .

- 4) those introducing secondary information:

Further the author reports

The author states...

The article goes on to say...

According to the text ...

- 5) those forming a conclusion to which the reader's attention is drawn:

The author comes to the conclusion that...

The author concludes by saying ...

The basic approach of the author is that, etc.

Примерный ответ:

Science: The Endless Resource

Our future demands investment in our people, institutions and ideas. Science is an essential part of that investment, an endless and sustainable resource with extraordinary dividends. The Government should accept new responsibilities for promoting the flow of new scientific knowledge and the development of scientific talent in the youth. These responsibilities are the proper concern of the Government, for they vitally affect health, jobs and national security

The bedrock wisdom of this statement has been demonstrated time and again in the intervening half century. The return from public investments in fundamental science has been enormous, both through the knowledge generated and through the education of an unmatched scientific and technical workforce. Discoveries in mathematics, physics, chemistry, biology and other fundamental sciences have seeded and have been driven by important advances in engineering, technology, and medicine.

The principal sponsors and beneficiaries of scientific enterprise are people.

Their continued support, rooted in the recognition of science as the foundation of a modern knowledge-based technological society, is essential. This investment has yielded a scientific enterprise without peer, whether measured in terms of discoveries, citations, awards and prizes, advanced education, or contributions to industrial and informational innovation. Scientific strength is a treasure which we must sustain and build on for the future.

To fulfill our responsibility to future generations by ensuring that our children can compete in the global economy, we must invest in the scientific enterprise at a rate commensurate with its growing importance to society. That means we must provide physical infrastructure that facilitates world class research, including access to cutting-edge scientific instrumentation and to world-class information and communication systems. We must provide the necessary educational opportunities for each of our citizens. Failure to exercise our responsibility will place our children's future at risk.

Science does indeed provide an endless frontier. Advancing that frontier and exploring the cosmos we live in helps to feed our sense of adventure and our passion for discovery. Science is also an endless resource: in advancing the frontier, our knowledge of the physical and living world constantly expands. The unfolding secrets of nature provide new knowledge to address crucial challenges, often in unpredictable ways. These include improving human health, creating breakthrough technologies that lead to new industries and high quality jobs, enhancing productivity with information technologies and improved understanding of human interactions, meeting our national security needs, protecting and restoring the global environment, and feeding and providing energy for a growing population.

The challenges of the twenty-first century will place a high premium on sustained excellence in scientific research and education. We approach the future with a strong foundation, built by the wise and successful stewardship of this enterprise over many decades, and with an investment strategy that was framed as three interconnected strategic goals:

- Long term economic growth that creates jobs and protects the environment;
- A government that is more productive and more responsive to the needs of its citizens;
- World leadership in basic science, mathematics, and engineering.

Our policies in these areas should be working to prepare the future.

Our future demands investment in our people, institutions and ideas.

Science is an essential part of that investment. The Government should accept new responsibilities for promoting the flow of new scientific knowledge. The bedrock wisdom of this statement has been demonstrated time and again in the intervening half century. The principal sponsors and beneficiaries of scientific enterprise are people. Scientific strength is a treasure which we must sustain and build on for the future. To fulfill our responsibility to future generations, we must invest in the scientific enterprise at a rate commensurate with its growing importance to society. Science does indeed provide an endless frontier. We approach the future with an investment strategy that was framed as interconnected strategic goals: long term economic growth; a more productive government and world leadership in basic science, mathematics, and engineering. The challenges of the twenty-first century will place a high premium on sustained excellence in scientific research and education. Our policies in these areas should be working to prepare the future.

Summary

The text under discussion is entitled Science: The Endless Resource. It deals with the role of science in modern life. First, it is stressed the Government should accept new responsibilities for promoting the flow of new scientific knowledge. Attention is drawn to the fact that fundamental science discoveries have seeded important advances in the society, scientific knowledge being an

endless resource affecting health, jobs and national security. It is reported that unfolding secrets of nature provides new knowledge to address crucial challenges. The text goes on to say that we must provide physical infrastructure and educational opportunities that facilitate world class research. The author concludes that challenges of the twenty-first century will place a high premium on excellence in scientific research and education. To my mind, the main idea of the text is to show that science is the foundation of a modern knowledge-based technological society.

3. Составьте аннотацию научной статьи.

Примерный ответ:

Laser-based lidar (light detection and ranging) has also proven to be an important tool for oceanographers. While satellite pictures of the ocean surface provide insight into overall ocean health and hyperspectral imaging provides more insight, lidar is able to penetrate beneath the surface and obtain more specific data, even in murky coastal waters. In addition, lidar is not limited to cloudless skies or daylight hours. “One of the difficulties of passive satellite-based systems is that there is watersurface reflectance, water-column influence, water chemistry, and also the influence of the bottom”, said Chuck Bostater, director of the remote sensing lab at Florida Tech University (Melbourne, FL). “In shallow waters we want to know the quality of the water and remotely sense the water column without having the signal contaminated by the water column or the bottom”. A typical lidar system comprises a laser transmitter, receiver telescope, photodetectors, and range-resolving detection electronics. In coastal lidar studies, a 532-nm laser is typically used because it is well absorbed by the constituents in the water and so penetrates deeper in turbid or dirty water (400 to 490 nm penetrates deepest in clear ocean water). The laser transmits a short pulse of light in a specific direction. The light interacts with molecules in the air, and the molecules send a small fraction of the light back to telescope, where it is measured by the photodetectors.

Abstract (Summary). The text focuses on the use of laser-based lidar in oceanography. The ability of lidar to penetrate into the ocean surface to obtain specific data in murky coastal waters is specially mentioned. Particular attention is given to the advantage of laser-based lidars over passive satellite-based systems in obtaining signals not being contaminated by the water column or the bottom. A typical lidar system is described with emphasis on the way it works. This information may be of interest to research teams engaged in studying shallow waters.

2.2 Дополнительное чтение профессионально ориентированных текстов и выполнение заданий на проверку понимания прочитанного

№1

Job Application Forms

When you apply for a job, you will be asked to send your CV (resume), together with a letter or e-mail of application. It is important to know how to write a good resume, or a summary of background and qualifications, and a letter of application (a cover letter, a letter of interest). All these skills can improve your chances for employment.

If you are applying for a new work place you have to send your CV (curriculum vitae) or Resume, the Application (Cover) Letter, and the Letter of Recommendation that are expected in such cases.

Most applicants for white-collar jobs get in touch with employers by mail (email). A letter to an employer should be type-written. In the application letter, introduce yourself and explain why you are writing. Briefly indicate an experience and skills you have that relate to the kind of job you are seeking.

Include your address and telephone number so that the employer can reach you. If you contact an employer by telephone, try to provide the same information that you would cover in a letter.

A resume or a CV is a summary of your history and professional qualifications. Most employers consider several applicants for each job opening.

Thus, the employer has to consider two sets of qualifications if he wants to choose from among the applicants: professional qualifications and personal characteristics. A candidate's education, experience and skills are included in the professional qualifications. These can be listed in a resume or summary of your background.

Employers often receive a lot of applications for a job, so it is very important to make sure that your CV and job application letter create the right impression and present your personal information in a brief, well-structured, and attractive way. A CV should be clear, with a limited number of main sections, so that an employer can pinpoint the information they are looking for quickly and easily.

You do not need to give a lot of details.

The resume usually consists of the following parts: Personal, Education, Work Experience, Interests and Skills, Hobbies.

Here is how you should organize your resume:

1. Your name, address and phone number go at the top.

2. Under **Personal** you write:

a) when and where you were born;

b) your marital status (married, single or divorced), your children;

c) citizenship.

3. Under **Education** you describe:

a) University (school) you finished and the years of study (for example 2010-2014 The State University of Architecture and Civil Engineering of Voronezh);

b) the diplomas and degrees obtained, also mention the subject (e.g. The State University of Voronezh, Economics);

c) a higher degrees (e.g. Master; Ph.D), and the university which granted it.

4. **Work Experience:**

List the jobs, the years you worked, the position you held. This should be presented in the chronological order starting from the last job.

If you are a research scientist or deal with studies, you should list publications and mention in brackets their total number.

In case you have no work experience in the field, mention your summer jobs, extracurricular activities, awards.

5. **Interests and Skills:**

Include the foreign languages you speak, computer skills, extensive travel, particular interests or professional membership (for example, if you are after a job in computer programming, mention it).

6. The last is **Hobbies:**

It is good to mention here a hobby that can help get the job you are after (e.g. playing chess, reading).

It should be noted that a resume (CV) can be structured differently and may vary in length from one page to three.

Send your Resume, along with an Application (Cover) Letter and a Letter of Recommendation to a specific person. The person should be the top person in the area where you want to work. Refer him (her) to your Resume and ask for an interview.

The samples of a Resume (CV), an Application (Cover) Letter (a Letter of Interest) and a Letter of Recommendation:

Application Letter

8 September, 2014

Dear Mr. Jones,

I am writing to apply for the job (position) of an accountant advertised in yesterday's "Financial Times". I enclose my Resume and a Letter of Recommendation from Mr. J. Smith of Smith and Sponsor Bank, Manchester.

I have recently moved to your town and feel that my qualifications would enable me to be a productive member of your company.

I am available for an interview.

I look forward to hearing from you.

Yours sincerely

Letter of Recommendation

19 November, 2014

Dear Mr. Jones,

Having known Mrs. Biggins for three years as a staff-member of my department, I am pleased to write this Letter of Recommendation for her.

During the years that Mrs. Biggins worked with us she always excelled in whatever activity she undertook.

It is important to mention here that she has good working knowledge of French and German and speaks both languages fluently. I also want to emphasize her computer skills.

Mrs Biggins has my fullest support and I would be pleased to provide further information if necessary.

Yours sincerely,

Post-Reading

1. Explain the following.

- 1) to apply for a job
- 2) a summary of background and qualifications
- 3) a white-collar job
- 4) job opening
- 5) two sets of qualifications
- 6) to pinpoint the information
- 7) extracurricular activities

2. Match the English word combinations with the Russian equivalents.

- | | |
|--------------------------------|--|
| 1. as advertised | a) в вашем распоряжении для интервью |
| 2. broaden my experience | b) ждать ответа |
| 3. my CV is enclosed | c) основываться на объявлении в газете |
| 4. available for the interview | d) расширить свой опыт |
| 5. hearing from you | e) прилагать свое резюме |

3. Fill the gaps with the suitable words: *position, wide, to apply, fluently, ideally, in.*

I wish _____ the position of a salesman as advertised _____ Tuesday's Herald Tribune. This is a _____ for which I believe I am _____ suited. I speak Spanish _____ and have _____ experience of working abroad.

4. Answer the questions below.

- What information does an application letter usually include?
- Why is it important to send both an application letter and a CV to the job a person applies for?
- In what cases do people have to write a resume?
- How is a resume structured?
- Should the resume you write be a detailed personal history or a summary of your personal history and qualifications?

Job interview

Study the most common sample questions at the job interview and the answers to them (pay attention to comments given in brackets).

1. How would you describe yourself? (Also: What are your strengths / positive traits? Why should we hire you?)

• I consider myself hardworking / reliable / dependable / helpful / outgoing / organised / honest/ cooperative.

• I'm a team-player / an experienced team-leader / a seasoned (experienced) professional / a dedicated worker.

- I'm good at dealing with people / handling stress.
- I pay attention to details.
- I understand my customers' needs.
- I learn quickly and take pride in my work.
- I love challenges and getting the job done.

2. What kind of qualifications do you have?

• I graduated in IT from the University of London.
• I hold a master's degree (MA) / a bachelor's degree (BA) in Modern Languages from the University of New York.

• I took a one year accounting training program at Oxford College.

• I haven't done any formal training for this job, but I have worked in similar positions and have ten years of experience in this field.

3. Why did you leave your last job?

• I was laid off / made redundant, because the company relocated / downsized / needed to cut costs.

• I resigned from my previous position, because I didn't have enough room to grow with my employers.

• I wanted to focus on finding a job that is nearer to home / that represents new challenges / where I can grow professionally / that helps me advance my career.

4. What do you do in your current role?

• I'm responsible for the day-to-day running of the business / for recording and conveying messages for the departments.

• I ensure that high standard of customer care is maintained.

• I liaise with the Business Development and Business Services Units.

• I deal with incoming calls and correspond with clients via e-mails.

• I'm in charge of the high-priority accounts.

5. What relevant experience do you have? (It might be a good idea to revise Present Perfect Simple and Continuous to talk about experiences you've had/ actions that you started in the past and are still in progress.)

• I have worked as a Sales Representative for several years.

• I have good organizational skills as I have worked as an Event Organizer / Personal Assistant for the last six years.

• I have great people skills: I've been working in Customer Service and been dealing with complaints for five years.

6. Why would you like to work for us?

• I would like to put into practice what I learned at university.

• I would like to make use of the experience I have gained in the past ten years.

• I believe that your company will allow me to grow both professionally and as a person.

• I've always been interested in E-Commerce / Marketing / Computer Programming and your company excels (is one of the best) in this field.

7. What are your weaknesses / negative traits?

• I'm a perfectionist and I may be too hard on myself or my co-workers sometimes.

• I might need to learn to be more flexible when things are not going according to plan. This is something I'm working on at the moment.

• I occasionally focus on details instead of looking at the bigger picture. I'm learning how to focus on the overall progress as well.

8. When can you commence employment with us? (When can you start work?)

• I will be available for work in January, next year.

• I can start immediately.

• I have to give three weeks' notice to my current employer, so the earliest I can start is the first of February.

9. Do you have any questions?

- What would be the first project I'd be working on if I was offered the job?
- Who would I report to? Who would I be working closely with?
- Are there any benefits your company offers its employees?
- When will I get an answer? How soon can I start?

Additional sample questions

Questions about your Qualifications

- >>What can you do for us that someone else can't do?
- >>What qualifications do you have that relate to the position?
- >>What new skills or capabilities have you developed recently?
- >>Give me an example from a previous job where you've shown initiative.
- >>What have been your greatest accomplishments recently?
- >>What is important to you in a job?
- >>What motivates you in your work?
- >>What have you been doing since your last job?
- >>What qualities do you find important in a coworker?

Questions about your Career Goals

- >>What would you like to be doing five years from now?
- >>How will you judge yourself successful? How will you achieve success?
- >>What type of position are you interested in?
- >>How will this job fit in your career plans?
- >>What do you expect from this job?
- >>Do you have a location preference?
- >>Can you travel?
- >>What hours can you work?
- >>When could you start?

Questions about your Work Experience

- >>What have you learned from your past jobs?
- >>What were your biggest responsibilities?
- >>What specific skills acquired or used in previous jobs relate to this position?
- >>How does your previous experience relate to this position?
- >>What did you like most/least about your last job?
- >>Whom may we contact for references?

Questions about your Education

- >>How do you think your education has prepared you for this position?
- >>What were your favorite classes/activities at school?
- >>Why did you choose your major?
- >>Do you plan to continue your education?

Nº2

Email and Fax Communication

E-mail writing has become a large part of modern communication, particularly in business. The world has become much smaller now that we have the ability to send and receive e-mail messages over great distances at an incredible speed. However e-mail was originally used as an informal means of communication. Therefore business e-mail letters are less formal in style than ordinary business letters.

E-mail is short for electronic mail. E-mail correspondence gets from one place to another in a matter of minutes. Connecting to the Internet provides you with e-mail services and an e-mail address which looks like this: nickname@someplace.com (@ means *at*, and *com* indicates the domain, in this case, a company). The Internet is a communication network that links computers all around the world

via modems. Companies send documents from one place to another in minutes. E-mail is an up-to-date method of transmitting data, text files, and digital photos from one computer to another over the Internet. And now e-mails have become one of the most widely used forms of business and personal communication. E-mails are quick, so they are good for chatting, inviting people out, keeping in touch and doing business.

E-mails do not necessarily contain all the elements important for business letters. So e-mails are usually shorter and it takes less time to compile and send them. The e-mail language is much closer to spoken English than traditional business correspondence style.

Information about the sender and the receiver (addressee) appears at the top in a special frame – so the writer doesn't have to use traditional greetings. *Mr Black*, *Dear Peter*, *Peter* are all acceptable ways of starting an e-mail.

As e-mails are designed for speed, they usually avoid the formal expressions used in letters, and people often do not write in complete sentences using abbreviations. A message should be short to fit on one screen, whenever possible, thus keeping all important information visible at once. Be sure your message is easy to answer.

You can end your e-mail with:

Best wishes

All best wishes

Best regards

Regards

Yours

To people you know well, you can end with:

All the best

Best

People often sign e-mail with their first name.

There are a few important points to remember when composing e-mail, particularly when the e-mail's recipient is someone who does not know you.

- Include a meaningful subject line; this helps clarify what your message is about.
- Open your e-mail with a greeting like *Dear Dr. Jones*, or *Ms. Smith*.
- Use standard spelling and punctuation.
- Don't write unnecessarily long e-mails (4 or 5 paragraphs). Write clear, short paragraphs.
- In business e-mails, try not to use abbreviations such as PLS (please) and BTW (by the way).
- Finish with a closing decision, hope or apology.
- Include a Signature Block in every e-mail – your name, title, business address, telephone number, fax numbers, e-mail address and website address.

Be polite and give as many contact details as possible so that the reader can contact you in different ways.

Even in today's modern age of the Internet, it is still necessary to send and receive faxes. Most companies, large or small, have a fax machine. This allows them to send facsimiles of any document. A fax message is the message that is sent or received over a fax machine (phone lines are used) or online fax service. The word *fax* comes from the word *facsimile* standing for *perfect copy*.

The original document is scanned with a fax machine; the information is then transmitted as electrical signals through the telephone system. A fax message is often sent when particular official correspondence needs to be sent or received urgently and it is not possible to send the documents via email.

Post-Reading

1. Explain the following.

- 1) an e-mail message
- 2) in a matter of minutes
- 3) a communication network
- 4) an up-to-date method

- 5) personal communication
- 6) a sender and a receiver
- 7) subject line
- 8) a Signature Block

2. Match the pairs of synonyms from A and B and translate them.

A	B
1. current	a. transmit
2. send	b. reply
3. include	c. contain
4. answer	d. up-to-date

3. Make the sentences complete by translating the words in brackets.

1. We have come to deliver a (сообщение).
2. They have supplied (современный) equipment.
3. I sent the documents (с помощью) fax.
4. I will be able to (пересылать) that email to you.

4. Complete the sentences choosing the best variant corresponding to the contents of the text.

1. The most widely used form of communication is ...
 - a) a fax message.
 - b) an email.
 - c) a business letter.
2. The symbol @ is followed by ...
 - a) the person's name.
 - b) headers and footers.
 - c) the domain.
3. A fax machine processes a text as a ...
 - a) a graphic image.
 - b) a bit map.
 - c) electrical signals.
4. A fax messages faces a competition from ...
 - a) modern technologies.
 - b) e-mails.
 - c) business letters.

5. Answer the questions below.

- What are the advantages and disadvantages of e-mails?
 Are e-mail letters as formal in style as ordinary letters?
 What are the rules for writing e-mails?
 What is the structure of an e-mail?
 Do you know what the symbol @ means?
 What is the procedure of sending a fax message?

№3

Academic Degrees Abroad

Modern academic education in our country comprises four stages: Bachelor's degree, Specialist's degree, Master's degree, Postgraduate degree. Academic degrees abroad differ in many ways which is the point of our further discussion.

A degree is an academic qualification awarded on completion of a higher education course (a first degree, usually known as Bachelor's degree) or a piece of research (a higher/further degree, doctorate and so on). There exists considerable diversity of degrees in various countries. But in spite of the lack of equivalence of degrees some similarities can be found among certain groups of countries, particularly those of the British Commonwealth, continental Europe, America and the Far East.

One can distinguish the principal types of academic degrees – bachelor, master, and doctor which represent different levels of academic achievements. The naming of degrees eventually became linked with the subject studied, arts is used for the humanities, science – for natural and exact sciences.

The Bachelor's Degree is the oldest and best known academic degree. Some varieties of bachelor's, or baccalaureate, degrees are Bachelor of Arts (BA) degree and Bachelor of Science (BSc). Abbreviations vary between institutions. Other baccalaureate degrees offered by most universities are Bachelor of Education, Bachelor of Music, Bachelor of Business Administration, Bachelor of Divinity, Bachelor of Home Economics.

The Bachelor's degree can be attained by students who pass their university examinations, or in some cases other examinations of equivalent level. This normally involves at least three years of full-time study after passing the advanced level certificate of education at the age of about eighteen, so most people who become BA, BSc, etc. do so at the age of at least twenty-one. First degrees in medicine require six years of study, some others four.

It is now quite usual for students in subject such as engineering to spend periods during their degree courses away from their academic studies, in industrial location so that they may get practical experience. A student of a foreign language normally spends a year in a country where that language is spoken. Bachelors' degrees are usually awarded on the basis of answers to several three-hour examinations together with practical work or long essays or dissertations written in conjunction with class work. Degrees are classified. About a tenth (or less) of candidates win first-class, honours degrees, three quarters - second-class, and the rest - third class, or pass without fail. A person studying for a degree at a British university is called **an undergraduate**.

About 33 per cent of students continue to study for **degrees of Master** (of Arts, Science, Education, Business Administration, Music, Fine Arts, Philosophy, etc.). About 45 varieties of Master of Arts and 40 varieties of Master of Science degrees are reported. The degree of Master in general requires one or two further years of study, with examination papers and substantial dissertation. Bachelors' and Masters' degree can be conferred "with honours" in various classes and divisions, or "with distinction". This is indicated by the abbreviation "(Hons)" and is often a prerequisite for progression to a higher level of study.

A minority (about 15 per cent) goes on further, preparing theses which must make original contributions to knowledge, for the most advanced degree of **Doctor of Philosophy (Phd) or Doctor of Science (DSc)**. Abbreviations for degrees can place the level either before or after the faculty or discipline depending on the institution. For example, DSc and ScD both stand for the doctorate of science.

Doctor's degrees in many foreign countries are of two distinct types: **professional or practitioner's degrees, and research degrees**.

The former represent advanced training for the practice of various professions, chiefly in medicine and law. The principal ones are Doctor of Sc. Medicine, Doctor of Dental Science of Dental Surgery, Doctor of Veterinary Medicine, Doctor of Pharmacy, and Doctor of Jurisprudence. These degrees carry on implication of advanced research.

Quite different in character are the research doctorates which represent prolonged periods of advanced study, usually at least three years beyond the baccalaureate, accompanied by a dissertation designed to be a substantial contribution to the advancement of knowledge. The most important of these is the Doctor of Philosophy, which represents advanced research in any major field of knowledge.

Second in importance and much more recent as a research degree is the Doctor of Sc. Education (Ed.D.) It was first awarded by Harvard in 1920, but was preceded by the equivalent Doctor of Pedagogy first conferred by New York University in 1891. The only other earned doctorates of the research type currently conferred by 10 or more institutions are the Doctor of the Science of Law and the Doctor of Business Administration.

Postgraduate Training Programs

All further education which comes after baccalaureate can be regarded as postgraduate education. It presupposes carrying a lot of research work, acquiring knowledge of new methodologies and new trends. It may lead to either a Master's degree (a three-year program of study) or PhD (usually a two-year course of study).

Postgraduate programmes are either research degrees or taught courses. Taught courses last one or more years and are either designed so that you deepen your knowledge gained from your first degree or for you to convert your expertise to another field of study. Examples of these include changing to law to become a solicitor and training to become a teacher.

Degrees by instruction are very similar to undergraduate courses in that most of the time is devoted to attending lectures. This may take up the first eight or nine months of the course and is followed by written examinations. A period of research lasting from two or three months usually follows and the results of it are presented in the form of a thesis. Finally, an oral examination is held, lasting perhaps an hour or two, to test the knowledge accumulated throughout the year. Most programmes, which involve classes and seminars lead up to a dissertation.

Research course is quite a different type of study from a taught course. First of all it lasts longer, for about three years providing Master's or doctorate qualifications. They allow you to conduct investigations into your own topic of choice and are of use in jobs where there are high levels of research and development.

The most well-known research qualification is the Doctor of Philosophy (PhD, a three-year study programme). There is a shorter version called a Master of Philosophy (MPhil) which takes the minimum amount of time of two years. Both of these qualifications require the students to carry out a piece of innovative research in a particular area of study. Also possible is the research based on Master of Science (MSc.) and Master of Arts (MA) degrees. A recent development is the Master of Research (MRes), which provides a blend of research and taught courses in research methods and may be taken as a precursor to a PhD.

It is a common practice for students to be registered initially for the MPhil and to be considered for transfer to the PhD after the first year of study, subject to satisfactory progress and to a review of the proposed research. All research degree programmes involve an element of research training designed to ensure that students are equipped with the necessary skills and methodological knowledge to undertake original research in their chosen field of study. The training programme includes the development of generic skills relevant to the degree programme and a future career. Although the training element is not a formal part of the assessment for the degree, it constitutes an important basis for research and may take up a significant part of the first year.

The start of a research degree involves a very extensive survey of all previous works undertaken in that area. At the same time, if a student is planning to carry out any practical experimentations, the necessary equipment must be obtained.

This preliminary part of the study can take up to six months, but it is important to note that the process of keeping up to date with other work going on in the subject must continue throughout the entire period of the research.

The next stage of a research course usually involves collecting information in some way. This might be through experimentation, in the case of arts, social sciences or humanities degree. The important thing is that something new must be found.

This second part of the procedure takes about two years in the case of a PhD. The research is written up in the form of a thesis during the final six months of the three-year period. Typically, this will contain an introduction, methodology, results and discussion. As in the case with taught degrees, the research must then be examined orally. Occasionally, if the examiners are not completely happy with the work they may ask the candidate to rewrite parts of the thesis. Hopefully, a good supervisor will make sure this does not happen!

Find a synonym in the box for the words or phrases in green in the sentences below.

establish reform naturalist headquarters
prestigious supervise expedition atlas

1. The researchers need to **start** a new laboratory.
2. A scientist's job is often considered **to have respect and give you influence**.
3. There is a need for **improvements** in our society.
4. The **journey to explore and do scientific research** was made in 1872.
5. Look up this city in the **book of maps**.
6. Could you **manage** the people on this project?
7. He's a **person who studies animals and plants**.
8. The **central office** can be found in Moscow.

The Russian Academy of Sciences (RAS)

In 1724, Peter the Great established the Academy of Sciences as part of his push for reform to strengthen Russia. He wished to make the country as economically and politically independent as possible and he was aware of how important scientific thought, along with education and culture, was to this. However, unlike other foreign organisations at that time, the Academy was a state institution, which Peter intended should offer scientists from any country the opportunity to do their research in complete freedom, as well as providing the opportunity for students to study under these famous people. The Academy officially opened in 1725.

Over the next three decades, work was done in many fields, among them, work on electricity and magnetism theory. Research enabled the development of mining, metallurgy, and other branches of Russian industry. Work was done in geodesy and cartography and 1745 saw the first atlas of Russia created.

From its earliest days, the Academy carried out mathematical research, which added greatly to the development of calculus, hydrodynamics, mechanics, optics, astronomy, and made discoveries in various fields, such as chemistry, physics and geology. In addition, expeditions in 1733-1742 and 1760-1770 helped contribute to the discovery of Russia's natural resources.

The 19th century was a time of many more contributions from the Academy. The Academy's naturalists were involved in voyages of discovery, including that of F.F. Bellingshausen and M.P. Lazarev in 1820, when Antarctica was discovered. In the fields of mathematics and physics, progress was furthered by N.I. Lobachevsky and his theory of non-Euclidean geometry as well as by P.L. Chebyshev who made progress in the field of probability, statistics and Number Theory. Other notable achievements were the invention of the radio, the creation of the periodic table of the chemical elements, the discovery of viruses and the cell mechanisms of immunity. In the 1890s and early 1900s, LP. Pavlov carried out experiments which resulted in the discovery of classical conditioning or conditioned reflexes. Clearly, throughout the 18th and 19th centuries and into the 20th century, the Russian Academy led the way in Russian science.

In 1925, the name of the Academy changed to the Academy of Sciences of the USSR. One of the achievements of the Academy was to help set up scientific research centres in all Soviet republics. The Academy also gave scientists the opportunity to work and study in different parts of the USSR and abroad. In 1934, its headquarters were moved to Moscow. At that time, it had 25 member institutions. The Academy continued to grow, reaching a high point of 260 member institutions. In 1991, after the breakup of the USSR, the Academy's name was changed to the Russian Academy of Sciences (RAS).

Today, the RAS supervises the research of a large group of institutions within Russia which focus on different research areas, including philosophy, botany, anthropology, palaeontology and archaeology as well as nuclear physics, astrophysics, mathematics, computer engineering and many others. A special Internet system, called the Russian Space Science Internet (RSSI), which links over 3000 members, has also been set up.

Becoming a member of the RAS is not easy. Only scientific researchers who have done outstanding work or who have great potential are chosen to become members.

Last but not least, the RAS gives awards to members who have made significant discoveries. Its highest award is the Lomonosov Medal, named after the outstanding Russian scientist, writer and

polymath of the 18th century. Many RAS award winners have later gone on to be awarded prestigious Nobel Prizes.

Read the text and decide if the following statements are true or false.

1. Peter the Great set up educational and cultural centres.
2. The Academy was unusual in not being a private interest.
3. The 19th century was a time of numerous expeditions to find Antarctica.
5. In the 20th century, the Academy changed name several times and moved its central office.
5. Nowadays, members are obliged to communicate via the Internet.

The Russian Academy of Sciences (RAS)

1. Основанная в 1724 году Петром Великим, Академия была открыта в 1725 году его вдовой Екатериной I и называлась Петербургской академией наук.
2. Академия предоставляла учёным из разных стран абсолютную свободу в проведении научных исследований.
3. С первых дней в Академии проводились исследования в области математики, которые внесли большой вклад в развитие математического анализа, гидродинамики, механики, оптики, астрономии, и привели к открытиям в таких областях, как химия, физика и геология.
4. Век девятнадцатый был веком многочисленных и важных открытий и члены Академии наук играли ведущую роль в развитии российской науки.
5. Среди выдающихся научных достижений числятся такие, как изобретение радио, создание Периодической системы элементов, открытие вирусов и клеточного механизма иммунитета.
6. Сегодня Российская академия наук координирует работу большой группы научно-исследовательских институтов по всей России, где ведутся научные исследования во многих областях.
7. Институт космических исследований Российской академии наук осуществил проект по созданию компьютерной сети, называемой Российская космическая научная сеть Интернет, объединяющей более 3000 членов.

Russian Nobel Prize winners in Physics and Chemistry

Match these words with their definitions.

1. superfluidity
 2. laser
 3. violence
 4. exception
 5. semiconductor
 6. heterostructure
 7. optoelectronics
 8. superconductor
- a. being able to transmit electrical current without resistance at very low or high temperatures
 - b. something which does not follow the normal pattern
 - c. material that can transmit electricity but not as well as metal
 - d. branch of electronics involving devices dealing with electromagnetic radiation
 - e. characteristic of matter which can flow endlessly without resistance
 - f. when there is just one boundary between material that can transmit electricity
 - g. angry physical force
 - h. device that produces intense, concentrated beam of light

Russian Nobel Prize winners in Physics and Chemistry

Because of its long history of supporting scientific research and education, Russia has produced a number of internationally recognised leaders in physics and chemistry.

The Russian Academy of Sciences (or the USSR Academy of Sciences, as it was called before 1991), played a major part in all their careers. With one exception, all were members of the Academy, carrying out their research and publishing their findings with the Academy's support.

1956 In 1956, Nikolay N. Semyonov was the first Russian to receive a Nobel Prize for Chemistry for his research into the mechanism of chemical reactions. He was trained as a physicist and chemist. During his career, working alone or with other distinguished scientists like Pyotr L. Kapitsa, he made many important discoveries and contributions to chemistry and physics. In 1931, Semyonov became the first director of the Institute of Chemical Physics of the Academy and was also one of the founders of the Moscow Institute of Physics and Technology (MIPT).

1958 The collaboration of Pavel A. Cherenkov, Igor Y. Tamm and Ilya M. Frank resulted in the discovery and description of the Cherenkov-Vavilov effect, a phenomenon which is very important in nuclear physics. For their work they received the Nobel Prize in 1958. All three of the scientists were professors at universities and the Academy's institutes and greatly influenced future generations of scientists.

1962 After receiving his doctoral degree from Leningrad University at the exceptionally young age of 19, Lev D. Landau went on to study abroad. When he returned to Russia, he became head of two of the Academy's institutes. Like Semyonov, he was also involved in founding the MIPT. He received the Nobel Prize for Physics in 1962, for his phenomenological theory of superfluidity in helium.

1964 Nikolay G. Basov and Aleksandr M. Prokhorov worked together on a project which led to the development of the laser and their receiving the 1964 Nobel Prize. Both worked at the Lebedev Institute of Physics (Basov was the Director from 1973-1988) and also taught at universities. Even though Prokhorov never became a member of the Academy, the Academy's General Physics Institute was renamed the A.M. Prokhorov General Physics Institute in his honour.

1978 Pyotr L. Kapitsa went to England after he had completed his studies at Petrograd Polytechnic Institute. He studied at Cambridge and also worked on various projects there. He returned to Russia in 1934 and continued his career there. He was also one of the founders of the MIPT. In addition, Kapitsa was a member of the Soviet National Committee of the Pugwash movement, a group of international scientists who wanted to use science for the good of humankind and not for violence and war. Kapitsa won the Nobel Prize for Physics in 1978, for his work on low-temperature physics.

2000 Zhores I. Alferov has been active in physics since graduating from the Electrotechnical Institute in Leningrad. He received the Nobel Prize for Physics in 2000, for the development of the semiconductor heterostructures used in high-speed electronics and optoelectronics.

2003 More recently, Russian Nobel Prize winners in 2003 were Vitaly L. Ginsburg and Alexei A. Abrikosov. Ginsburg, who holds a doctoral degree from Moscow State University, became the director of the Academy's Physics Institute after Igor Tamm. Ginsburg was influenced by Landau, with whom he had worked, and by Tamm, who had been his teacher. Alexei Abrikosov was educated at Moscow State University. He worked at the Landau Institute for Theoretical Physics for over 20 years (1965-1988) and also taught at Moscow State University during that time. They received the Nobel Prize for Physics for pioneering contributions to the theory of superconductors and superfluids.

Read the text and answer the questions in your own words.

1. How many Nobel Prize winners were members of the Academy?
2. Which scientists were among those who founded the Moscow Institute of Physics and Technology?
3. Which scientists, apart from Lev Landau, had things or places named after them?
4. Which scientists left the country to further their studies?
5. Who was the director of the Academy's Physics Institute before Vitaly Ginsburg?

Russian Nobel Prize winners in Physics and Chemistry

1. Николай Семёнов был первым русским учёным, получившим в 1956 году Нобелевскую премию по химии за разработку теории химических цепных реакций.

2. В 1958 году Павел Черенков, Игорь Тамм и Илья Франк получили Нобелевскую премию по физике за открытие и описание феномена, названного эффектом Вавилова-Черепкова, и имеющего большое значение для ядерной физики.

3. Лев Ландау был награжден Нобелевской премией в области физики в 1962 году за разработку теории сверхтекучести гелия II.

4. Николай Прохоров и Александр Басов в 1964 году получили Нобелевскую премию в области физики за новаторские исследования в области квантовой электроники, которые привели к созданию лазера.

5. За фундаментальные изобретения и открытия в области физики низких температур Пётр Капица был награждён в 1978 году Нобелевской премией.

6. Жорес Алфёров в 2000 году получил Нобелевскую премию по физике за разработку полупроводниковых гетероструктур, используемых в высокочастотной оптоэлектронике.

7. Виталий Гинзбург и Алексей Абрикосов разделили Нобелевскую премию по физике, полученную в 2003 году за создание теории сверхпроводимости и сверхтекучести.

№5

Complete the sentences below with words and phrases from the box.

accumulation of quantities	integral calculus	vital	latter	
chord	distinction	methodology	infinitesimal	differential calculus
vast	tangent	coordinate	sake	

1. A line segment joining two points on a curve is a
2. A ... is a line or surface that touches another.
3. The area of maths used to determine areas, volumes and lengths is called
4. The area of maths relating to changes in variable is called ...
5. If something is close to zero it is ...
6. You need to eat well for the ... of your health.
7. There is a ... amount of knowledge to learn in sciences.
8. There are two theories - one from ancient times and a modern one. The ... the modern one, is widely accepted now.
9. She claimed the ... of having solved the equation.
10. A ... is a number that identifies a position relative to a straight line.
11. ... is the system of methods followed in an area of study.
12. ... measures areas under a curve, distance travelled, or volume displaced.
13. If something is ..., it is of the utmost importance.

Gottfried Leibniz

Gottfried Leibniz was born and lived most of his life in Germany, he made visits to both Paris and London, for the sake of learning and study, but spent the vast majority of his working life as an employee of German royalty, as a philosopher, engineer and mathematician. It is for the latter that he is best remembered. His greatest achievement was as an inventor of calculus, the system of notation which is still in use today. Leibniz is remembered as an inventor, not the inventor of calculus. In England, Isaac Newton claimed the distinction, and was later to accuse Leibniz of plagiarism, that is, stealing somebody else's ideas but stating that they are original. Modern-day historians however, regard Leibniz as having arrived at his conclusions independently of Newton. They point out that there are important differences in the writings of both men. Newton, it must be said, was very protective of his achievements and jealous of others' success. It is important to mention that Leibniz published his writings on calculus three years before Newton published his most important work.

Leibniz was the first to use function to represent geometric concepts. Among other terms. Leibniz used what is now everyday language in mathematics to describe these concepts. Words such as tangent and chord, were first used by Leibniz. He also saw that linear equations in algebra could be arranged into matrices. It was in this significant piece of work on calculus that he introduced mathematics and the world to the word coordinate. He also made important advances in algebra and logic in ways that still today, three hundred years later, have an impact on mathematics.

Leibniz importance for modern mathematics can be understood through his work, he was especially interested in infinitesimal calculus. This is an area of calculus developed from geometry and algebra. It is divided into two parts. There is differential calculus, which is concerned with measuring rates of change of quantities. And there is integral calculus, which studies the accumulation of quantities. That is, Leibniz was looking at ways of measuring the speed and the distance travelled, for example. Today, calculations of this type are used not only in mathematics but in every branch of science and in many fields which apply a scientific methodology, such as economics and statistics.

Despite the disagreements between Leibniz and Newton, modern mathematicians recognise each of them as being vital to the development of modern mathematics. Newton was certainly the first to apply calculus to the problems of physics. In mathematics itself, it is to Leibniz that we look for our system of writing equations and for the language we use to refer to the concepts. While both reached their understanding without the benefit of reading each other's work, it remains a fact that Leibniz was first to publish.

Read the text and answer the questions in your own words.

1. For what contribution to mathematics is Leibniz best remembered?
2. Who was Leibniz' main rival? About what did they disagree?
3. Which important geometrical terms did Leibniz invent?
4. What other areas of work also use Leibniz' calculus?
5. Who is considered more important for the development of modern mathematics?

Gottfried Leibniz

1. Считается, что Лейбниц является создателем математического анализа.
2. Он опубликовал свои работы по математическому анализу на три года ранее Ньютона.
3. Следует отметить, что Лейбниц был первым, кто использовал слова тангенс и хорда.
4. Лейбниц первым ввёл систему записи уравнений и современный математический язык.
5. Работы Лейбница в области анализа бесконечно малых представляют первостепенную важность.
6. Дифференциальное исчисление занимается измерением скорости изменения величин, тогда как интегральное исчисление изучает накопление величин.
7. Именно Готфрид Лейбниц внёс наибольший вклад в математический анализ и установил, что линейные уравнения могут быть преобразованы в матрицы.

Norbert Wiener

Complete the definitions below with words from the box.

cybernetics collaborative insight tend draw on elect via established imitate aspect

1. A feature or a side of something is a(n)
2. To ... means to copy.
3. The field of ... studies people and machines' practices and procedures to understand where they differ.
4. If work is ..., it is done by cooperating.
5. ... means by the use of.
6. If you have ... into something, you have special understanding.
7. To ... means to choose, perhaps for a position of responsibility.
8. If you ... something, you make use of a resource.
9. When you ... to do something, it is a habit you have.
10. If something is ..., it is made certain.

Norbert Wiener

Norbert Wiener, the famous applied mathematician, was born in 1894 in the USA and died in Stockholm, Sweden, in 1964. His father was a professor of Slavonic languages at Harvard. Norbert was a very intelligent child and his father was determined to make him a famous scholar. This is indeed what he became, being awarded a PhD by Harvard at the age of 18. He also studied Philosophy, Logic and Mathematics at Cambridge and Göttingen.

His first important position was that of Instructor of Mathematics at MIT (Massachusetts Institute of Technology) in 1919, followed by that of Assistant Professor in 1929 and of Professor in 1931. Two years later, in 1933, he was elected to the National Academy of Sciences (USA), from which he resigned in 1941. In 1940 he started to work on a research project at MIT on anti-aircraft devices, a project which played an important part in his development of the science of cybernetics.

The idea of cybernetics came to Wiener when he began to consider the ways in which machines and human minds work. This led to the development of the idea of cybernetics, which is the study of the ways humans and machines process information, in order to understand their differences. It often refers to machines that imitate human behaviour. The term was coined from the Greek *kubernetike* which means the art of the steersman (the skill of a captain when controlling the ship). This idea made it possible to turn early computers into machines that imitate human ways of thinking, particularly in terms of control (via negative feedback) and communication (via the transmission of information).

Norbert Wiener was also deeply attracted to mathematical physics. This interest originated in the collaborative work that he did with Max Born in 1926 on quantum mechanics. But Wiener's interests were not limited to logic, mathematics, cybernetics or mathematical physics alone, as he was also familiar with every aspect of philosophy. In fact, he was awarded his doctorate for a study on mathematical logic that was based on his studies in philosophy. In addition to that, in a very different field, he wrote two short stories and a novel. Wiener also published an autobiography in two parts: *Ex-Prodigy: My Childhood and Youth* and *I Am a Mathematician*.

Norbert Wiener was an amazing mathematician, who was gifted with philosophical insight. In an age when scientists tended, and still tend, to specialise in their own very specific fields, this man was interested and involved in many different disciplines. Due to this, he was able to draw on many resources in his varied research, thus making him an incredibly successful applied scientist. Wiener was one of the most original and significant contemporary scientists and his reputation was securely established in the new sciences such as cybernetics, theory of information and biophysics.

Read the text and choose the correct answer.

1. Norbert Wiener's father
 - a. was awarded a PhD.
 - b. taught intelligent children.
 - c. was a language instructor.
2. Norbert Wiener began to think seriously about cybernetics
 - a. when he was at MIT.
 - b. when he was a science instructor.
 - c. after he resigned.
3. An example of cybernetics in action would be
 - a. a television
 - b. a computer
 - c. a ship
4. Wiener wrote a book about
 - a. himself
 - b. childhood
 - c. philosophy
5. According to the text, most scientists
 - a. know a lot about many different subjects,
 - b. are familiar with applied science,
 - c. deal with certain fields only.

Norbert Wiener

1. Норберт Винер был очень одарённым учеником и в 18 лет получил учёную степень доктора наук за диссертацию по проблемам математической логики.

2. В 1940-х годах Винер работал над устройствами противовоздушной обороны в Массачусетском технологическом институте (США), проектом, который сыграл важную роль в развитии Винером кибернетики.

3. Кибернетика, как идея, появилась в момент размышлений Винера о том, как работают машины и мозг человека.

4. Кибернетика занимается изучением процессов передачи информации живыми организмами и машинами.

5. Норберт Винер работал главным образом в областях логики, математики, кибернетики, математической физики и философии.

6. Благодаря тому, что Винер был специалистом во многих дисциплинах, он мог использоваться, в своих разнообразных научных исследованиях множество средств, что делало его поразительно успешным прикладным учёным.

7. Замечательным достижением XX столетия явилось создание машины, которая имитирует способ мышления человека.

№6

REPORTS AND PRESENTATIONS

Scientific report writing requires the use of certain techniques and conventions that are detailed, strict and not always easy to master. The main purpose of a scientific report is to communicate. A typical structure and style have evolved to convey essential information and ideas as concisely and effectively as possible. The main aim of the report is to state your opinion on the issue or to provide precise information about a practical investigation.

Audience. Assume that your intended reader has a background similar to yours before you started the project. That is, a general understanding of the topic but no specific knowledge of the details. The reader should be able to reproduce whatever you did by following your report.

Clarity of Writing. Good scientific reports share many of the qualities found in other kinds of writing. To write is to think, so a paper that lays out ideas in a logical order will facilitate the same kind of thinking. Make each sentence follow from the previous one, building an argument piece by piece. Group related sentences into paragraphs, and group paragraphs into sections. Create a flow from beginning to end.

Style. It is customary for reports to be written in the third person or the 'scientific passive', for example, instead of writing 'I saw', one writes 'it was observed'; rather than, 'I think that ...' one writes 'it could be stated that ...' and so on. Avoid jargon, slang, or colloquial terms. Define acronyms and any abbreviations not used as standard measurement units. Most of the report describes what you did, and thus it should be in the past tense (e.g., "values were averaged"), but use present or future tense as appropriate (e.g., "x is bigger than y" or "that effect will happen"). Employ the active rather than passive voice to avoid boring writing and contorted phrases (e.g., "the software calculated average values" is better than "average values were calculated by the software").

Typical Sections. There are four major sections to a scientific report, sometimes known as IMRAD – Introduction, Methods, Results, And Discussion. Respectively, these sections structure your report to say "here's the problem, here's how I studied it, here's what I found, and here's what it means." There are additional minor sections that precede or follow the major sections including the title, abstract, acknowledgements, references, and appendices. All sections are important, but at different stages to different readers. When flipping through a journal, a reader might read the title first, and if interested further then the abstract, then conclusions, and then if he or she is truly fascinated perhaps the entire paper. You have to convince the reader that what you have done is interesting and important by communicating appeal and content in all sections.

Title of the report. Convey the essential point of the paper. Be precise, concise, and use key words. Avoid padding with phrases like "A study of ..." or headlines like "Global warming will fry Earth!" It is usual to write the title as one phrase or sentence. A good title is brief and informative. Titles should not exceed 10 or 12 words, and they should reveal the content of the study. Many titles take one of these two forms: a simple nominal sentence (Asymmetric Information, Stock Returns and

Monetary Policy) or beginning with The effect of (for example, The Effects of Financial Restrictions and Technological Diversity on Innovation). Sometimes it is impossible to make word-by-word translation from Russian into English, for example, Об оценке работы фирмы should be translated as Assessing the Firm Performance or К проблеме хеджевых фондов is translated as Hedge Funds. Sometimes the title contains two parts, the first one is the topic, while the second is its specific details (International Financial Contagion: Evidence from the Argentine Crisis of 2001- 2002). If the report is of a very problematic issue its title may be in the form of a question (Was There a Credit Crunch in Turkey?)

Introduction. This section should contain a brief history of the research problem with appropriate references to the relevant literature and the purpose of the study. Introduce the problem, moving from the broader issues to your specific problem, finishing the section with the precise aims of the paper (key questions). Craft this section carefully, setting up your argument in logical order. Refer to relevant ideas/theories and related research by other authors. Answer the question "what is the problem and why is it important?" The introduction should also explain whether the study is an extension of a previous one, or whether a completely new hypothesis is to be tested. The final section of the introduction generally includes a list of all the hypotheses being tested in the study. The results of the current study are not to be referred to in the introduction.

You may use the following expressions:

This paper	aims at deals with, considers describes examines presents reports on	Настоящий доклад имеет своей целью... В настоящем докладе рассматриваются... В настоящем докладе делается описание... В настоящем докладе исследуется ... В настоящем докладе представлен... В настоящем докладе сообщается о ...
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Examples of an Introduction

A. There has been a European Union foreign policy, confirmed in constitutional form in the Union Treaty, since 1993. The first decade, most commentators agree, has proved to be difficult: 'painful and problematic' according to one. As the twenty-first century progresses, replete with an array of new challenges, the need for a reassessment, and perhaps reinvigoration of Union 'foreign and security policy' is widely argued. The purpose of this article is to provide both a retrospective, of the evolution of the Union's foreign policy so far, and a prospective, of the challenges which it presently faces.

B. This paper examines companies incorporated under the Companies Act 1985. Its purpose is to consider the suitability of such companies for not-for-profit-organisations ('NFPOs').

Methods. Explain how you studied the problem, which should follow logically from the aims. Depending on the kind of data, this section may contain subsections on experimental details, materials used, data collection/sources, analytical or statistical techniques employed, study area, etc. Provide enough detail for the reader to reproduce what you did. Include flowcharts, maps or tables if they aid clarity or brevity. Answer the question "what steps did I follow?" but do not include results yet. Here you may use such expressions as:

A method of ...is proposed Data on... are discussed Present data encompass a period of ... The design of the experiments was to reveal...	Предлагается метод... Обсуждаются данные по ... Настоящие данные охватывают период в Эксперименты были направлены на выявление ... Обсуждается влияние ... на ... Описываются методы, используемые для ...
--	--

Results. Explain your actual findings, using subheadings to divide the section into logical parts, with the text addressing the study aims. Tables are an easy and neat way of summarizing the results. An alternative or additional way of presenting data is in the form of line graphs, bar-charts, pie-charts, etc. Graphs, charts and illustrations are referred to as 'figures' (for example, Fig. 1) in the text of the report. All figures should be numbered in order of appearance in the text. For each table or graph, describe and interpret what you see (you do the thinking -- do not leave this to the reader). Expressions to describe results obtained may be:

The most important results are as follows	Самые важные результаты имеют следующий вид...
The results indicate the dominant role of	Результаты указывают на доминирующую роль...
The results of ... are discussed	Обсуждаются результаты ...
The results of observations are supported by...	Результаты наблюдений дополняются

Discussion. This is the most difficult section of a report to write and requires considerable thought and care. Essentially it is a consideration of the results obtained in the study, guided by any statistical tests used, indicating whether the hypotheses tested are considered true or are to be rejected.

This is best thought of in three steps: the main results must be very briefly summarized; the procedure must be critically assessed and weaknesses noted; and a final evaluation of the results made in terms of the design, leading to a final judgment concerning the hypotheses being tested. The discussion can only refer to results, which are presented in the results section. Any detailed results which only appear in the appendixes cannot be discussed.

Evaluation of the results should include reference to other research with indications as to whether or not the current findings are in agreement with other findings (that is, reference is made to the introduction). The main conclusions reached should be summarized at the end of the discussion. Suggestions for follow-up research can also be given.

Discuss the importance of what you found, in light of the overall study aims. Stand back from the details and synthesize what has (and has not) been learned about the problem, and what it all means. Say what you actually found, not what you hoped to find. Begin with specific comments and expand to more general issues. Recommend any improvements for further study. Answer the question "what is the significance of the research?"

Important Note: this section is often combined with either the Results section or the Conclusions section. Decide whether understanding and clarity are improved if you include some discussion as you cover the results, or if discussion material is better as part of the broader summing up.

Conclusions. Restate the study aims or key questions and summarize your findings using clear, concise statements. Keep this section brief and to the point.

Acknowledgments. This is an optional section. Thank people who directly contributed to the paper, by providing data, assisting with some part of the analysis, proofreading, typing, etc. It is not a dedication; so don't thank Mom and Dad for bringing you into the world, or your roommate for making your coffee.

References. Within the text, cite references by author and year unless instructed otherwise, for example "Comrie (1999) stated that ..." or "several studies have found that x is greater than y (Comrie 1999; Smith 1999)." For two authors, list both names, and for three or more use the abbreviation "et al." (note the period) following the first name, for example "Comrie and Smith (1999)" or "Comrie et al. (1999)." Attribute every idea that is not your own to avoid plagiarism.

2.3 Подготовка доклада

Подготовьте доклад по одной из предложенных тем. Темы представлены в КОМ для данной дисциплины по соответствующему профилю подготовки магистров.

Правила предоставления информации в докладе

Размер	A4
Шрифт	Текстовый редактор Microsoft Word, шрифт Times New Roman 12
Поля	слева – 2 см., сверху и справа – 1,5 см., снизу – 1
Абзацный отступ	1,25 см устанавливается автоматически
Стиль	Примеры выделяются курсивом
Интервал	межстрочный интервал – 1
Объем	2 -3 страницы (до 10 минут устного выступления)
Шапка доклада	<i>Иванова Мария Ивановна</i> Екатеринбург, Россия ФГБОУ ВПО УГГУ, АТППм-19 НАЗВАНИЕ ДОКЛАДА
	Список использованной литературы

Краткое содержание статьи должно быть представлено на 7-10 слайдах, выполненных в PowerPoint.

2.4 Подготовка к тесту

Тест направлен на проверку сформированности лексических и грамматических навыков и речевых умений в рамках изученных тем при формировании иноязычной профессионально-ориентированной коммуникативной компетенции. Для успешного написания теста необходимо повторение лексических единиц, представленных на стр. 51-64.

2.5 Аннотирование и реферирование текстов по специальности

Read the text “Laser lidar” and study the summary to this text.

Laser-based lidar (light detection and ranging) has also proven to be an important tool for oceanographers. While satellite pictures of the ocean surface provide insight into overall ocean health and hyperspectral imaging provides more insight, lidar is able to penetrate beneath the surface and obtain more specific data, even in murky coastal waters. In addition, lidar is not limited to cloudless skies or daylight hours. “One of the difficulties of passive satellite-based systems is that there is watersurface reflectance, water-column influence, water chemistry, and also the influence of the bottom”, said Chuck Bostater, director of the remote sensing lab at Florida Tech University (Melbourne, FL). “In shallow waters we want to know the quality of the water and remotely sense the water column without having the signal contaminated by the water column or the bottom”. A typical lidar system comprises a laser transmitter, receiver telescope, photodetectors, and range-resolving detection electronics. In coastal lidar studies, a 532-nm laser is typically used because it is well absorbed by the constituents in the water and so penetrates deeper in turbid or dirty water (400 to 490 nm penetrates deepest in clear ocean water). The laser transmits a short pulse of light in a specific direction. The light interacts with molecules in the air, and the molecules send a small fraction of the light back to telescope, where it is measured by the photodetectors.

Abstract (Summary). The text focuses on the use of laser-based lidar in oceanography. The ability of lidar to penetrate into the ocean surface to obtain specific data in murky coastal waters is specially mentioned. Particular attention is given to the advantage of laser-based lidars over passive satellite-based systems in obtaining signals not being contaminated by the water column or the bottom. A typical lidar system is described with emphasis on the way it works. This information may be of interest to research teams engaged in studying shallow waters.

THE CENTRALITY OF MARKETING

1. Most management and marketing writers now distinguish between selling and marketing. The ‘selling concept’ assumes that resisting consumers have to be persuaded by vigorous hard-selling

techniques to buy non-essential goods or services. Products are sold rather than bought. The 'marketing concept', on the contrary, assumes that the producer's task is to find wants and fill them. In other words, you don't sell what you make, you make what will be bought. As well as satisfying existing needs, marketers can also anticipate and create new ones. The markets for the Walkman, video recorders, videogames consoles, CD players, personal computers, the internet, mobile phones, mountain bikes, snowboards and genetic engineering, to choose some recent examples, were largely created than identified.

2. Marketers are consequently looking for market opportunities- profitable possibilities of filling unsatisfied needs or creating new ones in areas in which the company is likely to enjoy a differential advantage due to its distinctive competencies (the things it does particularly well). Market opportunities are generally isolated by market segmentation. Once a target market has been identified a company has to decide what goods or services to offer. This means that much of the work of marketing has been done before the final product or service comes into existence. It also means that the marketing concept has to be understood throughout the company, e.g. in the production department of a manufacturing company as much as in the marketing department itself. The company must also take account of the existence of competitors who always have to be identified, monitored and defeated in the search for loyal customers.

3. Rather than risk launching a product or service solely on the basis of intuition or guesswork, most companies undertake market research or marketing research. They collect and analyze information about the size of a potential market, about consumers' reaction to particular product or service features, and so on. Sales representatives, who also talk to customers, are another important source of information.

4. Once the basic offer, e.g. a product concept, has been established, the company has to think about the marketing mix, i.e. all the various elements of a marketing program their integration, and the amount of effort that a company can expend on them in order to influence the target market. The best-known classification of these elements is the 'Four Ps': product, place, promotion and price. Aspects to be considered in marketing products include quality, features (standard and optional), style, brand name, size, packaging, services and guarantee. Place in marketing mix includes such factors as distribution channels, location of point of sale, transport, inventory size, etc. Promotion groups together advertising, publicity, sales promotion, and personal selling, while price includes the basic list price, discounts, the length of the payment period, possible credit terms, and so on. It is the job of a product manager or a brand manager to look for ways to increase sales by changing the marketing mix.

5. It must be remembered that quite apart from consumer markets (in which people buy products for direct consumption) there exists an enormous producer or industrial or business market, consisting of all the individuals and organizations that acquire goods or services that are used in the production of other goods, or in the supply of services to others. Few consumers realize that the producer market is actually larger than the consumer market, since it contains all the raw materials, manufactured parts and components that go into consumer goods, plus capital equipment such as buildings and machines, supplies such as energy and pens and papers, and services ranging from cleaning to management consulting, all of which have to be marketed. There is consequently more industrial than consumer marketing. There is consequently more industrial than consumer marketing, even though ordinary consumers are seldom exposed to it.

First summary

Marketing means that you don't have to worry about selling your product, because you know it satisfies a need. Companies have to identify market opportunities by market segmentation: doing market research, finding a target market, and producing the right product. Once a product concept has been established, marketers regularly have to change the marketing mix-the product's features, its distribution, the way it is promoted, and its price- in order to increase sales. Industrial goods-components and equipment for producers of other goods- have to be marketed as well as consumer goods.

Second summary

The marketing concept has now completely replaced the old-fashioned selling concept. Companies have to identify and satisfy the needs of particular market segments. A product's features are often changed, as are in price, the places in which it is sold, and the way in which it is promoted. More important than the marketing of consumer goods is the marketing of industrial or producer goods.

Third summary

The marketing concept is that a company's choice of what goods and services to offer should be based on the goal of satisfying consumers' needs. Many companies limit themselves to attempting to satisfy the needs of particular market segments. Their choice of action is often the result of market research. A product's features, the methods of distributing and promoting it, and its price, can all be changed during the course of its life, if necessary. Quite apart from the marketing of consumer products, with which everybody is familiar, there is a great deal of marketing of industrial goods.

Group work (expert group): Each group will read one of the texts about some systems of higher education and will make a summary of its specific features.

SYSTEMS OF HIGHER EDUCATION IN FRANCE AND GERMANY

Both France and Germany have systems of higher education that are basically administered by state agencies. Entrance requirements for students are also similar in both countries. In France an examination called the baccalauréat is given at the end of secondary education. Higher education in France is free and open to all students who have passed this examination. A passing mark admits students to a preparatory first year at a university, which finishes in another, more strict examination. Success in this examination allows students to attend universities for other three or four years until get the first university degree, called a licence in France.

Basic differences, however, distinguish these two countries' systems. French educational districts, called academies, are under the direction of a rector, who is appointed by the national government and is in charge of the university. The uniformity in curriculum in the country leaves each university with little to distinguish itself. That is why many students prefer to go to Paris, where there are better accommodations and more entertainment for students. Another difference is the existence in France of higher-educational institutions known as great school, which give advanced professional and technical training. Different great schools give a scrupulous training in all branches of applied science and technology. Their diplomas have higher value than the ordinary licence.

In Germany, a country made up of what were once strong principalities, the regional universities have autonomy in determining their curriculum under the direction of rectors. Students in Germany change universities according to their interests and the strengths of each university. In fact, it is a custom for students to attend two, three, or even four different universities in the course of their studies, and the professors at a particular university may teach in four or five others. This mobility means that schemes of study and examination are free and individual, what is not typical for France.

Each of these countries has influenced higher education in other nations. The French, either through colonial influence or through the work of missionaries, introduced many aspects of their system in North and West Africa, the Caribbean, and the Far East. In the 1870s Japan's growing university system was remodeled along French lines. France's great schools have been copied as models of technical schools. German influence has come in philosophical concepts regarding the role of universities. The Germans were the first to stress the importance of universities in the sphere of research. The doctoral degree, or Ph.D., invented in Germany, has gained popularity in systems around the world.

THE SYSTEM OF HIGHER EDUCATION IN GREAT BRITAIN

The autonomy of higher-educational institutions is important in Great Britain. Its universities enjoy almost complete autonomy from national or local government in their administration and the determination of their curricula. However the schools receive nearly all of their funding from the state. Entry requirements for British universities are rather difficult. A student must have a General Certificate of Education (corresponding to the French baccalauréat) by taking examinations in different

subjects. If they have greater number of “advanced level” passes, in contrast to General Certificate of Secondary Education (“ordinary level”) passes, then the student has better chances of entering the university of his choice. This selective admission to universities, and the close supervision of students by a tutorial system, makes it possible for most British students to complete a degree course in three years instead of the standard four years. Great Britain’s academic programs are more highly specialized than the same programs in other parts of Europe. Great Britain’s model of higher education has been copied to different degrees in Canada, Australia, India, South Africa, New Zealand, and other former British colonial territories in Africa, Southeast Asia, and the Pacific.

THE SYSTEM OF HIGHER EDUCATION IN THE UNITED STATES

The system of higher education in the United States differs from European in certain ways. In the United States, there is a national idea that students who have completed secondary school should have at least two years of university education. That is why there is a great number of “junior colleges” and “community colleges.” They give two years of undergraduate study. Traditional universities and colleges, where a majority of students complete four years of study for a degree. Universities that provide four-year study courses can be funded privately or can have state or city foundations that depend heavily on the government for financial support. Private universities and colleges depend on students payments. The state governments fund the nation’s highly developed system of universities, which give qualified higher education.

In the American system, the four-year, or “bachelor’s,” degree is ordinarily given to students after collecting of course “credits,” or hours of classroom study. The quality of work done in these courses is assessed by continuous record of marks and grades during a course. The completion of a certain number (and variety) of courses with passing grades leads to the “bachelor’s” degree. The first two years of a student’s studies are generally taken up with obligatory courses in a broad range of subjects, also some “elective” courses are selected by the student. In the third and fourth years of study, the student specializes in one or perhaps two subject fields. Postgraduate students can continue advanced studies or research in one of the many graduate schools, which are usually specialized institutions. At these schools students work to get a “master’s” degree (which involves one to two years of postgraduate study) or a doctoral degree (which involves two to four years of study and other requirements).

A distinctive feature of American education is the de-emphasis on lecture and examination. Students are evaluated by their performance in individual courses where discussion and written essays are important. The American model of higher learning was adopted wholesale by the Philippines and influenced the educational systems of Japan and Taiwan after World War II.

2.6 Подготовка к экзамену

Подготовка к экзамену включает в себя повторение всех изученных тем курса.

Билет на экзамен включает в себя тест и практико-ориентированное задание.

<i>Наименование оценочного средства</i>	<i>Характеристика оценочного средства</i>	<i>Методика применения оценочного средства</i>	<i>Наполнение оценочного средства в КОС</i>	<i>Составляющая компетенции, подлежащая оцениванию</i>
Экзамен:				
Тест	Система стандартизированных заданий, позволяющая автоматизировать процедуру измерения уровня знаний и умений обучающегося.	Тест состоит из 20 вопросов.	КОС - тестовые задания	Оценивание уровня знаний, умений, владений
Практико-ориентированное задание	Задание, в котором обучающемуся предлагают осмыслить реальную профессионально-ориентированную ситуацию	Количество заданий в билете – 1. Предлагаются задания по изученным темам в виде практических ситуаций.	КОС-Комплект заданий	Оценивание уровня знаний, умений и навыков

МИНОБРНАУКИ РОССИИ

ФГБОУ ВО «Уральский государственный горный университет»

УТВЕРЖДАЮ

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деловой коммуникации

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МЕТОДИЧЕСКИЕ УКАЗАНИЯ К ПРАКТИЧЕСКИМ ЗАНЯТИЯМ

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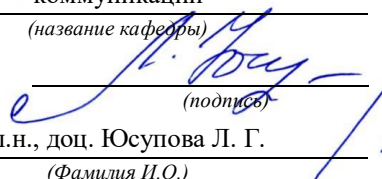
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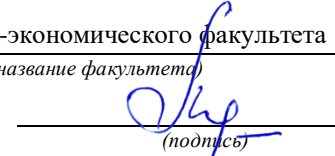
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Рассмотрена методической комиссией

Инженерно-экономического факультета

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Тема 1: Представление и знакомство

1.1 Запомните слова и выражения, необходимые для освоения темы курса:

1.	
<p>- Hi, Sarah! What's up? - I just got a new job! - Really? What's the job? - A brand-manager at Global Fashion. - That's great! Good luck with your new job!</p>	<p><i>/ Привет, Сара! Как дела? / Я только что нашла новую работу! / Правда? И что за работа? / Бренд-менеджер в компании «Глобал Фешн». / Здорово! Удачи с твоей новой работой!</i></p>
2.	
<p>- Hi, Nick! What's new? - Oh, I just got a promotion at work! They bumped me up to Sales Director. - Really? That's great news! Congratulations! - Thanks.</p>	<p><i>/ Привет, Ник! Что нового? / Я только что получил повышение по работе. Меня повысили до директора по продажам. / Правда? Это хорошие новости! Поздравляю! / Спасибо.</i></p>
3.	
<p>- Hi, Pam! How're you? - Good, thanks. - I've got news for you! Jack and I are getting married next month! - Oh, really! That's wonderful news! I'm glad for you!</p>	<p><i>/ Привет, Пэм! Как дела? / Спасибо, хорошо. / У меня для тебя новости! Мы с Джеком собираемся пожениться в следующем месяце! / Правда? Отличные новости! Я рада за вас.</i></p>
4.	
<p>- Hi! How are you doing? - I'm good! Yourself? - I'm also good, thanks. I hear you got a new job! - That's right! - So, how is it? Do you like it? - It's OK, but it pays less than my last job.</p>	<p><i>/ Привет! Как поживаешь? / Хорошо. Ты как? / Тоже хорошо, спасибо. Я слышал, ты нашел новую работу! / Это верно. / И как? Тебе нравится? / Нормально, но платят меньше, чем на предыдущей работе.</i></p>
5.	
<p>— Gosh, Kate! Is that you? It's been a long time! How've you been? — I'm fine. Yourself? — Good, thanks. It is so good to see you! You look great! You haven't changed a bit! — Neither have you. So, how's life? What's new? — Sorry, I'm in a bit of a rush right now. Mmm... How about we go out for a drink some night? What do you say? — Sounds good! Do you have my number? — No. — Here it is. 698 765 46 34. — Great! I'll call you tomorrow afternoon to make a time for this weekend.</p>	<p><i>/ Боже! Кейт! Ты ли это? Давно не виделись! Как ты? / Прекрасно! А ты? / Хорошо, спасибо. Отлично выглядишь. Ты совсем не изменилась / Ты тоже не изменилась. Как жизнь? Что нового? / Прости, но я сейчас немного спешу. Ммм.... Как насчет того, чтобы сходить куда-нибудь как-нибудь вечером? Что скажешь? / Отличная мысль! У тебя есть мой номер? / Нет. / Записывай. 698 765 4634. / Отлично! Я позвоню тебе завтра днем, и мы договоримся о времени на выходные.</i></p>
6.	
<p>— Hey, Paul! How are you? — I'm good. Yourself? I haven't seen you around lately. Where have you been? — Oh, I was out of town. I spent three</p>	<p><i>/ Привет, Пол! Как дела? / Хорошо. А у тебя? Тебя не видно в последнее время. Где ты был? / Меня не было в городе. Я провел три недели в</i></p>

weeks in Switzerland.	<i>Швейцарии.</i>
— Was it for business or travel?	<i>/ Это была деловая поездка или отпуск?</i>
— I was visiting my friends in Geneva.	<i>/ Я навещал друзей в Женеве.</i>

7.

— Jessica! Hello!	<i>/ Джессика! Привет!</i>
— Hi! How are you?	<i>/ Привет! Как дела ?</i>
— Good, thanks. You look great! It's been ages since I last saw you.	<i>/ Спасибо, хорошо. Ты выглядишь прекрасно! Сто лет тебя не видел.</i>
— Three years exactly.	<i>/ Три года, если точно.</i>
— Right. You haven't changed a bit! So, what's up? What's been happening in your life?	<i>/ Верно. Ты совсем не изменилась. Ну, как дела? Что происходит?</i>
— Not much has been going on. Same old.	<i>/ Ничего особенно и не произошло. Все по-старому.</i>

8.

— Hey, Peter!	<i>/ Привет, Питер!</i>
— Hey! What's up? You are so tan! Where have you been?	<i>/ Привет! Как дела? Ты такой загорелый! (А ты загорел!) Где это ты был?</i>
— I just got back from Australia.	<i>/ Я только вернулся из Австралии.</i>
— Australia?! Cool! What did you do there?	<i>/ Из Австралии? Круто! Что ты там делал?</i>
— It was another surf-trip. You know, I'm a huge fan of surfing.	<i>/ Это была еще одна поездка для занятий серфингом. Ты же знаешь, что я большой фанат серфинга.</i>
— How was it?	<i>/ Ну и как ?</i>
— Oh, it was fantastic! You know, it's never long enough.	<i>/ О, это было потрясающе! Знаешь, отдых всегда проходит быстро.</i>

9.

- Hi! What's your name?	<i>/ Привет! Как вас зовут ?</i>
- Carol. What's yours?	<i>/ Кэрол. А вас как зовут ?</i>
- Peter. Where are you from, Carol?	<i>/ Питер. Откуда вы, Кэрол?</i>
- I'm from the US. And you?	<i>/ Я из США. А вы?</i>
- I'm from Russia. Nice to meet you, Carol.	<i>/ Я из России. Приятно с вами познакомиться, Кэрол.</i>
- Nice to meet you.	<i>/ Взаимно.</i>

10.

- Hi! I'm George. And you are...?	<i>/ Привет! Меня зовут Джордж. А вы...?</i>
- I'm Gina.	<i>/ Я Джина.</i>
- How are you, Gina?	<i>/ Как ваши дела, Джина?</i>
- Good, thanks.	<i>/ Спасибо, хорошо.</i>
- Where are you from?	<i>/ Откуда вы?</i>
- I'm from Britain. How about you? Where are you from?	<i>/ Из Великобритании. А вы? Откуда вы?</i>
- And I'm from Israel. Nice to meet you, Gina.	<i>/ А я из Израиля. Приятно познакомиться, Джина.</i>
- Nice to meet you.	<i>/ Взаимно.</i>
- Is this your first time here?	<i>/ Вы здесь в первый раз?</i>
- No, it's my second time.	<i>/ Нет, второй.</i>
- Where are you staying here?	<i>/ Где вы остановились?</i>
- I'm staying at a hotel.	<i>/ В отеле.</i>

11.

- Hi! What's your name?	<i>/ Привет! Как тебя зовут ?</i>
- Jess. It's short for Jessica. And you are...?	<i>/ Джесс. Это сокращенное от Джессика. А тебя...?</i>

<p>- I'm Brant. How are you doing, Jess? - I'm fine! Yourself? - Good, thanks. Where are you staying? - I'm staying at a hotel. It's up there on the hill. Where are you staying? - My hotel is right here, across the road. - Where are you from? - I'm from Holland. How about you? Where are you from? - I'm from Australia. - Australia?! I thought you were French. I heard you speak French to your friend over there.</p> <p>- I am French, but I live in Australia.</p>	<p>/ Брант. Как поживаешь, Джесс? / Прекрасно! А ты? / Хорошо, спасибо. Где ты остановилась? / Я остановилась в отеле. Он там, на холме. А где ты остановился? / Мой отель здесь рядом, через дорогу. / Откуда ты? / Я из Голландии. А ты откуда? / Я из Австралии. / Австралия?! Я подумал, что ты француженка. Я слышал, как ты разговаривала по-французски со своей подружкой вон там. / Я и есть француженка, но живу в Австралии.</p>
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12.

<p>- Hi! How're you? - Good, thanks. What's your name? - Sveta. What's yours? - I'm Peter. Nice to meet you. - Nice to meet you. - Are you Russian? - Yes, I am. - Where are you from in Russia? - I'm from Nizhniy Novgorod. - I have some friends in Nizhniy Novgorod. - Oh, really? And where are you from? - I'm from Norway.</p>	<p>/ Привет! Как дела? / Хорошо, спасибо. Как вас зовут? / Света. А вас как? / Меня Питер. Приятно с вами познакомиться. / Взаимно. / Вы русская? / Да. / Где вы живете в России? / В Нижнем Новгороде. / У меня есть друзья в Нижнем Новгороде. / Правда? А вы откуда? / Из Норвегии.</p>
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13.

<p>- Hi! How're you? - Good, thanks. - What's your name? - Kate. - And I'm Paolo. Where are you from, Kate? - I'm from Moscow, Russia. - Really? I've been there once. - And where are you from? - I'm from Italy. - Oh, I love Italy. I've been there six or seven times.</p> <p>- That's great! - Where do you live in Italy? - I live in Venice. - Well, Venice is a beautiful place.</p>	<p>/ Привет! Как дела? / Спасибо, хорошо. / Как вас зовут? / Кейт. / А меня Паоло. Откуда вы, Кейт? / Из России, из Москвы. / Правда? Я был там однажды. / А вы откуда? / Я из Италии. / О, я обожаю Италию. Я была там 6 или 7 раз. / Это здорово! / Где вы живете в Италии? / Я живу в Венеции. / Венеция — это красивое место.</p>
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14.

<p>- Hi! What's your name? - Nick. What's yours? - Sandra. Nice to meet you. - Nice to meet you. Where are you from? - I'm from Germany. And you? / - I'm from the US. - Is this your first time in Moscow?</p>	<p>/ Привет! Как вас зовут? / Ник. А вас как? / Сандра. Приятно познакомиться. / Взаимно. Откуда вы? / Из Германии. А вы? / Я из США. / Вы в первый раз в Москве?</p>
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<ul style="list-style-type: none"> - No, I've been here a couple of times. - Are you here on business or vacation? - I'm here for work. How about you? - I'm here on vacation. - Do you like it here? - Yeah! I like it a lot! - Where are you staying here? - I'm staying with some friends of mine. How about you? - I'm staying at the Hayatt. It's the new hotel next to Red Square. - It must be very expensive. - It is very expensive. You can't find a cheap hotel in Moscow. 	<ul style="list-style-type: none"> / Нет, я был здесь пару раз. / Вы здесь по делам или на отдыхе ? / Я здесь по работе. Как насчет вас? (А вы?) / Я здесь на отдыхе. / Вам здесь нравится? / Очень нравится! / Где вы остановились? / Я остановилась у друзей. А вы ? / Я остановился в «Хаяте». Это новый отель рядом с Красной площадью. / Должно быть, он очень дорогой. / Он действительно очень дорогой. В Москве нет дешевых отелей.
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15.

<ul style="list-style-type: none"> - Hi! What's your name? - David. What's yours? - Fred. Nice to meet you. - Nice to meet you. Where are you from? - I'm from Canada. And you? - I'm from Sweden. - Is this your first time in Shanghai? - Yes, this is my first time. - Are you here on business or vacation? - I'm here for a business convention. How about you? Are you here on business or vacation? - Both. We've come here for the film festival. I'm also looking for some property to buy. - Are you here by yourself? - No, I'm here with my wife. She's gone shopping. - Where are you staying? / - We're staying at the Marriott. 	<ul style="list-style-type: none"> / Привет! Как вас зовут? / Дэвид. А вас? / Фред. Приятно познакомиться. / Взаимно. Откуда вы? / Я из Канады. А вы? / Я из Швеции. / Вы первый раз в Шанхае? / Да, первый. / Вы здесь по делам или на отдыхе? / Я приехал на бизнес-конференцию. А вы? Вы здесь по делам или на отдыхе? / И то и другое. Мы приехали на кинофестиваль, и еще я хочу купить недвижимость. / Вы здесь один? / Нет, с женой. Она отправилась по магазинам. / Где вы остановились? / Мы остановились в «Мариотте».
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16.

<ul style="list-style-type: none"> - Hello! I'm Liz. And you are....,? - I'm Henry. How are you doing, Liz? - Good, thanks. - Are you staying in this hotel? - Yes, I am. Are you staying here too? - No. Hotels are expensive here. I'm renting an apartment in the city center. - Oh, OK! Are you here by yourself? - No, I'm here with my family. How about you? - I'm here with a friend. - Is this your first time in Colombo? - Actually, yes. This is my first time. - Do you like it here? - Yeah! It's a nice place. It's too hot though. - How long will you be in Sri Lanka? - Until the end of next week. - Will you stay in Colombo the whole time? 	<ul style="list-style-type: none"> / Привет! Меня зовут Лиз. А вас? / Я Генри. Как ваши дела, Лиз? / Хорошо, спасибо. / Вы остановились в этом отеле? / Да. Вы тоже здесь остановились ? / Нет. Отели здесь дорогие. Я снимаю квартиру в центре города. / Ясно. Вы здесь один? / Нет, я здесь с семьей. А вы? / Я здесь с другом. / В первый раз в Коломбо? / В общем, да. В первый раз. / Вам здесь нравится? / Да! Хорошее место. Только слишком жарко. / Сколько вы пробудете в Шри-Ланке? / До конца следующей недели. / И все это время будете в Коломбо?
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<p>- No, we'll stay here two more days and then we'll go to the Hikkaduwa resort.</p> <p>- Oh, it's a long way from here.</p> <p>- Five hours by car. OK, it was nice chatting with you. I've got to get going now. /</p> <p>- OK. Have a good time!</p>	<p>/ Нет, мы пробудем здесь еще два дня, а потом поедem на курорт Хиккадува.</p> <p>/ О, это далеко отсюда.</p> <p>/ Пять часов на машине. Ладно, приятно было с вами поболтать. Мне пора идти.</p> <p>/ Ладно. Хорошо вам провести время!</p>
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17.

<p>- Hi! How are you?</p> <p>- Good, thanks.</p> <p>- I think I saw you yesterday at reception.</p> <p>- Yeah, I was trying to book tickets for a water-park. My kids want to go splash around.</p> <p>- Which one do you want to go to? There are three water parks in Dubai.</p> <p>- I hear Wild Wadi is pretty good.</p> <p>- Are you staying in this hotel?</p> <p>- Yes, we are.</p> <p>- In that case you should go to Ice-Land. It's closer, and then it's new. Wild Wadi is rather old.</p> <p>- OK, thank you. We'll go to Ice-Land then. Do we need to book tickets in advance?</p> <p>- No, you usually buy tickets there.</p> <p>- Do you live in Dubai?</p> <p>- No, I actually work here for my husband's company. Your English is very good. Where are you from? Are you Russian?</p> <p>- That's right. I'm from Saint Petersburg.</p> <p>- Really? I've been there once. Ten years ago. It's a beautiful city. You speak very good English for a Russian person. Where did you learn it?</p> <p>- I spent some time in the US. And now I'm working for an American company. OK. Thanks again for your recommendation.</p> <p>- You are welcome. Have a nice day!</p>	<p>/ Здравствуйте! Как ваши дела?</p> <p>/ Спасибо, хорошо.</p> <p>/ Мне кажется, я видела вас вчера на ресепшене.</p> <p>/ Да, я пытался заказать билеты в аквапарк. Мои дети хотят поплескаться в воде.</p> <p>/ В какой аквапарк вы хотите поехать? В Дубае три аквапарка.</p> <p>/ Я слышал, что «Вайлд Вади» — неплохой аквапарк.</p> <p>/ Вы проживаете в этом отеле?</p> <p>/ Да.</p> <p>/ В таком случае вам следует поехать в «Ай-сленд». Он ближе, и потом, он более новый. «Вайлд Вади» довольно старый.</p> <p>/ Хорошо, спасибо. Тогда мы поедem в «Айсленд». Нам надо бронировать билеты заранее?</p> <p>/ Нет, обычно вы покупаете билеты в аквапарке.</p> <p>/ Вы живете в Дубае?</p> <p>/ Нет, я здесь работаю в компании моего мужа. Вы хорошо говорите по-английски. Откуда вы? Вы русский?</p> <p>/ Верно. Я из Санкт-Петербурга.</p> <p>/ Правда? Я была там однажды. Десять лет назад. Это красивый город. Вы хорошо говорите по-английски для русского человека. Где вы его учили?</p> <p>/ Я жил какое-то время в США. А сейчас я работаю в американской компании.</p> <p>Спасибо еще раз за вашу рекомендацию.</p> <p>/ Пожалуйста. Хорошего дня.</p>
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1.2 Подготовьте устный рассказ по теме на основе предложенного:

Let me introduce myself. My name is ... Now I work as an economist in a joint-stock company. I graduated from the Ural State Mining University in 2017 and got a qualification of an economist-specialist of Finance and Credit.

I am interested in dealing in securities. I often read such journal as “Money and Credit”, “Money”, “Banks and Banking”.

In order to develop my scientific outlook I have decided to take a master's degree course at the Ural State Mining University. This year is quite difficult; I've had to combine my work and studies, to attend classes in different disciplines, to read a lot of material to get ready for final examinations. I

prefer dealing with applied sphere of science. I don't have any articles published yet, but I'm working at.

I have already started collecting and working up the material for my master's thesis. My research deals with the Russian security market and general principles of functioning of similar markets abroad. The subject of my investigation is different kinds of securities and stock exchanges where the given financial instruments circulate. My thesis consists of two chapters. The first chapter is devoted to the analysis of stock price fluctuations, indicators, indices and factors. In the second chapter I am going to develop some new rules and principles to receive legible formulations. The most interesting aspect, I think, is an attempt to formulate some laws of a revolution in the field of securities in the contemporary Russian economic environment. I hope my research will be of great importance and serve as guidance to forecast different situations at the Russian security market. I don't use any special equipment except my notebook. Of course, I'm not satisfied with the result obtained. I have a long way to go. I plan to submit my thesis in two years.

My scientific supervisor is Mr... He is professor, Doctor of Economics.

The English language plays an important role in my life and study. I think of improving my speaking skills, so I'll be able to talk to foreign specialists on my own, to take part in scientific conferences abroad. But now I am reading a lot of specialized and scientific books and journals in English searching the material for my thesis.

YOUR FIRST INTERVIEW

With unemployment so high, and often scores of applicants chasing every job, you have to count yourself lucky to be called for an interview. If it's your first, you're bound to be nervous. (In fact if you're not nervous maybe your attitude is wrong!) But don't let the jitters side-track you from the main issue - which is getting this job. The only way you can do that is by creating a good impression on the person who is interviewing you. Here's how:

DO: ♪ Find out as much as you can about the job beforehand. Ask the job centre or employment agency for as much information as possible; ♪ Jot down your qualifications and experience and think about how they relate to the job. Why should the employer employ you and not somebody else? ♪ Choose your interview clothing with care; no one is going to employ you if you look as though you've wandered out of a disco. Whether you like it or not, appearance counts. ♪ Make sure you know where the interview office is and how to get there. Be on time, or better, a few minutes early. ♪ Bring a pen; you will probably be asked to fill in an application form. Answer all the questions as best you can. And write neatly. The interviewer will be looking at the application during the interview; he or she must be able to read it. ♪ Have a light meal to eat, and go to the toilet. If you don't, you may well be thinking about your inside during the interview.

DON'T: ♪ Ever walk into the interview chewing gum, sucking on a sweet or smoking. ♪ Forget to bring with you any school certificates, samples of your work or letters of recommendation from your teachers or anyone else you might have worked part-time for. ♪ Have a drink beforehand to give you courage. ♪ The interview is designed to find out more about you and to see if you are suitable for the job. The interviewer will do this by asking you questions. The way you answer will show what kind of person you are and if your education, skills and experience match what they're looking for.

DO: ♪ Make a real effort to answer every question the interviewer asks. Be clear and concise. Never answer 'Yes' or 'No' or shrug. ♪ Admit it if you do not know something about the more technical aspects of the job. Stress that you are willing to learn. ♪ Show some enthusiasm when the job is explained to you. Concentrate on what the interviewer is saying, and if he or she asks if you have any questions, have at least one ready to show that you're interested and have done your homework. ♪ Sell yourself. This doesn't mean exaggerating (you'll just get caught out) or making your experience or interests seem unimportant (if you sell yourself short no one will employ you). ♪ Ask questions at the close of the interview. For instance, about the pay, hours, holidays, or if there is a training programme.

DON'T: ♪ Forget to shake hands with the interviewer. ♪ Smoke or sit down until you are invited to. ♪ Give the interviewer a hard time by giggling, yawning, rambling on unnecessarily or appearing cocky or argumentative. ♪ Ever stress poor aspects of yourself, like your problem of getting

up in the morning. Always show your best side: especially your keenness to work and your sense of responsibility.

After the interview:

Think about how you presented yourself: could you have done better? If so, and you do not get the job, you can be better prepared when you are next called for an interview. Good luck!

1.3 Систематизация грамматического материала:

Система времен английского глагола действительного залога

Present Simple употребляется для выражения:

1. постоянных состояний,
2. повторяющихся и повседневных действий (часто со следующими наречиями: always, never, usually и т.д.). Mr Gibson is a businessman. He lives in New York, (постоянное состояние) He usually starts work at 9 am. (повседневное действие) He often stays at the office until late in the evening, (повседневное действие)

3. непреложных истин и законов природы, The moon moves round the earth.

4. действий, происходящих по программе или по расписанию (движение поездов, автобусов и т.д.). The bus leaves in ten minutes.

Маркерами present simple являются: usually, always и т.п., every day / week / month / year и т.д., on Mondays / Tuesdays и т.д., in the morning / afternoon / evening, at night / the weekend и т.д.

Present Continuous употребляется для выражения:

1. действий, происходящих в момент речи He is reading a book right now.
2. временных действий, происходящих в настоящий период времени, но не обязательно в момент речи She is practising for a concert these days. (В данный момент она не играет. Она отдыхает.)

3. действий, происходящих слишком часто и по поводу которых мы хотим высказать раздражение или критику (обычно со словом "always") "You're always interrupting me!"(раздражение)

4. действия, заранее запланированных на будущее. He is flying to Milan in an hour. (Это запланировано.)

Маркерами present continuous являются: now, at the moment, these days, at present, always, tonight, still и т.д.

Во временах группы **Continuous** обычно **не употребляются** глаголы:

1. выражающие восприятия, ощущения (see, hear, feel, taste, smell), Например: This cake tastes delicious. (Но не: This cake is tasting delicious)

2. выражающие мыслительную деятельность [know, think, remember, forget, recognize(ze), believe, understand, notice, realise(ze), seem, sound и др.],
Например: I don't know his name.

3. выражающие эмоции, желания (love, prefer, like, hate, dislike, want и др.), Например: Shirley loves jazz music.

4. include, matter, need, belong, cost, mean, own, appear, have (когда выражает принадлежность) и т.д. Например: That jacket costs a tot of money. (Но не: That jacket is costing a lot of money.)

Present perfect употребляется для выражения:

1. действий, которые произошли в прошлом в неопределенное время. Конкретное время действия не важно, важен результат, Kim has bought a new mobile phone. (Когда она его купила? Мы это не уточняем, поскольку это не важно. Важного, что у нее есть новый мобильный телефон.)

2. действий, которые начались в прошлом и все еще продолжаются в настоящем, We has been a car salesman since /990. (Он стал продавцом автомобилей в 1990 году и до сих пор им является.)

3. действий, которые завершились совсем недавно и их результаты все еще ощущаются в настоящем. They have done their shopping. (Мы видим, что они только что сделали покупки, поскольку они выходят из супермаркета с полной тележкой.)

4. Present perfect simple употребляется также со словами "today", "this morning / afternoon" и т.д., когда обозначенное ими время в момент речи еще не истекло. He has made ten photos this morning. (Сейчас утро. Указанное время не истекло.)

К маркерам present perfect относятся: for, since, already, just, always, recently, ever, how long, yet, lately, never, so far, today, this morning/ afternoon / week / month / year и т.д.

Present perfect continuous употребляется для выражения:

1. действий, которые начались в прошлом и продолжаются в настоящее время He has been painting the house for three days. (Он начал красить дом три дня назад и красит его до сих пор.)

2. действий, которые завершились недавно и их результаты заметны (очевидны) сейчас. They're tired. They have been painting the garage door all morning. (Они только что закончили красить. Результат их действий очевиден. Краска на дверях еще не высохла, люди выглядят усталыми.)

Примечание.

1. С глаголами, не имеющими форм группы Continuous, вместо present perfect continuous употребляется present perfect simple. Например: I've known Sharon since we were at school together. (А не: I've been knowing Sharon since we were at school together.)

2. С глаголами live, feel и work можно употреблять как present perfect continuous, так и present perfect simple, при этом смысл предложения почти не изменяется. Например: He has been living/has lived here since 1994.

К маркерам present perfect continuous относятся: for. since. all morning/afternoon/week/day и т.д., how long (в вопросах).

Выполните упражнения для закрепления материала:

1. Underline the correct tense.

- 1 The plane leaves/has left at four o'clock. We must be at the airport by two o'clock.
- 2 It gets/is getting colder and colder every day.
- 3 Have you seen Linda? I have been looking/am looking for her for almost an hour.
- 4 Sam is a very interesting person. He knows/has known all kinds of unusual facts.
- 5 First, you are heating/heat the oven to a temperature of 180°C.
- 6 Have you heard the news? They have just elected/have been electing a new club chairman!
- 7 Martha is finding/has found a new job. She is starting text week.
- 8 The teacher has been correcting/has corrected essays for three hours.
- 9 Michael's car broke down last week, so he uses/is using his father's for the time being.
- 10 It rarely gets/is getting very hot in Britain.

2. Choose the correct answer.

- 1 'I met our new boss this morning.'
'I ...C... him, too. He's very nice.'
A am meeting
B have been meeting
C have met
- 2 '... in a hotel?'
'No, but my parents did last summer in Rome.'
A Have you ever stayed

- B Did you ever stay
C Are you ever staying
- 3 'Who is in that new film?'
'Well, a young actress ... the leading role.'
A has been playing
B plays
C has played
- 4 'Is David at home?'
'Yes, but he ... a shower at the moment.'
A is having
B has been having
C has
- 5 'Why are you so upset?'
'I ... my favourite ring.'
A lose
B have been losing
C have lost
- 6 'Have you found a house yet?'
'No. I ... with my aunt at the moment.'
A stay
B am staying
C have stayed

3 Put the adverbs of frequency in the correct position.

- 1 A: Do you wear sunglasses in the winter?
B: No, I do. (never)
No, I never do.
- 2 A: Do you like fishing, Alan?
B: Yes, I go fishing at weekends, (sometimes)
- 3 A: Do you go to the gym very often?
B: Yes, I go. (once a week)
- 4 A: How often do you visit your parents?
B: I visit them, (every weekend)
- 5 A: Do you eat in restaurants very often?
B: No, I do. (rarely)
- 6 A: Do you like oysters?
B: I don't know. I have eaten oysters, (never)
- 7 A: How often do you go on holiday?
B: I go on holiday, (once a year)
- 8 A: When do you read your post?
B: I read it on the way to work, (usually)
- 9 A: Shall I lock the door?
B: Of course. You should lock the door when you go out. (always)
- 10 A: You are breaking things! (always)
B: I'm sorry. I don't mean to.

4. Identify the tenses, then match them to the correct descriptions.

- 1 The plane to Sydney leaves at eleven o'clock.
2 I have written two letters this morning.
3 They're going on holiday on Saturday.
4 Graham has known Errol for five years.
5 You're always leaving the door open.
6 We are rehearsing a new play at the moment.
7 George has bought a new car.

- 8 Lisa has been cleaning the house all morning.
 9 Look! Alison has dyed her hair!
 10 More and more people are recycling their rubbish.
- actions which started in the past and continue up to the present
 - action which has recently finished and whose result is visible in the present
 - to put emphasis on the duration of an action which started in the past and continues up to the present
 - to express criticism or annoyance
 - timetables and programmes
 - actions that we have arranged to do in the near future
 - action which has happened within a specific time period which is not over at the moment of speaking
 - action which happened at an unstated time in the past
 - changing or developing situations
 - temporary actions

5. Put the verbs in brackets into the correct present form.

- 1 A: Tortoises ...live... (live) to be very old.
 B: I've heard of one which is over a hundred years old.
- 2 A: Are you still busy?
 B: Yes. I (read) this article for an hour and I still ... (not/finish).
- 3 A: More and more people ... (go) to university these days.
 B: Yes. I think it's a good thing.
- 4 A: I ... (have) a party tonight. Do you want to come?
 B: Yes. What time does it start?
- 5 A: Why are your shoes wet?
 B: I ... (wash) the car.
- 6 A: What's the matter?
 B: I ... (break) my ankle.
- 7 A: What do I need to do next?
 B: You (add) the sugar to the mixture and you ... (mix) it well.
- 8 A: Who ... (use) my car?
 B: I have.
- 9 A: Are you new here?
 B: No. Actually, I ... (live) here for almost ten years.
- 10 A: Pete is playing his music very loud.
 B: Again! He ... (always/do) that!
- 11 A: Have you made plans for Saturday yet?
 B: I ... (go) to the cinema with Jack.
- 12 A: Mr Collins is a very good teacher.
 B: Well, he ... (teach) Maths for twenty-five years, you know.
- 13 A: Are you going to the concert on Saturday night?
 B: Yes. Actually, I ... (already/buy) the tickets.
- 14 A: Hello, Simon.
 B: Oh! We ... (always/meet) each other in this supermarket.

6. a) Put the verbs in brackets into the correct tense.

Dear Kathleen,

- I 1) ...'m writing... (write) to tell you my news. My school 2) (choose) me to spend six weeks at a school in the USA. I'm very happy about it!
 At the moment, 13) (pack) things for my trip, because I 4) (leave) next week. My mother 5) (book) the ticket.

I 6) (wait) for this opportunity for ages, so I'm very excited. I 7) (finish) reading two books about the USA and 18) ... (borrow) another one from the school library. I 9) (become) more and more nervous every day!

Well, I must go now. I've got a lot of things to do. I'll write to you from the USA.

Love, Tracy

b) Which of the present forms in the text above are used to express:

- 1 actions which happened at an unstated time in the past
- 2 actions which started in the past and continue up to the present with emphasis on duration
- 3 actions happening at or around the moment of speaking
- 4 changing and developing situations
- 5 actions that we have arranged to do in the near future

STATE VERBS

State Verbs are verbs which describe a state rather than an action and therefore do not normally have continuous tenses. These include:

a) verbs which express likes and dislikes: like, love, dislike, hate, enjoy, prefer, adore, etc.
e.g. I love chocolate ice cream.

b) verbs of the senses: see, hear, smell, taste, feel, look, sound. We often use can or could with these verbs when we refer to what we see, hear, etc. at the moment of speaking, *e.g. Jim must be at home. I can see his car parked outside.*

c) verbs of perception: know, believe, understand, realise, remember, forget, notice, recognise, think, seem, see (=understand), expect (=think), etc.
e.g. I expect they will be late.

d) some other verbs such as be, contain, include, belong, fit, need, matter, cost, mean, own, want, owe, have (=possess), require, weigh, wish, keep (=continue), etc. *e.g. My uncle owns a hotel.*

Some of the above verbs are used in continuous tenses when they describe actions and not states. Study the following examples:

- 1 I think he's lying. (= believe)
I'm thinking about the plan. (= am considering)
- 2 The food tastes delicious. (= has a delicious flavour)
He is tasting the food. (= is testing the flavour of)
- 3 I can see some people. (= perceive with my eyes)
I see what you mean. (= understand)
I'm seeing my doctor tomorrow. (= am meeting)
- 4 It looks as if they've finished the job. (= appears)
Mike is looking out of the window, (is directing his eyes.)
- 5 This perfume smells nice. (= has a nice smell)
He is smelling the milk. (= is sniffing)
- 6 The baby's hair feels like silk. (= has the texture of)
She is feeling the baby's forehead. (= is touching)
- 7 Bob has a Porsche. (= possesses)
He's having a shower at the moment. (= is taking a shower)
- 8 The chicken weighs 2 kilos. (= has a weight of)
The butcher is weighing the meat. (= is measuring how heavy it is)
- 9 This dress fits you perfectly. (= it is the right size)
We are fitting new locks. (= are putting in)
- 10 He appears to be nervous. (= seems)
He is appearing in a new play. (= is taking part)
- 11 He is a rude person. (= character - permanent state)
He is being rude. (= behaviour - temporary situation, usually with adjectives such as careful, silly, (im)polite, lazy, etc.)

Note: a) The verb enjoy can be used in continuous tenses to express specific preference. *e.g. I'm enjoying this party a lot. (specific preference)*

BUT: I enjoy going to parties. (I enjoy parties in general.)

b) The verbs look (when we refer to a person's appearance), feel (= experience a particular emotion), hurt and ache can be used in either the continuous or simple tenses with no difference in meaning. e.g. You look/are looking great today.

7. Put the verbs in brackets into the present simple or the present continuous.

- 1 A: Why ...*are you smelling*... (you/smell) the soap?
B: It ... (smell) lovely. It's like roses!
- 2 A: Why ... (you/taste) the soup?
B: To see if it ... (taste) good. I think it needs more salt.
- 3 A: I ... (feel) very tired.
B: You should go to bed early.
- 4 A: I ... (see) Andy this evening.
B: I ... (see). So, you don't want to come to the cinema with me, do you?
- 5 A: How much (the bag of apples/weigh)?
B: I don't know yet. The man ... (weigh) the bag now.
- 6 A: I ... (think) about buying a new car soon.
B: Why? I ... (think) your car is fine. You don't need a new one.
- 7 A: What ... (you/look) at?
B: The sky. It ... (look) as if it's going to rain.
- 8 A: I really ... (enjoy) home-made food.
B: So do I, and I ... (enjoy) every bit of this meal.
- 9 A: Why ... (you/feel) the radiator?
B: It ... (feel) cold in here. Is the heating on?
- 10 A: That famous opera singer ... (appear) at the opera house tonight.
B: Yes. He ... (appear) to be feeling better after his operation.
- 11 A: Chris ... (be) a sensible person, isn't he?
B: Yes, but in this case he ... (be) rather foolish.
- 12 A: My dad ... (fit) the old blind from the living room in my bedroom today.
B: Really? ... (it/fit) that window?
- 13 A: My back ... (hurt).
B: Why don't you lie down for a while?

8. Fill in the gaps with have / has been (to) or have / has gone (to).

- 1 A: Hello, Jim! Have you seen Mum?
B: Yes. She ...*has gone to*... the shops. She'll be back soon.
- 2 A: Where ... you ... today?
B: I ... the cinema.
- 3 A: Shall we go on a picnic this weekend?
B: Oh, yes! I ... not ... on a picnic for ages.
- 4 A: I'm going to India this year.
B: I ... never ... India.
A: Really? I ... there twice before.
- 5 A: Where are the children?
B: They ... the park to play football.
A: ... Dad ... with them?
B: Of course. Don't worry!

9. Underline the correct word in bold.

- 1 I always/**already** do the housework on Saturdays.
- 2 We haven't booked our summer holiday **just**/**yet**.
- 3 My brother has **just**/**ever** joined the football club.
- 4 Linda has **already**/**ever** bought a new dress for the party.

- 5 Have you **so far/ever** tasted Japanese food?
 6 Joe has been in Paris **since/for** two weeks.
 7 I have **never/just** seen this film before.
 8 The secretary has typed twenty letters **yet/so far** this morning.
 9 I have been working here **since/still** July.
 10 The Taylors have moved house **recently/so far**.
 11 They **still/already** haven't employed a new supervisor.

10. Put the verbs in brackets into the correct present form.

- 1 A: Linda ...*is learning*... (learn) to drive at the moment.
 B: I know. She told me last week.
 2 A: Has Alan got a job?
 B: Oh yes. He ... (be) the manager of a leisure centre.
 3 A: Do you want to have a break now?
 B: Not yet. I ... (write) a report for tomorrow's meeting.
 4 A: It's ten o'clock. Have you given the manager his letters?
 B: Yes, and I ... (also/type) six reports so far this morning.
 5 A: Is Jeff still in the garden?
 B: Yes. He ... (plant) flowers all afternoon.
 6 A: That author is very well-known, isn't she?
 B: Yes. She ... (write) twenty novels so far.
 7 A: You look very happy today.
 B: I am. I ... (just/hear) some good news.
 8 A: What time ... (the play/start) tonight?
 B: Seven o'clock, I think.
 9 A: Are you new to this company?
 B: Not really. In fact, I ... (work) here for almost two years.
 10 A: Are you ready for the concert?
 B: Yes. I ... (practise) for weeks.
 11 A: Do you do any exercise at all?
 B: Yes. Actually, I ... (go) swimming three times a week.

Past simple употребляется для выражения:

1. действий, произошедших в прошлом в определенное указанное время, то есть нам известно, когда эти действия произошли, They graduated four years ago. (Когда они закончили университет? Четыре года назад. Мы знаем время.)

2. повторяющихся в прошлом действий, которые более не происходят. В этом случае могут использоваться наречия частоты (always, often, usually и т.д.), He often played football with his dad when he was five. (Но теперь он уже не играет в футбол со своим отцом.) Then they ate with their friends.

3. действий, следовавших непосредственно одно за другим в прошлом.
 They cooked the meal first.

4. Past simple употребляется также, когда речь идет о людях, которых уже нет в живых.
 Princess Diana visited a lot of schools.

Маркерами past simple являются: yesterday, last night / week / month / year I Monday и т.д., two days I weeks I months I years ago, then, when, in 1992 и т.д.

People used to dress differently in the past. Women used to wear long dresses. Did they use to carry parasols with them? Yes, they did. They didn't use to go out alone at night.

• **Used to** (+ основная форма глагола) употребляется для выражения привычных, повторяющихся в прошлом действий, которые сейчас уже не происходят. Эта конструкция не изменяется по лицам и числам. Например: Peter used to eat a lot of sweets. (= Peter doesn't eat

many sweets any more.) Вопросы и отрицания строятся с помощью did / did not (didn't), подлежащего и глагола "use" без -d.

Например: Did Peter use to eat many sweets? Mary didn't use to stay out late.

Вместо "used to" можно употреблять past simple, при этом смысл высказывания не изменяется. Например: She used to live in the countryside. = She lived in the countryside.

Отрицательные и вопросительные формы употребляются редко.

Past continuous употребляется для выражения:

1. временного действия, продолжавшегося в прошлом в момент, о котором мы говорим. Мы не знаем, когда началось и когда закончилось это действие, At three o'clock yesterday afternoon Mike and his son were washing the dog. (Мы не знаем, когда они начали и когда закончили мыть собаку.)

2. временного действия, продолжавшегося в прошлом (longer action) в момент, когда произошло другое действие (shorter action). Для выражения второго действия (shorter action) мы употребляем past simple, He was reading a newspaper when his wife came, (was reading = longer action: came = shorter action)

3. двух и более временных действий, одновременно продолжавшихся в прошлом. The people were watching while the cowboy was riding the bull.

4. Past continuous употребляется также для описания обстановки, на фоне которой происходили события рассказа (повествования). The sun was shining and the birds were singing. Tom was driving his old truck through the forest.

Маркерами past continuous являются: while, when, as, all day / night / morning и т.д.

when/while/as + past continuous (longer action) when + past simple (shorter action)

Past perfect употребляется:

1. для того, чтобы показать, что одно действие произошло раньше другого в прошлом. При этом то действие, которое произошло раньше, выражается past perfect simple, а случившееся позже - past simple,

They had done their homework before they went out to play yesterday afternoon. (=They did their homework first and then they went out to play.)

2. для выражения действий, которые произошли до указанного момента в прошлом, She had watered all the flowers by five o'clock in the afternoon. (=She had finished watering the flowers before five o'clock.)

3. как эквивалент present perfect simple в прошлом. То есть, past perfect simple употребляется для выражения действия, которое началось и закончилось в прошлом, а present perfect simple - для действия, которое началось в прошлом и продолжается (или только что закончилось) в настоящем. Например: Jill wasn't at home. She had gone out. (Тогда ее не было дома.) Jill isn't at home. She has gone out. (Сейчас ее нет дома.)

К маркерам past perfect simple относятся: before, after, already, just, till/until, when, by, by the time и т.д.

Выполните упражнения для закрепления материала:

1. Brian and Ruth went on a day trip yesterday. Look at the notes below and say what they did, using the linking words from the list.

first, then, next, after that, later, finally

S1: First, they travelled to Brighton by train.

9:15 - 10:30 - travel to Brighton by train

10:30 - 11:30 - look around shops

11:30 - 12:30 - walk on beach

14:30 - 2:00 - eat lunch at seaside restaurant

2:00 - 4:30 - visit funfair

4:30 - 5:30 - have afternoon tea

2. Now, in pairs, ask and answer questions about what Brian and Ruth were doing at the times in the list below, as in the example.

SA: What were Brian and Ruth doing at half past nine in the morning?

SB: They were travelling to Brighton by train.

9:30 am

11:00 am

11:45 am

1:15 pm

2:30 pm

5:00 pm

3. Put the verbs in brackets into the past simple or the past continuous.

A) The sun 1) ...*was shining*... (shine) and the birds 2) ... (sing) as Mike 3) ... (drive) down the country lane. He 4) ... (smile), because he 5) ... (look forward) to the journey ahead. Mike 6) ... (enjoy) driving, especially when he 7) ... (go) somewhere new. Then, suddenly, the engine 8) ... (begin) to make a strange noise and the car 9) ... (stop) dead in the middle of the road. Mike 10) ... (try) to start it, but nothing 11) ... (happen). He 12) ... (sigh), then 13) ... (get out) of the car. As he 14) ... (push) the car to the side of the road, Mike 15) ... (start) to wish he had stayed at home.

B) John 1) ... (enter) his flat and 2) ... (close) the door. He 3) ... (hang up) his coat when he 4) ... (hear) a strange noise. A tap 5) ... (run) in the kitchen. He 6) ... (walk) into the kitchen and 7) ... (turn) it off. Then, he 8) ... (freeze). Someone 9) ... (stand) behind him. He 10) ... (take) a deep breath and 11) ... (turn) around. His flatmate, Steve, 12) ... (lean) in the doorway. 'You 13) ... (give) me a fright!' John exclaimed. Steve 14) ... (laugh) at him. John 15) ... (start) to laugh, too. 'I 16) ... (think) you had gone to London today,' he said. 'No,' 17) ... (reply) Steve. 'Unfortunately, I 18) ... (miss) the train.'

4. Choose the correct answer.

1 'Were you expecting James and Paul to stay for dinner?'

'No, but I ...A... a lot of food, so it didn't matter.'

A had prepared

B was preparing

C had been preparing

2 Tony has been singing for years, hasn't he?'

'Yes. He his first record when he was sixteen.'

A made

B was making

C had made

3 There was a power cut last night.'

'I know. I some paperwork when the lights went out.'

A had been doing

B was doing

C had done

4 'Did you see Paul Simon in concert?'

'No. I was hoping to get tickets, but they '

A had sold out

B sold out

C were selling out

5 The restaurant was packed last night.'

'Yes. Luckily, I a table in advance.'

A was booking

B had booked

C had been booking

6 'Did you watch the film yesterday?'

- 'No. It by the time we got home.'
- A finished
B was finishing
C had finished
- 7 'Did you stay up late last night?'
- 'No. I all day, so I went to bed early.'
- A had been working
B worked
C was working
- 8 'Did you enjoy your holiday?'
- 'Yes. We most of our time on the beach.'
- A had spent
B were spending
C spent
- 9 'Kim looked tired this morning.'
- 'I know. She all night long.'
- A studied
B had studied
C had been studying
- 10 'So what happened?'
- 'We through the woods when we heard a gunshot.'
- A had walked
B walked
C were walking

5. Put the verbs in brackets into the past simple or the present perfect.

- A A: I 1) ... 've seen... (see) this film before.
B: Me too, but I love this actor. He 2) ... (play) a lot of good roles.
A: ' Tom Cruise? I 3) ... (meet) him, you know.
B: Really? When?
A: When I 4) ... (be) in Los Angeles on holiday.
- B A: Who is that man?
B: He's an artist. He 1) ... (paint) a lot of beautiful pictures.
A: I think Van Gogh 2) ... (paint) the most beautiful pictures ever. But his life 3) ... (be) miserable.
- C A: I 1) ... (Just/hear from) an old friend of mine.
B: Oh, really?
A: Yes. Jim 2) ... (write) to me. I 3) ... (get) the letter this morning.
B: That's nice. When 4) ... (you/first/meet) him? A: He 5) ... (live) next door to me for three years, but he 6) ... (move) away last June and I 7) ... (not/see) him since.

6. Put the verbs in brackets into the correct tense.

- 1 A: What ...were you doing... (you/do) at ten o'clock this morning?
B: I ... (read) some important documents in my office.
- 2 A: Why are you so disappointed?
B: Because I ... (hope) that I would pass the test, but I didn't.
- 3 A: Have you found your bag yet?
B: No, but I ... (report) it stolen to the police yesterday.
- 4 A: Did you enjoy the play last night?
B: No, even though I ... (read) good reviews of it before I bought the tickets.
- 5 A: Have you written your report yet?
B: I ... (Just/start) when you came in, actually.
- 6 A: Sorry I'm late.

- B: Where have you been? I ... (expect) you an hour ago.
- 7 A: We ... (go) to an antique market yesterday.
- B: ... (you/buy) anything?
- 8 A: Were you surprised that the factory closed down?
- B: Not really. In fact, I ... (know) it was going to happen.
- 9 A: Julia did well in the test, didn't she?
- B: Yes. She ... (study) very hard for it.

7. Put the verbs in brackets into the correct tense.

A) When Simon 1) ...arrived... (arrive) at the cinema, dozens of people 2) ... (queue) outside. They 3) ... (wait) to see the same film as Simon. Simon, however, 4) ... (buy) a ticket in advance, so he 5) ... (walk) straight to the front of the queue and 6) ... (enter) the cinema. He 7) ... (feel) relieved that he didn't have to queue. He 8) ... (reach) his seat just as the lights 9) ... (go down) for the start of the film.

B) Last weekend, Cathy 1) ... (hire) a car and 2) ... (drive) to the seaside. When she 3) ... (arrive) the wind 4) ... (blow) and the sky 5) ... (be) cloudy. She 6) ... (get out) of the car and 7) ... (take) a walk along the seafront. Then she 8) ... (decide) to go for fish and chips at a nearby restaurant that she 9) ... (see) earlier and liked the look of. By the time she 10) ... (leave) the restaurant, it 11) ... (already/grow) dark. As she 12) ... (walk) to her car it 13) ... (begin) to rain. However, Cathy 14) ... (not/mind) because she 15) ... (have) a wonderful day.

8. Identify the tenses, then match them to the correct descriptions.

- 1 People used to have/had very simple lives in those days.
- 2 She was talking on the phone when her boss came in.
- 3 Sam was in hospital because he had crashed his car.
- 4 They had been studying hard all morning, so they were tired.
- 5 I was cooking lunch while he was pouring the drinks.
- 6 We had been living in the house for a year before we decorated the kitchen.
- 7 Princess Diana did a lot of work for charity.
- 8 At two o'clock this afternoon they were having lunch at work.
- 9 First, she knocked on the door. Then, she went inside.
- 10 We had bought the tickets before we went to the theatre.

- a) to talk about actions of people who are no longer alive
- b) action which happened before another past action or before a stated time in the past
- c) actions which happened immediately one after the other in the past
- d) to put emphasis on the duration of an action which started and finished in the past before another past action
- e) action which was in progress at a stated time in the past
- f) two or more simultaneous actions
- g) action in progress when another action interrupted it
- h) action which lasted for some time in the past and whose result was visible in the past
- i) past habit or state which is now finished
- j) action which finished in the past and whose result was visible in the past

9. Underline the correct tense.

- 1 Lynne was singing/had sung as she was cleaning the windows.
- 2 Mr Todd was teaching/had been teaching for thirty years when he retired.
- 3 I phoned Jack because I wanted/had wanted to ask him a question.
- 4 They had walked/had been walking for hours when they stopped for a rest.
- 5 The shop had been selling/had sold the table by the time I got there.
- 6 Joe was happy. He was winning/had won first prize in the competition.
- 7 It was raining/had rained while they were playing the football match.

- 8 Rob **was opening/opened** the box and looked inside.
 9 Eve was delighted to hear that she **was getting/had got** the job.
 10 People **used to work/were working** very long hours in those days.
 11 I was running when I **slipped/was slipping** on the ice.
 12 They were already **buying/had already bought** the tickets when they went to the concert.
 13 Carol **had broken/was breaking** her arm, so she couldn't write for six weeks.
 14 We had **been staying/stayed** in a hotel by the sea last summer.
 15 Elvis Presley **sang/had sung** lots of hit songs.
 16 I **opened/was opening** the door and stepped outside.
 17 They **had stood/were standing** outside when the results were announced.
 18 Alexander Graham Bell **had invented/invented** the telephone.
 19 She broke the glass while she **had washed/was washing** it.

10. Choose the correct answer.

- 1 He went to bed ..B... he had brushed his teeth.
 A before
 B after
 C while
- 2 I was watching television ... the doorbell rang.
 A when
 B as soon as
 C while
- 3 She ... hadn't finished the washing-up when the guests arrived.
 A yet
 B just
 C still
- 4 We had been walking for hours ... we reached the campsite.
 A since
 B for
 C before
- 5 John was repairing the car ... Steve was tidying the garage.
 A while
 B before
 C after
- 6 We went to Spain on holiday
 A tomorrow
 B next year
 C last year
- 7 I fell asleep ... I closed my eyes.
 A just
 B as soon as
 C already
- 8 ... did Jane and Ted get married?
 A How long
 B How long ago
 C While
- 9 She hasn't seen Jim ... she left school.
 A for
 B just
 C since
- 10 He won't go home ... he has finished his work.
 A how long
 B until

- C yet
 11 I have lived in Kent ... ten years now.
 B for
 A since
 C before
 12 We haven't finished work
 A yet
 B until
 C just
 13 ... did Tina meet Steve?
 A How long
 B How long ago C While

11. Fill in the gaps with an appropriate past form.

One fine morning, a man 1) ...*was fishing*... (fish) in a river. The sun 2) ... (shine) and the man 3) ... (sit) on the river bank. Everything was very quiet and peaceful. The man 4) ... (wait) patiently for several hours when suddenly he 5) ... (feel) something pulling on the fishing line. He 6) ... (stand up) quickly and 7) ... (begin) to take in the line. He 8) ... (just/lift) the huge fish he had caught out of the water when there was a loud splash and it fell back into the river. At first, the man didn't know what 9) ... (happen). Then, he 10) ... (look) carefully at his fishing line. It 11) ... (snap). The poor man was so disappointed that he 12) ... (pack) away all his things and went home.

b) Which of the past forms in the text above are used to express:

1. emphasis on the duration of an action which started and finished in the past before another past action or a stated time in the past
2. action which happened at a definite time in the past-time stated, known or implied
3. actions which happened immediately one after the other in the past
4. to describe the atmosphere, the setting, etc. in the introduction to a story
5. action which happened before another past action

12. Complete the sentences using any appropriate past forms.

- 1 While Joanne ...*was washing*... her hair. Carl was cleaning the house.
- 2 I have no idea where I ... my wallet.
- 3 He ... his leg when he fell off his skateboard.
- 4 We ... in the classroom for ten minutes before the teacher arrived.
- 5 She ... to the theatre last night.
- 6 My tooth ... for a week before I went to the dentist's.
- 7 She cried when she ... her driving test.
- 8 What ... when the alarm went off?
- 9 They got into the car and ... away.
- 10 I could tell she ... the competition because she couldn't stop smiling.
- 11 We ... along the beach when we heard a cry for help.
- 12 Tom ... the piano for years before he became famous.

13. Put the verbs in brackets into the correct tense.

- A: Hello, Mark. You 1) ...*took*... (take) a long time to answer the door.
 B: Sorry. I 2) ... (not/hear) the bell. Come in, Tony.
 A: 3) What (you/plan) to do today?
 B: Well, I 4) ... (think) of going for a picnic in the country, but the weather is awful so I 5) ... (change) my mind.
 A: Oh dear. Well, yesterday Mary 6) ... (tell) me that she 7) ... (buy) two tickets to see the Rocking Stars, but she couldn't go to the concert. So 18) ... (buy) the tickets from her, because I 9) ... (think) you'd like to go.

B: Tony, that's brilliant! I 10) ... (mean) to buy tickets for that concert, but they 11) ... (sell out) by the time I 12) ... (go) to the booking office.

A: Well, it's lucky I 13) ... (see) Mary, then, isn't it?

14. Put the verbs in brackets into the correct tense.

1 A: Look at Steve! He is soaking wet.

B: I know. He ...*has been washing*... (wash) the car.

2 A: Why ... (you/make) so much food?

B: Well, I ... (expect) guests, but they phoned to say they couldn't come.

3 A: Julia performed well at the concert.

B: Yes. She ... (practise) for months beforehand.

4 A: (you/ever/go) to Spain?

B: Yes. I ... (go) last year.

5 A: I like your new coat.

B: Thank you. I ... (wear) my old coat for years, so I decided to buy a new one.

6 A: Do you know this town well?

B: Of course. I ... (live) here for six years.

Future simple употребляется:

1. для обозначения будущих действий, которые, возможно, произойдут, а возможно, и нет, *We'll visit Disney World one day.*

2. для предсказаний будущих событий (predictions), *Life will be better fifty years from now.*

3. для выражения угроз или предупреждений (threats / warnings), *Stop or I'll shoot.*

4. для выражения обещаний (promises) и решений, принятых в момент речи (on-the-spot decisions), *I'll help you with your homework.*

5. с глаголами hope, think, believe, expect и т.п., с выражениями I'm sure, I'm afraid и т.п., а также с наречиями probably, perhaps и т.п. / *think he will support me. He will probably go to work.*

К маркерам future simple относятся: tomorrow, the day after tomorrow, next week I month / year, tonight, soon, in a week / month year и т.д.

ПРИМЕЧАНИЕ

Future simple не употребляется после слов while, before, until, as soon as, after, if и when в придаточных предложениях условия и времени. В таких случаях используется present simple. Например: *I'll make a phone call while I wait for you. (A не:... while I will wait for you.) Please phone me when you finish work.*

В дополнительных придаточных предложениях после "when" и "if" возможно употребление future simple. Например: *I don't know when I if Helen will be back.*

He is going to throw the ball.

Be going to употребляется для:

1. выражения заранее принятых планов и намерений на будущее,

Например: *Bob is going to drive to Manchester tomorrow morning.*

2. предсказаний, когда уже есть доказательства того, что они сбудутся в близком будущем. Например: *Look at that tree. It is going to fall down.*

We use the future continuous:

a) for an action which will be in progress at a stated for an action which will be future time.

This time next week, we'll be cruising round the islands.

b) for an action which will definitely happen in the future as the result of a routine or arrangement. *Don't call Julie. I'll be seeing her later, so I'll pass the message on.*

c) when we ask politely about someone's plans for the near future (what we want to know is if our wishes fit in with their plans.) *Will you be using the photocopier for long?*

No. Why?

I need to make some photocopies.

We use the future perfect:

1. For an action which will be finished before a stated future time. *She will have delivered all the newspapers by 8 o'clock.*

2. The future perfect is used with the following time expressions: before, by, by then, by the time, until/till.

We use the **future perfect continuous**:

1. to emphasize the duration of an action up to a certain time in the future. *By the end of next month, she will have been teaching for twenty years.*

The future perfect continuous is used with: by... for.

Формы выражения будущего времени в придаточных предложениях условия и времени

В придаточных времени с союзами when (когда), after (после), before (перед тем как), as soon as (как только), until (до тех пор пока не), относящихся к будущему времени, а также в придаточных условия, вводимых союзами if (если) и unless (если не), будущее время заменяется формой настоящего времени, но на русский язык переводится будущим, например:

If you help me, I shall do this work on time. - Если ты поможешь мне, я сделаю эту работу вовремя.

As soon as I get free, I shall give you a call. - Как только я освобожусь, я вам позвоню.

We shall not sit to dinner until you come. - Мы не сядем обедать, пока ты не придешь.

Иногда в сложносочиненном предложении словами when и if вводится придаточное дополнительное, а не придаточное времени или условия. В этом случае использование настоящего времени в придаточном будет ошибкой. Чтобы определить, какую форму глагола необходимо использовать, достаточно поставить вопрос к придаточному предложению - «при каком условии?» и «когда?» к придаточным условия и времени и «что?» - к придаточному дополнительному.

We shall sit to dinner (Когда?) when he comes. - Мы сядем обедать, когда он придет.

We will go to the movies if he comes. - Мы пойдем в кино, если он придет.

I want to know (что?) when you will come. - Я хочу знать, когда ты придешь.

I want to know (что?) if you will come. - Я хочу знать, придешь ли ты.

Выполните упражнения для закрепления материала:

1. Put the verbs in brackets into the correct future tense.

- 1 A: Your house is very small.
B: I know. I ...'m going to move... (move) to a bigger house next year.
- 2 A: I have got a new job!
B: Wonderful! I ... (call) Mum and tell her the good news.
- 3 A: .How old is your daughter?
B: She ... (be) fourteen next week.
- 4 A: I must phone Julia.
B: Well, don't phone her now. She ... (sleep).
- 5 A: Have you been living here long?
B: Yes. By next month, I ... (live) here for ten years.
- 6 Are you having a party next weekend?
Yes. I hope I ... (finish) decorating the house by then.
- 7 What are your plans for tonight?
Well, I ... (meet) Steve at eight o'clock.
- 8 I must buy some bread.
You'd better hurry. The shops ... (close) in half an hour.
- 9 Shall I call you at ten o'clock tomorrow?

- No. I ... (leave) for work by then.
- 10 Are you coming to the disco on Friday night?
I can't. I ... (study) for my exam then.
- 11 Are you excited about going to California?
Yes! This time tomorrow I ... (fly) across the Atlantic.
- 12 It's seven o'clock.
Yes. John ... (leave) the office by now.
- 13 There's somebody at the door.
Oh. That ... (be) the postman.
- 14 I've left my jacket at home.
I ... (go) back and get it for you.
- 15 Have you booked a taxi to take you to the airport?
Yes. It ... (come) at eight o'clock in the morning.
- 16 Are you nervous about the interview?
Yes. This time tomorrow, I ... (talk) to the managing director.

2. Fill in the future simple, the present simple or the present perfect.

- A)** My car is being repaired and I don't know when it 1) ...*will be*... (be) ready. I doubt whether I 2) ... (be able to) collect it before the weekend. I wonder if John 3) ... (give) me a lift to the party on Saturday. I'll ask him when he 4) ... (come) home.
- B)** I was calling to ask if you'd like to go out after we 1) (finish) work tomorrow or if you 2) ... (want) to watch a video instead. Call me back as soon as you 3) ... (get) in. I'll wait until I 4) ... (hear) from you.
- C)** I will leave the hotel early in case there 1) ... (be) a lot of traffic. I don't know how long the journey 2) ... (take) or what time the plane 3) ... (land), but I 4) ... (call) you as soon as I 5) ... (arrive) at the airport. Then, I will wait until you 6) ... (come) to collect me.
- D)** Paula is drinking tea as she is waiting for Charles. She wonders if he 1) ... (be) late as usual. She will wait until the clock 2) ... (strike) five and then she will call him in case he 3) ... (forget).

3. Fill in the future simple or be going to.

- 1 A: Have you finished your essay yet?
B: No, but I'm sure I ... *'ll finish*... (finish) it on time.
- 2 A: I have decided what to wear for the party.
B: Really? What ... (you/wear), then?
- 3 A: Why do you need hot soapy water?
B: Because I ... (wash) the car.
- 4 A: Did you post those letters?
B: No, I forgot. I... (post) them this afternoon.
- 5 A: Did you book a table at the restaurant?
B: Yes, but I don't expect it ... (be) busy.
- 6 A: I'm hungry.
B: Me too. I ... (make) us something to eat.
- 7 A: What are you doing this weekend?
B: Oh, I ... (probably/visit) my grandparents.
- 8 A: Look at that dog!
B: Oh yes! It ... (swim) across the river.
- 9 A: Tony is nearly eighteen, isn't he?
B: Yes. He ... (work) for his father when he leaves school.
- 10 A: Are you going into town today?
B: Yes. I ... (give) you a lift if you like.
- 11 A: Your shirt is dirty.
B: Oh dear! I ... (change) into another one.

- 12 A: I hope we ... (not/arrive) late for the meeting.
B: Don't worry. There's plenty of time.
- 13 A: I'm really thirsty after all that hard work.
B: I ... (make) some tea.
- 14 A: Did you give Steve his present?
B: No. I ... (give) it to him tonight at dinner.
- 15 A: Watch out! You ... (bang) your head on the doorframe.
B: Oh! I didn't realise it was so low.

4. Underline the correct tense.

A) Next Saturday, Daisy 1) **is flying/flies** to Paris for a business meeting. Her secretary has already booked the flight. The plane 2) **will leave/leaves** at nine o'clock in the morning and one of her business clients 3) **will have met/will be meeting** her at the airport when the plane lands. She doesn't know how long the meeting will last, but she 4) **will have returned/will have been returning** home by Thursday evening.

B) Florence 1) **is going to become/will be becoming** a doctor when she finishes medical school. She thinks she 2) **will probably work/will have probably** worked in a hospital for most of her career. This time next month, she 3) **will have revised/will be revising** hard for her exams. By the time she gets her degree she 4) **will have been studying/will have studied** medicine for five years. Florence hopes she 5) **will have passed/will pass** all the exams with excellent grades.

WILL/WON'T - SHALL

We use:

◆ will you ...? to give an order or make a request. *e.g. Will you stop talking, please?* (= Please stop talking.)

◆ won't to express unwillingness or an emphatic refusal, even when the subject is not a person. *e.g. I've told him not to do that, but he won't listen.* (= He refuses to listen.) The washing machine won't work.

We use wouldn't to refer to the past. *e.g. I asked him to help me, but he wouldn't.* (= He was unwilling to help me.)

◆ Shall I/we ... ?

a) to make an offer. *e.g. Shall I do the washing-up for you?* (= Do you want me to do the washing-up for you?)

b) to make a suggestion. *e.g. Shall we go out for dinner tonight?* (= Why don't we go out for dinner tonight?)

c) to ask for suggestions or instructions. *e.g. 'Where shall I put the vase?' 'On the table.'* 'What shall we do tonight?' 'We could go out'

5. Replace the words in bold with will/won't or shall I/we, as in the example.

1 Can you buy me some milk, please?

...*Will you buy me some milk, please?...*

2 What **do you want me** to do with this shopping?

3 I've asked Jane to tidy her room, but she **refuses to** do it.

4 **Can you open** the door for me, please?

5 **Do you want me** to walk the dog for you?

6 **Why don't we** go to the theatre, tonight?

7 When **do you want me to** visit next?

8 **Please** be quiet!

9 Ann **is unwilling to** talk to me.

OTHER WAY OF EXPRESSING THE FUTURE

We can also express the future with:

◆ be to + infinitive (formal English). *e.g. The President is to visit Poland next Monday.*

- ◆ be about to + infinitive/be on the point of + -ing form (to refer to the near future). *e.g. Look! The bus is about to leave. The company is on the point of closing down.*
- ◆ be due to + infinitive (timetables). *e.g. Their flight is due to arrive at 6:15.*
- ◆ verbs such as decide, plan, intend, arrange, mean + to -infinitive (for plans or Intentions). *e.g. We intend to buy a bigger flat.*
- ◆ be sure to/be certain to/be bound to + infinitive (to express certainty about the future). *e.g. This plan is sure to/is bound to succeed.*

The future in the past

We use the following patterns to talk about things we intended to do or plans we had for the future.

- a) was going to/was to/was about to/ was due to + infinitive
e.g. Mr Simon was going to resign, but the manager offered him a better salary. (So he didn't resign.)
- b) was on the point of + -ing form
e.g. They were on the point of leaving the house when the phone rang. (So they didn't leave.)

6. Complete each sentence with two to five words, including the word in bold.

- 1 The Queen will open the new sports centre next week.
is The Queen ...*is to open*... the new sports centre next week.
- 2 We are planning to go to Spain next summer.
intend We ... Spain next summer.
- 3 The guests should have arrived at nine, but they were late.
due The guests ... at nine, but they were late.
- 4 Jane was thinking of looking for a new job, but she changed her mind.
going Jane ... a new job, but she changed her mind.
- 5 The manager will be angry when he hears the news.
bound The manager ... angry when he hears the news.
- 6 Hurry up! The bus is going to leave!
about Hurry up! The bus ... leave!
- 7 Helen will love this present.
sure Helen ... this present.

7. Identify the tenses, then match them to the correct descriptions.

- 1 I like these shoes. I'll buy them.
 - 2 They will have eaten lunch by two o'clock this afternoon.
 - 3 I'm going to open my own business in the future.
 - 4 This time tomorrow, I'll be taking my driving test.
 - 5 By the time Jack finishes the race, he will have been running for two hours.
 - 6 Everyone believes he will win the competition.
 - 7 I'll tell Paul about the party. I'll be seeing him at work anyway.
 - 8 Will you be speaking to Rob later? I've got a message for him.
 - 9 Look at them! They are going to catch the thieves.
 - 10 Since you're tired, I'll cook dinner tonight.
- a) for offers, promises, threats, etc
 - b) action which will definitely happen in the future as a result of a routine or arrangement
 - c) for plans, intentions or ambitions we have for the future
 - d) predictions about the future
 - e) asking politely about someone's plans for the near future
 - f) action which will be finished before a stated future time
 - g) to emphasise the duration of an action up to a certain time in the future
 - h) action which will be in progress at a stated future time
 - i) on-the-spot decision
 - j) predictions when there is evidence that something will happen in the near future

8. A Fill in the gaps with an appropriate tense form.

Next month, Maggie 1) ...*is going*... (go) to Australia to visit her sister, who she hasn't seen for fifteen years. The plane 2) ... (leave) early in the morning and 3) ... (stop off) at Singapore before flying on to Sydney. It 4) ... (be) a very long, tiring journey, but Maggie is very excited because this time next month, she 5) ... (begin) her adventure on the other side of the world. She 6) ... (stay) in Australia for one month. She has booked her flight, so she 7) ... (fly) back to Britain on 31st May. She hopes that she 8) ... (visit) lots of fascinating places and seen many interesting things by the time her holidays are over.

B Which of the tense forms in the text above are used to express:

- 1 timetables/programmes
- 2 actions which will have finished before a stated
- 3 plans or intentions
- 4 fixed arrangements in the near future time
- 5 predictions based on what we know

9. Put the verbs in brackets into the correct future form.

Dear Lionel,

I'm writing to tell you my exciting news. I have won a competition! I think my life 1) ...will change... (change) a lot now! I 2) ... (meet) the competition organisers next week to get my prize — a cheque for £50,000.

As soon as I 3) ... (have) the money, I 4) ... (buy) a new car, and I 5) ... (also/redecorate) my house. Hopefully, I 6) ... (finish) the whole house by the end of June. Then, on the fifth of July, I 7) ... (fly) to Tahiti for an exotic holiday in the sun. I 8) ... (return) by the end of July and then I 9) ... (throw) a big party for all my friends. I hope you 10) ... (come).

Well, it's almost lunchtime, so I 11) ... (say) goodbye for now. I promise I 12) ... (send) you a postcard from Tahiti.

Best wishes, Emily

10. Fill in the correct present or future forms.

If you 1) ...like... (like) watersports, you 2) ... (love) Aquaworld. As soon as you 3) ... (arrive) at this unique theme park, you 4) ... (be greeted) by visitor hosts who 5) ... (show) you to a luxury chalet. Once you 6) ... (be) in your swimsuit, you 7) ... (be able to) enjoy a wide variety of watersports, from swimming to water-skiing. You 8) ... (find) plenty to do and you 9) ... (have) the chance to try many exciting activities. Aquaworld 10) ... (open) at 9 am every day and 11) ... (close) at 8 pm. There 12) ... (be) special facilities for children and lifeguards 13) ... (supervise) all activities. Visit Aquaworld for an experience you 14) ... (never/forget)!

11. Choose the correct answer.

- 1 'I ...A... about buying a new car recently.'
'Really? What sort of car?'

- A have been thinking
B have thought
C thought

- 2 'I haven't seen Mark for weeks.'
'Well, I ... him this afternoon. Why don't you come along?'

- A have met
B am meeting
C meet

- 3 'We'd better take a taxi to the station.'
'Yes. The train ... in fifteen minutes.'

- A has left
B will have left
C leaves

- 4 'Where is the newspaper?'
'I threw it away. I thought you ... reading it.'
- A have finished
B finished
C had finished
- 5 'I feel very tired,'
'How can you be tired? You ... a thing all day.'
- A haven't been doing
B aren't doing
C haven't done
- 6 'Cathy doesn't study enough.'
'I know. I'm afraid she ... her exam.'
- A won't pass
B won't be passing
C won't have passed
- 7 'It's bad news about Janet crashing her new car, isn't it?'
'Yes. She ... for months to buy it.'
- A saved
B is saving
C had been saving
- 8 'There's someone here to see you.'
'Oh, that ... my sister. Send her in.'
- A will have been
B was
C will be
- 9 'Whose is this earring?'
'I don't know. I found it when I ... the house.'
- A was cleaning
B had cleaned
C am cleaning
- 10 'I ... to reach Jane on the phone all day.'
'Don't you know? She's gone on holiday.'
- A tried
B have been trying
C have tried
- 11 'I want to visit Katie.'
'Well, don't visit her before five o'clock. She'
- A is working
B will be working
C will have worked
- 12 'That ... like Dad's car.'
'It is. He must have finished work early.'
- A sounds
B had sounded
C has sounded
- 13 'Is that a new jumper?'
'No. I ... it from Laura yesterday.'
- A have borrowed
B had borrowed
C borrowed
- 14 ' ... to the library today?'
'Yes. Would you like me to return your books?'
- A Will you have gone

- B Will you have been going
 C Will you be going
- 15 'How is your grandfather?'
 'His condition ... day by day.'
- A improves
 B has improved
 C is improving
- 16 'When did you speak to Sue?'
 'I met her as I ... to work.'
- A had walked
 B was walking
 C am walking
- 17 'Shall we go shopping?'
 'I can't go until the babysitter ... '
- A arrives
 B will arrive
 C arrived
- 18 'I've invited Sam to my party.'
 'I doubt if he He's studying for an exam.'
- A comes
 B will come
 C is coming
- 19 'I'm sorry I'm late.'
 'I ... here for over an hour.'
- A have been waiting
 B have waited
 C was waiting
- 20 'I'm having trouble with the car.'
 'I'm sure John ... you fix it if you ask him.'
- A is going to help
 B helps
 C will help
- 21 'How long ... James?'
 'Since we were children.'
- A have you known
 B do you know
 C did you know
- 22 'You ... a good teacher one day.'
 'Do you really think so?'
- A were
 B will be
 C are being

Тема 2: Деловая переписка

2.1 Запомните слова и выражения, необходимые для освоения темы курса:

1. Обращение

Dear Sirs, Dear Sir or Madam

(если вам не известно имя адресата)

(если вам известно имя адресата; в том случае когда вы не знаете семейное положение женщины следует писать Ms, грубой ошибкой является использование фразы “Mrs or Miss”)
(В обращении к знакомому человеку)

Dear Mr, Mrs, Miss or Ms

Dear Frank,

2. Вступление, предыдущее общение.

Thank you for your e-mail of (date)...

Спасибо за ваше письмо от (числа)

Further to your last e-mail...

Отвечая на ваше письмо...

I apologise for not getting in contact with you before now...

Я прошу прощения, что до сих пор не написал вам...

Thank you for your letter of the 5th of March.

Спасибо за ваше письмо от 5 Марта

With reference to your letter of 23rd March

Относительно вашего письма от 23 Марта

With reference to your advertisement in «The Times»

Относительно вашей рекламы в Таймс

3. Указание причин написания письма

I am writing to enquire about

Я пишу вам, чтобы узнать...

I am writing to apologise for

Я пишу вам, чтобы извиниться за...

I am writing to confirm

Я пишу вам, что бы подтвердить...

I am writing in connection with

Я пишу вам в связи с ...

We would like to point out that...

Мы хотели бы обратить ваше внимание на ...

4. Просьба

Could you possibly...

Не могли бы вы...

I would be grateful if you could ...

Я был бы признателен вам, если бы вы ...

I would like to receive

Я бы хотел получить.....

Please could you send me...

Не могли бы вы выслать мне...

5. Соглашение с условиями.

I would be delighted to ...

Я был бы рад ...

I would be happy to

Я был бы счастлив...

I would be glad to

Я был бы рад...

6. Сообщение плохих новостей

Unfortunately ...

К сожалению...

I am afraid that ...

Боюсь, что...

I am sorry to inform you that

Мне тяжело сообщать вам, но ...

We regret to inform you that...

К сожалению, мы вынуждены сообщить вам о...

7. Приложение к письму дополнительных материалов

We are pleased to enclose ...

Мы с удовольствием вкладываем...

Attached you will find ...

В прикрепленном файле вы найдете...

We enclose ...

Мы прилагаем...

Please find attached (for e-mails)

Вы найдете прикрепленный файл...

8. Высказывание благодарности за проявленный интерес.

Thank you for your letter of

Спасибо за ваше письмо

Thank you for enquiring

Спасибо за проявленный интерес...

We would like to thank you for your letter of ...

Мы хотели бы поблагодарить вас за...

9. Переход к другой теме.

We would also like to inform you ...

Мы так же хотели бы сообщить вам о...

Regarding your question about ...

Относительно вашего вопроса о...

In answer to your question (enquiry) about ...
I also wonder if...

В ответ на ваш вопрос о...
Меня также интересует...

10. Дополнительные вопросы.

I am a little unsure about...
I do not fully understand what...
Could you possibly explain...

Я немного не уверен в ...
Я не до конца понял...
Не могли бы вы объяснить...

11. Передача информации

I'm writing to let you know that...
We are able to confirm to you...
I am delighted to tell you that...

Я пишу, чтобы сообщить о ...
Мы можем подтвердить ...
Мы с удовольствием сообщаем о ...
К сожалению, мы вынуждены сообщить вам
о...

We regret to inform you that...

12. Предложение своей помощи

Would you like me to...?
If you wish, I would be happy to...
Let me know whether you would like me to...

Могу ли я (сделать)...?
Если хотите, я с радостью...
Сообщите, если вам понадобится моя помощь.

13. Напоминание о намеченной встрече или ожидание ответа

I look forward to ...
hearing from you soon
meeting you next Tuesday
seeing you next Thursday

Я с нетерпением жду,
когда смогу снова услышать вас
встречи с вами в следующий Вторник
встречи с вами в Четверг

14. Подпись

Kind regards,
Yours faithfully,
Yours sincerely,

С уважением...
Искренне Ваш (если имя человека Вам не
известно)
(если имя Вам известно)

2.2 Подготовьте устный рассказ по теме на основе предложенного:

We can't imagine business without communication. Business is made through communication. It can be face-to-face conversation organized in the office or at the restaurant or business correspondence. It can be held with the help of regular mail or E-mail.

A business letter is the principal means used by a business firm to keep in touch with its customers. According to the purpose of the letter there may be different kinds, e.g. a letter of request, a memo (memorandum), a letter of advice, an invitation letter, a congratulation letter, a letter of thanks (gratitude), a letter of apology, an enquiry letter, a letter of guarantee, a letter of complaint, a letter of claim, an order letter, etc.

There are special rules to organize a business letter in a right way. The business letter consists of several parts.

First you should write your own name and address (in the right up corner), telephone numbers, and then write down the title, name and address of the recipient.

Always type the date, in the logical order of day, month, year (10th November 20...).

It is important to use the correct title of the person you are addressing to:

Dr. – means doctor (a person, who has Doctor's degree or PhD);

Professor – if you are addressing the professor;

Mr. / Sir – if you are addressing a male, but is not sure in his title;

Mrs. – if you are addressing a female (married);

Miss – if you are addressing a female (single);

Ms – if you are addressing a female (married or unmarried businesswoman);

Madam – addressing a female if you are not sure in her family status.

The salutation is the greeting with which every letter begins. Opening salutation is typed in the left-hand corner. There are several types of opening salutation:

Dear Sirs – to a company;

Dear Sir – to a man if you do not know his name;

Dear Madam – to a woman if you do not know her name;

Dear Sir or Madam – to a person if you know neither the name, nor sex;

Gentlemen – the most common salutation in the United States.

If your correspondent is known to you personally the warmer and more friendly greeting, *Dear Mr ...* is preferred.

The message forms the body of the letter and is the part that really matters. Some letters are very short and may consist of only one paragraph. Many others have three paragraphs: Introduction (why are you writing?), Details (facts, information, instructions), Action (what action will you take?).

Finishing the letter is a polite way of bringing a letter to a close and you should write one of the following phrases:

Yours sincerely; Truly yours, Yours faithfully sign the letter and put your (title), name and surname.

Business letters have to be written (typed) accurately in plain language.

Email and Fax Communication

E-mail writing has become a large part of modern communication, particularly in business. The world has become much smaller now that we have the ability to send and receive e-mail messages over great distances at an incredible speed. However e-mail was originally used as an informal means of communication. Therefore business e-mail letters are less formal in style than ordinary business letters.

E-mail is short for electronic mail. E-mail correspondence gets from one place to another in a matter of minutes. Connecting to the Internet provides you with e-mail services and an e-mail address which looks like this: *nickname@someplace.com* (@ means *at*, and *com* indicates the domain, in this case, a company). The Internet is a communication network that links computers all around the world via modems. Companies send documents from one place to another in minutes. E-mail is an up-to-date method of transmitting data, text files, and digital photos from one computer to another over the Internet. And now e-mails have become one of the most widely used forms of business and personal communication. E-mails are quick, so they are good for chatting, inviting people out, keeping in touch and doing business.

E-mails do not necessarily contain all the elements important for business letters. So e-mails are usually shorter and it takes less time to compile and send them. The e-mail language is much closer to spoken English than traditional business correspondence style.

Information about the sender and the receiver (addressee) appears at the top in a special frame – so the writer doesn't have to use traditional greetings. *Mr Black, Dear Peter, Peter* are all acceptable ways of starting an e-mail.

As e-mails are designed for speed, they usually avoid the formal expressions used in letters, and people often do not write in complete sentences using abbreviations. A message should be short to fit on one screen, whenever possible, thus keeping all important information visible at once. Be sure your message is easy to answer.

You can end your e-mail with:

Best wishes

All best wishes

Best regards

Regards

Yours

To people you know well, you can end with:

All the best

Best

People often sign e-mail with their first name.

There are a few important points to remember when composing e-mail, particularly when the e-mail's recipient is someone who does not know you.

- Include a meaningful subject line; this helps clarify what your message is about.
- Open your e-mail with a greeting like *Dear Dr. Jones, or Ms. Smith.*

- Use standard spelling and punctuation.
- Don't write unnecessarily long e-mails (4 or 5 paragraphs). Write clear, short paragraphs.
- In business e-mails, try not to use abbreviations such as PLS (please) and BTW (by the way).
- Finish with a closing decision, hope or apology.
- Include a Signature Block in every e-mail – your name, title, business address, telephone number, fax numbers, e-mail address and website address.

Be polite and give as many contact details as possible so that the reader can contact you in different ways.

Even in today's modern age of the Internet, it is still necessary to send and receive faxes. Most companies, large or small, have a fax machine. This allows them to send facsimiles of any document. A fax message is the message that is sent or received over a fax machine (phone lines are used) or online fax service. The word *fax* comes from the word *facsimile* standing for *perfect copy*.

The original document is scanned with a fax machine; the information is then transmitted as electrical signals through the telephone system. A fax message is often sent when particular official correspondence needs to be sent or received urgently and it is not possible to send the documents via email.

1.3 Систематизация грамматического материала:

Категория страдательного залога английского глагола. Образование форм. Passive Voice

образуется при помощи вспомогательного глагола *to be* в соответствующем времени, лице и числе и причастия прошедшего времени смысл. глагола – Participle II (III –я форма или *ed*-форма).

В страдательном залоге не употребляются:

1) Непереходные глаголы, т.к. при них нет объекта, который испытывал бы воздействие, то есть нет прямых дополнений которые могли бы стать подлежащими при глаголе в форме *Passive*.

Переходными в англ. языке называются глаголы, после которых в действительном залоге следует прямое дополнение; в русском языке это дополнение, отвечающее на вопросы винительного падежа – кого? что?: *to build* строить, *to see* видеть, *to take* брать, *to open* открывать и т.п.

Непереходными глаголами называются такие глаголы, которые не требуют после себя прямого дополнения: *to live* жить, *to come* приходиться, *to fly* летать, *to cry* плакать и др.

2) Глаголы-связки: *be* – быть, *become* – становиться/стать.

3) Модальные глаголы.

4) Некоторые переходные глаголы не могут использоваться в страдательном залоге. В большинстве случаев это глаголы состояния, такие как:

to fit годиться, быть впору *to have* иметь *to lack* не хватать, недоставать *to like* нравиться
to resemble напоминать, быть похожим *to suit* годиться, подходить и др.

При изменении глагола из действительного в страдательный залог меняется вся конструкция предложения:

- дополнение предложения в *Active* становится подлежащим предложения в *Passive*;
- подлежащее предложения в *Active* становится предложным дополнением, которое вводится предлогом *by* или вовсе опускается;
- сказуемое в форме *Active* становится сказуемым в форме *Passive*.

Особенности употребления форм *Passive*:

1. Форма *Future Continuous* не употребляется в *Passive*, вместо нее употребляется *Future Indefinite*:

At ten o'clock this morning Nick will be writing the letter. – At ten o'clock this morning the letter will be written by Nick.

2. В Passive нет форм Perfect Continuous, поэтому в тех случаях, когда нужно передать в Passive действие, начавшееся до какого-то момента и продолжающееся вплоть до этого момента, употребляются формы Perfect:

He has been writing the story for three months. The story has been written by him for three months.

3. Для краткости, во избежание сложных форм, формы Indefinite (Present, Past, Future) часто употребляются вместо форм Perfect и Continuous, как в повседневной речи так и в художественной литературе. Формы Perfect и Continuous чаще употребляются в научной литературе и технических инструкциях.

This letter has been written by Bill. (Present Perfect)

This letter is written by Bill. (Present Indefinite – более употребительно)

Apples are being sold in this shop. (Present Continuous)

Apples are sold in this shop. (Present Indefinite – более употребительно)

4. Если несколько однотипных действий относятся к одному подлежащему, то вспомогательные глаголы обычно употребляются только перед первым действием, например: The new course will be sold in shops and ordered by post.

Прямой пассив (The Direct Passive)

Это конструкция, в которой подлежащее предложения в Passive соответствует прямому дополнению предложения в Active. Прямой пассив образуется от большинства переходных глаголов.

I gave him a book. Я дал ему книгу. A book was given to him. Ему дали книгу. (или Книга была дана ему)

The thief stole my watch yesterday. Вор украл мои часы вчера.

My watch was stolen yesterday. Мои часы были украдены вчера.

В английском языке имеется ряд переходных глаголов, которые соответствуют непереходным глаголам в русском языке. В английском они могут употребляться в прямом пассиве, а в русском – нет. Это: to answer отвечать кому-л.

to believe верить кому-л. to enter входить (в) to follow следовать (за) to help помогать кому-л.

to influence влиять (на) to join присоединяться to need нуждаться to watch наблюдать (за)

Так как соответствующие русские глаголы, являясь непереходными, не могут употребляться в страдательном залоге, то они переводятся на русский язык глаголами в действительном залоге:

Winter is followed by spring.

А при отсутствии дополнения с предлогом by переводятся неопределенно-личными предложениями: Your help is needed.

Косвенный пассив (The Indirect Passive)

Это конструкция, в которой подлежащее предложения в Passive соответствует косвенному дополнению предложения в Active. Она возможна только с глаголами, которые могут иметь и прямое и косвенное дополнения в действительном залоге. Прямое дополнение обычно означает предмет (что?), а косвенное – лицо (кому?).

С такими глаголами в действительном залоге можно образовать две конструкции:

а) глагол + косвенное дополнение + прямое дополнение;

б) глагол + прямое дополнение + предлог + косвенное дополнение:

а) They sent Ann an invitation. - Они послали Анне приглашение.

б) They sent an invitation to Ann. - Они послали приглашение Анне.

В страдательном залоге с ними также можно образовать две конструкции – прямой и косвенный пассив, в зависимости от того, какое дополнение становится подлежащим предложения в Passive. К этим глаголам относятся: to bring приносить

to buy покупать to give давать to invite приглашать to leave оставлять

to lend одалживать to offer предлагать to order приказывать to pay платить
to promise обещать to sell продавать to send посылать to show показывать
to teach учить to tell сказать и др.

Например: Tom gave Mary a book. Том дал Мэри книгу.

Mary was given a book. Мэри дали книгу. (косвенный пассив – более употребителен)

A book was given to Mary. Книгу дали Мэри. (прямой пассив – менее употребителен)

Выбор между прямым или косвенным пассивом зависит от смыслового акцента, вкладываемого в последние, наиболее значимые, слова фразы:

John was offered a good job. (косвенный пассив) Джону предложили хорошую работу.

The job was offered to John. (прямой пассив) Работу предложили Джону.

Глагол to ask спрашивать образует только одну пассивную конструкцию – ту, в которой подлежащим является дополнение, обозначающее лицо (косвенный пассив):

He was asked a lot of questions. Ему задали много вопросов.

Косвенный пассив невозможен с некоторыми глаголами, требующими косвенного дополнения (кому?) с предлогом to. Такое косвенное дополнение не может быть подлежащим в Passive, поэтому в страдательном залоге возможна только одна конструкция – прямой пассив, то есть вариант: Что? объяснили, предложили, повторили...Кому? Это глаголы: to address адресовать

to describe описывать to dictate диктовать to explain объяснять to mention упоминать

to propose предлагать to repeat повторять to suggest предлагать to write писать и др.

Например: The teacher explained the rule to the pupils. – Учитель объяснил правило ученикам.
The rule was explained to the pupils. – Правило объяснили ученикам. (Not: The pupils was explained...)

Употребление Страдательного залога

В английском языке, как и в русском, страдательный залог употр. для того чтобы:

1. Обойтись без упоминания исполнителя действия (70% случаев употребления Passive)

в тех случаях когда:

а) Исполнитель неизвестен или его не хотят упоминать:

He was killed in the war. Он был убит на войне.

б) Исполнитель не важен, а интерес представляет лишь объект воздействия и сопутствующие обстоятельства:

The window was broken last night. Окно было разбито прошлой ночью.

в) Исполнитель действия не называется, поскольку он ясен из ситуации или контекста:

The boy was operated on the next day. Мальчика оперировали на следующий день.

г) Безличные пассивные конструкции постоянно используются в научной и учебной литературе, в различных руководствах: The contents of the container should be kept in a cool dry place. Содержимое упаковки следует хранить в сухом прохладном месте.

2. Для того, чтобы специально привлечь внимание к тому, кем или чем осуществлялось действие. В этом случае существительное (одушевленное или неодушевленное.) или местоимение (в объектном падеже) вводится предлогом by после сказуемого в Passive.

В английском языке, как и в русском, смысловой акцент приходится на последнюю часть фразы. He quickly dressed. Он быстро оделся.

Поэтому, если нужно подчеркнуть исполнителя действия, то о нем следует сказать в конце предложения. Из-за строгого порядка слов английского предложения это можно осуществить лишь прибегнув к страдательному залогоу. Сравните:

The flood broke the dam. (Active) Наводнение разрушило плотину. (Наводнение разрушило что? – плотину)

The dam was broken by the flood. (Passive) Плотина была разрушена наводнением. (Плотина разрушена чем? – наводнением)

Чаще всего используется, когда речь идет об авторстве:

The letter was written by my brother. Это письмо было написано моим братом.

И когда исполнитель действия является причиной последующего состояния:

The house was damaged by a storm. Дом был поврежден грозой.

Примечание: Если действие совершается с помощью какого-то предмета, то употребляется предлог with, например:

He was shot with a revolver. Он был убит из револьвера.

Перевод глаголов в форме Passive

В русском языке есть три способа выражения страдательного залога:

1. При помощи глагола "быть" и краткой формы страдательного причастия, причем в настоящем времени "быть" опускается:

I am invited to a party.

Я приглашён на вечеринку.

Иногда при переводе используется обратный порядок слов, когда русское предложение начинается со сказуемого: New technique has been developed. Была разработана новая методика.

2. Глагол в страдательном залоге переводится русским глаголом, оканчивающимся на –ся(-сь):

Bread is made from flour. Хлеб делается из муки.

Answers are given in the written form. Ответы даются в письменном виде.

3. Неопределенно-личным предложением (подлежащее в переводе отсутствует; сказуемое стоит в 3-м лице множественного числа действительного залога). Этот способ перевода возможен только при отсутствии дополнения с предлогом by (производитель действия не упомянут):

The book is much spoken about. Об этой книге много говорят.

I was told that you're ill. Мне сказали, что ты болен.

4. Если в предложении указан субъект действия, то его можно перевести личным предложением с глаголом в действительном залоге (дополнение с by при переводе становится подлежащим). Выбор того или иного способа перевода зависит от значения глагола и всего предложения в целом (от контекста):

They were invited by my friend. Их пригласил мой друг.(или Они были приглашены моим другом.)

Примечание 1: Иногда страдательный оборот можно перевести двумя или даже тремя способами, в зависимости от соответствующего русского глагола и контекста:

The experiments were made last year.

1) Опыты были проведены в прошлом году.

2) Опыты проводились в прошлом году.

3) Опыты проводили в прошлом году.

Примечание 2: При переводе нужно учитывать, что в английском языке, в отличие от русского, при изменении залога не происходит изменение падежа слова, стоящего перед глаголом (например в английском she и she, а переводим на русский - она и ей):

Примечание 3: Обороты, состоящие из местоимения it с глаголом в страдательном залоге переводятся неопределенно-личными оборотами:

It is said... Говорят...

It was said... Говорили...

It is known... Известно...

It was thought... Думали, полагали...

It is reported... Сообщают...

It was reported... Сообщали... и т.п.

В таких оборотах it играет роль формального подлежащего и не имеет самостоятельного значения: It was expected that he would return soon. Ожидали, что он скоро вернется.

Выполните упражнения для закрепления материала:

1. What happens in Luigi's restaurant before it opens for the evening? Look at the prompts and make sentences using the present simple passive, as in the example.

- 1 the carpets/vacuum
- ... *The carpets are vacuumed...*
- 2 the tables/wipe
- 3 the cutlery/polish
- 4 the places/set
- 5 the menu/check
- 6 the food/prepare
- 7 the ovens/heat
- 8 the flowers/arrange/in vases
- 9 the salt and pepper pots/fill
- 10 the candles/light

2. Put the verbs in brackets into the correct passive tense.

- 1 A: That's a lovely shirt. Is it new?
B: Yes. It ...*was bought*... (buy) for me by my grandmother.
- 2 A: When do you have to have this report ready?
B: Well, it ... (must/hand in) by Tuesday.
- 3 A: Did you read the newspaper this morning?
B: No. It ... (not/deliver) by the time I left for work.
- 4 A: Where is your car?
B: At the garage. It ... (repair).
- 5 A: Do you know your exam results yet?
B: No. They ... (not/announce) yet.
- 6 A: Are you going to make dinner tonight?
B: No. It ... (make) by Simon. He promised to do it.
- 7 A: Have you finished your homework yet?
B: No, but it ... (finish) by eight o'clock.
- 8 A: Who waters your plants for you when you're away?
B: They ... (water) by my neighbour.

3. Put the verbs in brackets into the correct passive tense.

The Academy Awards Presentation 1) ...*was first organised*... (first/organise) in 1929 and since then, it 2) ... (hold) every year. The presentation 3) ... (attend) by those at the top of the film industry and 4) ... (watch) on TV by millions of viewers who want to see who 5) ... (present) with the golden statue which 6) ... (desire) by everyone in the motion picture world.

The voting for the Academy Awards 7) ... (conduct) secretly and the results 8) ... (not/reveal) to anyone until the envelope 9) ... (open) on stage in front of the audience. Awards 10) ... (give) for the best individual or collective work and 11) ... (separate) into different categories. Up to five nominations 12) ... (make) in each category. The awards, which 13) ... (know) as Oscars, 14) ... (consider) to be the highest honour anyone in the film industry can 15) ... (give).

4. Rewrite the sentences in the passive, where possible.

- 1 Her mother drives her to school every day.
... *She is driven to school by her mother every day...*
- 2 Paul drives to work every day.
...*it cannot be changed...*
- 3 I woke up late on Sunday morning.
- 4 Her mother woke her up at seven o'clock.
- 5 Sue asked the waiter to bring some water.
- 6 David asked for some help.
- 7 Simon is moving house next month.
- 8 Michael moved the boxes out of the way.
- 9 Sandra walks on the beach regularly.

10 The boys walk the dog every day.

5. Fill in by or with.

- 1 She was woken up ...*by*... a loud noise.
- 2 The parcel was tied up ... string.
- 3 John was told off ... his mother.
- 4 This picture was painted ... a famous artist.
- 5 The chair was covered ... a woollen blanket.
- 6 The walls were decorated ... posters.
- 7 My car was repaired ... my father.
- 8 This dessert was made ... fresh cream.

6. Rewrite the sentences in the passive. Omit the agent where possible.

- 1 Do they sell clothes in this shop?
...Are clothes sold In this shop?...
- 2 Someone is cleaning the windows.
- 3 She tapped him on the hand with her pen.
- 4 I don't like people laughing at me.
- 5 People spend a lot of money on food.
- 6 Is Sue washing the car?
- 7 Who made this mess?
- 8 Grandfather is going to tell the children a story.
- 9 They will open the new sports centre soon.
- 10 They made him confess to the robbery.
- 11 Liz showed me some holiday pictures.
- 12 Sam remembers his friend telling him about the party.
- 13 They heard him calling for help.
- 14 Who broke this mug?
- 15 The jury will have reached a verdict by the morning.
- 16 The teacher will mark the essays.
- 17 People make jam from fruit.
- 18 They sent for the doctor.
- 19 Clive hasn't cut the grass yet.
- 20 They may not repair the car this week.

7. Complete the sentences, as in the example.

- 1 It is said that this orchestra is the best in the world.
This orchestra ...*is said to be the best in the world.*
- 2 It is believed that the thieves have left the country.
The thieves
- 3 The fire is reported to have started by accident.
It
- 4 He is known to be making a lot of money.
It
- 5 It is expected that they will arrive in time for dinner.
They
- 6 She is said to know a lot about gardening.
It
- 7 It is thought that he will be attending the meeting.
He
- 8 It is believed that we are able to win the competition.
We
- 9 The company is thought to be making a big profit.

- It
 10 It is reported that the government has reached a decision.
 The government
 11 It is said that they were responsible for the damage.
 They
 12 She is expected to break the world record.
 It
 13 He is known to have several foreign bank accounts.
 It
 14 They are reported to have financial problems.
 It

8. Underline the correct answer.

A large amount of valuable jewellery 1) **has stolen/has been stolen** from Forest Manor. A man 2) **arrested/was arrested** yesterday and 3) **is questioned/is being questioned** by the police at the moment. He 4) **thought/is thought** to 5) **have committed/have been committed** the crime, although so far no proof 6) **has found/has been found**. The robbery 7) **believed/is believed** to 8) **have carried out/have been carried out** by two men, but so far no clue 9) **has discovered/has been discovered** as to the second man's identity. The police say that he may 10) **have left/have been left** the country.

9. Rewrite the following passages in the passive.

A) Yesterday afternoon, the school held a sports day. John's teacher entered him for the 100m race because people thought John was the fastest runner in the school. John's teacher blew the whistle and the race started. Loud cheers filled the air as John's friends cheered him on. John overtook all the other runners and, as people had expected, John won the race. The headmaster gave him a trophy as a prize.

B) Do you think that people will ever use electric cars? Someone has already invented the electric car, but at the moment they are too expensive for most people to buy. Also, you have to recharge their batteries frequently. However, if people drove electric cars instead of the cars we use today, the air we breathe would be cleaner, as they would not pump exhaust fumes into the atmosphere.

C) Last week, the Prime Minister visited Dawston. The Mayor of the town greeted him when he arrived and gave him a tour. He introduced the Prime Minister to some important businessmen and took him to lunch in a local restaurant. In the afternoon, the Mayor held a meeting and the Prime Minister addressed the citizens of Dawston. He told them that he had enjoyed his visit very much.

10. Rewrite the sentences in the active.

- 1 Her excuse may not be believed by her parents.
 ...*Her parents may not believe her excuse....*
 2 The painting has been valued by an expert.
 3 He likes being given presents.
 4 The bill must be paid immediately.
 5 Hot water is provided by the hotel 24 hours a day.
 6 Our newspaper is delivered by a boy every morning.
 7 Her wedding dress will be made by a designer in Paris
 8 The meeting was attended by several important art critics,
 9 Preparations are being made by the event organizers.
 10 An interesting book has been published by the company.

11. Put the verbs in brackets into the correct passive or active tense.

Coffee 1) *...is said...* (say) to originate from Kaffa in Ethiopia and most species of coffee plant 2) ... (find) in the tropics of the Eastern Hemisphere. The species which 3) ... (think) to be the earliest

coffee plant 4) ... (ever/cultivate) by man is *Coffea arabica*. Today it 5) ... (grow) mostly in Latin America.

The coffee shrub 6) ... (reach) a height of 8-10 metres and 7) ... (have) white scented flowers. It 8) ... (produce) a red fruit which 9) ... (call) a cherry. The cherry 10) ... (contain) two seeds which 11) (join) together. These seeds, which 12) ... (also/know) as beans, 13) ... (first/roast) I and then they 14) ... (grind) to make coffee.

The grounds 15) ... (then/process) in a variety of different ways. Sometimes they 16) ... (filter) and sometimes they 17) ... (soak) in water to make the drink which is popular with so many people. Coffee is available as grounds or as instant coffee powder and 18) ... (drink) by one third of the world's population.

12. Read the situations, then write sentences using *have something done*.

- 1 John's suit is dirty. It has to be dry-cleaned. What should he do?
...He should have his suit dry-cleaned...
- 2 All Linda's clothes are made specially for her. What does she do?
- 3 They arranged for their house to be painted last week. Now it has been done. What have they done?
- 4 Malcolm's car was broken into last night. What happened to him?
- 5 Her bag was stolen yesterday. What happened to her?
- 6 A printer has printed party invitations for Emma. What has Emma done?
- 7 Diana is at the hairdresser's. The hairdresser is cutting her hair. What is Diana doing?
- 8 Robert is taking his car to the garage for a service tomorrow. What's he going to do?
- 9 Their roof has a hole in it. What should they do?
- 10 Tracey's bicycle has got a puncture. What should she do?

13. Complete the following conversation using *have something done*.

- A: I 1) ...'m *having an extension built*... (an extension/build) on my house this week.
B: That's nice. When it's finished, 2) ... (it/decorate)?
A: No, I'm going to do that myself. First, though, I 3) ... (double glazing/fit).
A: 4) ... (carpets/lay)?
B: I'm not sure yet. How about you? 5) ... (you/your curtains/deliver) last week?
A: Yes. They're really nice. I also 6) ... (the carpets/clean), so everything looks lovely now.

14. Rewrite the sentences using *have something done*.

- 1 His teeth are checked twice a year.
...He has his teeth checked twice a year....
- 2 Her skirt is being cleaned at the moment.
- 3 My hair is trimmed once a month.
- 4 Central heating is going to be installed in our house next month.
- 5 Sam's burglar alarm was fitted last week.
- 6 My car is being repaired at the moment.
- 7 The band's new single has just been recorded.
- 8 Our new furniture is going to be delivered tomorrow.
- 9 Their new house is being decorated at the moment.
- 10 The windows will be cleaned.
- 11 A new jumper has been knitted for me.
- 12 The lock has to be fixed.
- 13 A new pair of glasses is going to be made for him.

15. Rewrite the sentences using *have something done*.

- 1 Their windows need to be cleaned.
...They need to have their windows cleaned....
- 2 The hairdresser was styling Mrs Brown's hair.

- 3 She told her son to carry the shopping to the house.
- 4 Dad is going to arrange for someone to cut the grass.
- 5 They used to employ a cleaner who cleaned the house.
- 6 Did the mechanic repair Paul's motorbike?
- 7 The boss asked his assistant to type the letter.
- 8 A plumber fixed the dripping tap for Joe.
- 9 Have you told the secretary to make some photo-copies?
- 10 The chef was cooking Tom's lunch.
- 11 Did you tell the shop to deliver the sofa to you?
- 12 My purse was stolen last Friday.
- 13 Did you employ a painter to decorate your house?
- 14 The builders are putting a new roof on Adam's house at the moment.
- 15 She asked the maid to polish the silver.
- 16 The man had asked the porter to take his luggage to his room.
- 17 Did you ask Jenny to arrange the flowers for you?
- 18 When will your glasses be made?
- 19 I hired a professional to cater for my party.
- 20 Did you ask anyone to sweep the chimney?
- 21 She asked him to do the shopping.
- 22 Their house was burgled last night.
- 23 He employed a carpenter to build the fence.
- 24 Julie's housekeeper irons all her clothes.
- 25 His shop's windows were smashed in the not.

Тема 3: Наука и образование

3.1 Запомните слова и выражения, необходимые для освоения темы курса:

- analysis - анализ, исследование;
critical analysis — критический анализ;
advanced research — перспективные исследования;
basic research — фундаментальные исследования;
to be engaged in research — заниматься научно-исследовательской работой;
This researches cover a wide field — исследования охватывают широкую область;
after the study of the matter — после изучения этого вопроса;
humane studies — гуманитарные науки;
history and allied studies — история и родственные ей предметы;
a new study of Shakespeare — новая работа /книга/ о Шекспире;
pilot study - предварительное, экспериментальное исследование
desk study - чисто теоретическое исследование;
thorough examination — а) всестороннее исследование; б) тщательное изучение (материала);
to carry on an investigation — проводить исследовательскую работу;
the scientific method of inquiry — научный метод исследования;
we must apply to find a solution — мы должны применить....., чтобы решить;
comparative [experimental] method of investigation — сравнительный [экспериментальный] метод исследования;
his method is to compare different versions — его метод состоит в сопоставлении разных вариантов;
there are several methods of doing this — существует несколько способов сделать это;
ampliative inference — индуктивный метод;
a method that is attended by some risk — метод, связанный с некоторым риском;
convenient method — подходящий метод;
to approximate to a solution of the problem — подходить к решению задачи;
to use ... approach(to) - подход interdisciplinary approach — подход с точки зрения различных наук;
we began the work by collecting material — Мы начали работу со сбора материала;
we have two problems before us — перед нами две задачи;
data for study — материал исследования;
laboratory data — данные лабораторных исследований;
adequacy of data — достоверность данных;
acceptance of a theory — согласие с какой-л. теорией;
application of a theory in actual practice — применение теории в практической деятельности;
the backbone of a theory — основа теории;
to back up a theory with facts — подкрепить теорию фактами;
to construct a theory — создать теорию;
the results of the experiment contradicted this theory/agreed with the theory — результаты опыта шли вразрез с этой теорией/согласовывались с теорией;
- professor – профессор;
lecturer – лектор;
researcher – исследователь;
research – исследование;
graduate - имеющий учёную степень; выпускник;
post-graduate или post-graduate student – аспирант;
masters student – магистрант;

PhD student – докторант;
master's degree - степень магистра;
bachelor's degree - бакалаврская степень;
degree – степень;
thesis - диссертация; исследовательская работа;
dissertation – диссертация;
lecture – лекция;
higher education - высшее образование;
semester – семестр;
student union - студенческий союз;
tuition fees - плата за обучение;
university campus - университетский район; кампус;

3.2 Подготовьте устный рассказ по теме на основе предложенного:

Science is important to world peace in many ways. On one hand, scientists have helped to develop many of the modern tools of war. On the other hand, they have also helped to keep the peace through research which has improved life for people. Scientists have helped us understand the problem of supplying the world with enough energy; they have begun to develop a number of solutions to the energy problem - for example, using energy from the sun and from the atom. Scientists have also analyzed the world's resources. We can begin to learn to share the resources with the knowledge provided to us by science. Science studies the Universe and how to use its possibilities for the benefit of men.

Science is also important to everyone who is affected by modern technology. Many of the things that make our lives easier and better are the results of advances in technology and, if the present patterns continue, technology will affect us even more in the future than it does now. In some cases, such as technology for taking salt out of ocean water, technology may be essential for our lives on Earth.

The study of science also provides people with an understanding of natural world. Scientists are learning to predict earthquakes, are continuing to study many other natural events such as storms. Scientists are also studying various aspects of human biology and the origin and developments of the human race. The study of the natural world may help to improve life for many people all over the world.

A basic knowledge of science is essential for everyone. It helps people find their way in the changing world.

An Academic Conference

The best way to exchange ideas, learn new things and expand your network is to become involved in groups relevant to your craft. This can be through user groups for a particular software environment you work with, or professional associations.

There are plenty of websites and forums that enable professionals to engage with one another online, but nothing seals a bond like face-to-face activities.

The ability to communicate your ideas to audiences will raise your profile to new levels.

The Academic Conference presents a challenge to interaction with other scientists. They regularly take part in conferences and discussions around the world.

A researcher receives an email about the opportunity to submit a proposal to be a presenter at the conference.

An academic conference or symposium is a conference for scholars and scientists to present and discuss their work. Together with academic or scientific journals, conferences provide an important channel for exchange of information among researchers.

Conferences are usually composed of various presentations. They tend to be short and concise, with a time span of about 10 to 30 minutes. The work may be bundled in written form as academic

papers and published as the conference proceedings. They are published to inform a wider audience of the material presented at the conference.

A conference usually includes a keynote speaker (основной докладчик). The keynote lecture is longer, lasting up to an hour and a half. Conferences also feature panel discussions, round tables on various issues and workshops.

Prospective presenters are usually asked to submit a short abstract of their presentation. Nowadays, presenters usually base their talk around a visual presentation that displays key figures and research results.

At some conferences, social or entertainment activities such as tours and receptions can be part of the programme. Business meetings for learned societies (научное общество) or interest groups can also be part of the conference activities.

Academic publishing houses may set up displays at large conferences. Academic conferences fall into three categories:

- a) the themed conference, a small conference organised around a particular topic;
- b) the general conference, a conference with sessions on a wide variety of topics, often organised by regional, national, or international learned societies, and held annually or on some other regular basis;
- c) the professional conference, large conferences not limited to academics (научные работники) but with academically related issues.

Traditional conferences mean participants have to travel and stay in a particular place. This takes time. And an online conference uses the Internet, and participants can access the conference from anywhere in the world and can do this at any time, using browser software. Participants are given a password to access the conference and seminar groups.

The conference is announced by way of a Call for Abstracts, which lists the topics of the meeting and tells prospective presenters how to submit their abstracts.

Submissions take place online. An abstract is a brief summary of a research article, and is often used to help the reader quickly ascertain the purpose of the paper.

An academic abstract typically outlines four elements of the work:

- a) the research focus (statement of the problem) – an opening sentence placing the work in context, and one or two sentences giving the purpose of the work ;
 - b) the research methods used – one or two sentences explaining what was (or will) be done;
 - c) the results of the research – one or two sentences indicating the main findings;
 - d) the main conclusions – one sentence giving the most important consequence of the work.
- The typical abstract length ranges from 100 to 500 words.

3.3 Систематизация грамматического материала:

Модальные глаголы

<u>Глаголы</u>	<u>Значение</u>	<u>Примеры</u>
CAN	физическая или умственная возможность/умение	I can swim very well. – Я очень хорошо умею плавать.
	возможность	You can go now. — Ты можешь идти сейчас. You cannot play football in the street. – На улице нельзя играть в футбол.
	вероятность	They can arrive any time. – Они могут приехать в любой момент.
	удивление	Can he have said that? – Неужели он это сказал?
	сомнение, недоверчивость	She can't be waiting for us now. – Не может быть, чтобы она сейчас нас ждала.
	разрешение	Can we go home? — Нам можно пойти домой?
	вежливая просьба	Could you <u>tell me</u> what time it is now? – Не могли бы вы подсказать, который сейчас час?

MAY	разрешение	May I borrow your book? – Я могу одолжить у тебя книгу?
	предположение	She may not come. – Она, возможно, не придет.
	возможность	In the museum you may see many interesting things. – В музее вы можете увидеть много интересных вещей.
	упрек – только MIGHT (+ perfect infinitive)	You might have told me that. – Ты мог бы мне это сказать.
MUST	обязательство, необходимость	He must work. He must earn money. – Он должен работать. Он должен зарабатывать деньги.
	вероятность (сильная степень)	He must be sick. — Он, должно быть, заболел.
	запрет	Tourists must not feed animals in the zoo. — Туристы не должны кормить животных в зоопарке.
SHOULD OUGHT TO	моральное долженствование	You ought to be polite. – Вы должны быть любезными.
	совет	You should see a doctor. – Вам следует сходить к врачу.
	упрек, запрет	You should have taken the umbrella. – Тебе следовало взять с собой <u>зонт</u> .
SHALL	указ, обязанность	These rules shall apply in all circumstances. – Эти правила будут действовать при любых обстоятельствах.
	угроза	You shall suffer. — Ты будешь страдать.
	просьба об указании	Shall I open the window? – Мне открыть окно?
WILL	готовность, нежелание/отказ	The door won't open. — Дверь не открывается.
	вежливая просьба	Will you go with me? – Ты сможешь пойти со мной?
WOULD	готовность, нежелание/отказ	He would not answer this question. – Он не будет отвечать на этот вопрос.
	вежливая просьба	Would you please come with me? — Не могли бы вы пройти со мной.
	повторяющееся/привычное действие	We would talk for hours. – Мы беседовали часами.
NEED	необходимость	Do you need to work so hard? – Тебе надо столько работать?
NEEDN'T	отсутствие необходимости	She needn't go there. — Ей не нужно туда идти.
DARE	Посметь	How dare you say that? – Как ты смеешь такое говорить?

Модальные единицы эквивалентного типа		
to be able (to) = can	Возможность соверш-я конкрет-го дей-ия в опред. момент	She was able to change the situation then. (Она тогда была в состоянии (могла) изменить ситуацию).
to be allowed (to) = may	Возмож-ть совер-ия дей-ия в наст.-м, прош-ом или буд-ем + оттенок разрешения	My sister is allowed to play outdoors. (Моей сестре разрешается играть на улице).
to have (to) = ought, must, should	Необходимость совер-я дей-я в наст.-м, прош-ом или буд-ем при опред-х об-вах	They will have to set up in business soon. (Им вскоре придется открыть свое дело).
to be (to) = ought, must, should	Необходимость совер-я дей-я в наст.-м, прош-ом при наличии	We are to send Nick about his business. (Мы должны (=

Выполните упражнения для закрепления материала:

1. Fill in the gaps with *can, can't, could, couldn't or was/wasn't able to*.

- 1 I had my hands full, so I ...*couldn't/wasn't able to*... open the door.
- 2 When I was young, I ... stand on my head.
- 3 Although he felt ill, he ... finish all the paperwork.
- 4 Tony is clever. He ... speak three languages.
- 5 I ... afford that bag. It's too expensive.
- 6 Although it was dark, he ... find his way through the woods.
- 7 I heard his voice calling me, but I ... see him.
- 8 We're busy tonight, so we ... come to the party.
- 9 When I entered the house, I ... smell fresh bread baking.
- 10 I ... drive a car. I learnt when I was eighteen.

2. Fill in the gaps with *must, mustn't or needn't/don't have to*.

- 1 A: You ...*must*... study hard to pass the exams.
B: I know. I study every evening.
- 2 A: You ... be late for your job interview.
B: I know. I'll leave early so as to get there on time.
- 3 A: Shall I collect the children from the party?
B: No, you ... collect them. Mrs Shaw is giving them a lift home.
- 4 A: Do you want me to wait for you after work?
B: No, you ... wait. I can walk home by myself.
- 5 A: You ... interrupt while people are talking.
B: No. It's very bad manners to do that.
- 6 A: My dog has been ill all week.
B: Oh dear! You ... take him to the vet.
- 7 A: It's Sally's birthday on Wednesday.
B: I know. I ... remember to buy her a present.
- 8 A: Shall I wash the dishes for you?
B: No, you ... do that. I'll do them later.

3. Fill the gaps with *needn't have or didn't need to* and the correct form of the verb in brackets.

- 1 I ran all the way to work, but I ...*needn't have hurried*... (hurry) because I was the first person to arrive.
- 2 We ... (hurry), so we stopped to have lunch on the way.
- 3 I went to college today, but I ... (go) as all the lectures were cancelled.
- 4 I ... (ask) the way to Lewes, since I'd been there before.
- 5 I ... (buy) any food, so I didn't go to the supermarket.
- 6 I ... (buy) any food after all, because we had plenty at home.
- 7 I ... (pack) my shorts, as it rained all week.
- 8 We ... (pack) many things, as we would only be away for one night.

4. Complete the sentences using *must or can't*, as in the example.

- 1 I'm sure she has gone on holiday. She ...*must have gone on holiday*...
- 2 I'm certain he doesn't know the secret. He ...
- 3 I'm certain Mike hasn't got a new car. Mike ...
- 4 I'm sure Susan has paid the phone bill. Susan ...
- 5 I'm sure they don't live here. They ...

- 6 I'm sure they left the party early. They ...
 7 I'm certain he didn't call me. He...
 8 I'm certain Marie sent you a birthday card. Marie ...
 9 I'm sure she has been keeping secrets from me. She...
 10 I'm certain she is looking for a new job. She ...
 11 I'm sure David didn't go to the supermarket. David ...
 12 I'm certain he is working at the library. He ...

5. Rephrase the following sentences in as many ways as possible.

- 1 It's likely she has forgotten about the meeting.
 She ...*may/might/could have forgotten about the meeting*...
 2 Perhaps he will be home soon. He ...
 3 Perhaps we won't stay in a hotel. We ...
 4 It's possible she has been delayed in traffic. She ...
 5 It's likely they have gone to the cinema. They ...
 6 Perhaps they are asleep already. They ...
 7 It's likely he hasn't been promoted. He ...
 8 It's possible she called while we were out. She ...
 9 It's likely we will go shopping this afternoon. We ...
 10 Perhaps he is outside in the garden. He ...
 11 It's possible they didn't receive our message. They ...
 12 Perhaps she is visiting a friend. She ...

6. Fill in can, can't, must, mustn't, needn't or have to.

- 1 A: Is Jason at work today?
 B: He ...*can't*... be. His car isn't in the car park.
 2 A: I can't do my German homework. It's too difficult.
 B: I'll help you. I ... speak German.
 3 A: I'm going to watch television.
 B: Alright, but you ... stay up too late.
 4 A: We ... book a taxi to take us to the airport.
 B: I'll do it now.
 5 A: I didn't know Rachel was in the choir.
 B: Oh yes. She ... sing beautifully.
 6 A: Shall I cook dinner tonight?
 B: No, youWe're going to a restaurant.
 7 A: Has Tim bought a car yet?
 B: He ... have. I saw him on the bus yesterday.
 8 A: She ... be very rich.
 B: Yes. She's got a huge house and an expensive car.
 9 A: I did the washing-up for you.
 B: Oh, you ... have, but it was kind of you.
 10 A: Would you like to come to my party on Saturday night?
 B: I'd like to, but Mum says I ... visit my grandparents.

7. Fill in the gaps with could or was/were allowed to.

1. The children ...*were allowed to*... go to the cinema on their own yesterday.
 2. When I was young, we ... wear whatever we liked to school.
 3. Peter ... watch a concert on TV last night, although it was on quite late.
 4. When we were children, we ... play outside until it got dark.
 5. Yesterday, we ... bring our favourite toys to school.
 6. When Dennis lived with his parents, he ... come in at whatever time he liked.

8. Underline the correct word(s).

- 1 A: Could I sleep at my friend's house tonight?
B: Yes, of course you **could/can**.
- 2 A: I **could/was allowed to** go to the disco last night.
B: Was it good fun?
- 3 A: **Can/Might** I have a biscuit please, Mum?
B: Of course. Help yourself.
- 4 A: Excuse me, sir. **May I/Am I allowed to** leave the room?
B: Yes, but don't be too long.
- 5 A: **Must/Might** I borrow these files for a moment, sir?
B: Certainly. Take whatever you need.
- 6 A: Might I use your pen?
B: Of course you **may/might**.
- 7 A: **May I/Am I allowed to** park in the company car park?
B: Of course you are!

9. Fill in shall or will.

- 1 A: ...*Shall*... I help you with the washing-up?
B: No, I can manage by myself.
- 2 A: ... we have pizza for dinner tonight?
B: I'd rather have steak.
- 3 A: ... you carry this for me, please?
B: Certainly. It looks heavy.
- 4 A: What ... we buy for Bob's birthday?
B: I think he'd like a book.
- 5 A: ... you answer the phone, please?
B: Of course.
- 6 A: Where ... we sit in the classroom?
B: Next to the window.
- 7 A: ... you take the rubbish outside for me, please?
B: Yes, in a minute.
- 8 A: ... we have a barbecue next weekend?
B: Yes, if the weather's fine.
- 9 A: ... you babysit for me tonight?
B: I'm sorry, but I can't.
- 10 A: ... we try this new recipe tonight?
B: Yes. We've got all the ingredients.

10. Read the situations and complete the sentences with should/shouldn't, ought to/ought not to and the correct tense of the infinitive.

- 1 Your friend didn't see a film on TV last night. You saw it and it was very good. You ...*should/ought to have seen*... (see) the film.
- 2 Liz bought an expensive jacket yesterday and now she hasn't got enough money for the rest of the week. She ... (buy) such an expensive jacket.
- 3 Your sister eats a lot of junk food which is bad for her health. You ... (eat) so much junk food.
- 4 Mr Jackson had a stiff back. He lifted some heavy boxes and now his back is worse. He ... (lift) those heavy boxes.
- 5 Tony always drives too fast. Yesterday, he was arrested for speeding. He ... (drive) more slowly.
- 6 Sally is clumsy. She is always breaking things. She ... (be) more careful.
- 7 Paul didn't do his homework. The teacher punished him. He ... (do) his homework.
- 8 Amy borrowed her brother's car without asking. He was very angry. She ... (borrow) his car without asking.

11. Underline the correct word(s) in bold.

- 1 A: I found a briefcase on the train.
B: You **ought to/can** take it to the police station as soon as possible.
- 2 A: Did you get some money from the bank?
B: No, I **didn't need to/needn't**. I had enough in my wallet.
- 3 A: Sorry I'm late again.
B: You **should/might** wear a watch.
- 4 A: **Couldn't/May** I speak to Claire, please?
B: Just a moment, please. I'll call her.
- 5 A: We **could/must** go out for a meal this evening, if you like.
B: Oh, yes. That would be nice.
- 6 A: I wonder if Paul and Jim have got lost.
B: They **can't/mustn't** have got lost because I gave them a map.
- 7 A: **Could/Would** I use your telephone, please?
B: Yes, of course.
- 8 A: Was the exam very difficult?
B: Yes, but I **can/was able to** answer all the questions.
- 9 A: We **mustn't/needn't** go shopping this week. We've got plenty of food.
B: Alright. We'll go next week instead.
- 10 A: **Should/May** I sit down, please?
B: Yes, of course. Make yourself at home.
- 11 A: When **will/shall** I visit you next?
B: You **can/must** call in tomorrow, if you like.
- 12 A: Helen should be here by now.
B: She **ought to/could** have missed the train.

12. Match the items in column A to their synonyms in column B.

A

- 1 You mustn't...
2 You can't be ...
3 You needn't...
4 They ought to ...
5 She didn't need to
6 You should ...
7 May I ...?
8 We needn't have ...
9 He was able to ...
10 Shall we ...?
11 You must...
12 They must be ...

B

- a You are supposed to ...
b It wasn't necessary for us to ... (but we did)
c Let's ...
d He managed to ...
e They had better...
f It is forbidden ...
g I'm sure they are ...
h Do you mind if I ...?
i You are to...
j It isn't necessary for you to ...
k I'm certain you aren't ...

1 It wasn't necessary for her to ...

13. Rephrase the following sentences in as many ways as possible.

- 1 **It is possible that Sue will** be late this evening.
Sue may/might/could be late this evening./Sue is likely to be late this evening.
- 2 **I'm sure David isn't** going to the party tonight.
- 3 **The guests are supposed** to arrive at 8 o'clock.
- 4 **It wasn't necessary for Toby to** go to school today.
- 5 **I advise you to** book a table in advance.
- 6 **They are obliged to** wear helmets at work.
- 7 **You are to** wait here until the manager arrives.
- 8 **Steve managed to** repair the bike after trying for two hours.
- 9 **Perhaps we will** go to Italy for a holiday next summer.
- 10 **We are obliged to** wear a uniform for school.
- 11 **You aren't allowed to** run in the corridors.
- 12 **How about** inviting some friends over to dinner?
- 13 **It isn't necessary for you to** buy me a present.
- 14 **Do you mind if** I use your telephone?
- 15 **Would you like me to** clean the windows for you?
- 16 **How about** going for a walk this afternoon?

14. Rephrase the following sentences in as many ways as possible.

- 1 You had better ask your teacher to help you with your studies.
...You ought to/should ask your teacher to help you with your studies...
- 2 Can you hold this bag for me, please?
- 3 Why don't we go for a picnic this weekend?
- 4 It wasn't necessary for John to go to work because it was Sunday.
- 5 We managed to do the puzzle, although it was difficult.
- 6 You are to report to the manager as soon as you reach Manchester.
- 7 You are forbidden to enter this area.
- 8 Do you mind if I take this chair?
- 9 You don't need to feed the dog. I've already done it.
- 10 You ought to have locked the doors when you went out.
- 11 I strongly advise you to take legal action.
- 12 We are supposed to obey the law.

15. Choose the correct answer.

- 1 Shall I make you a cup of tea?
A) Yes, please. B No, you won't.
- 2 Would you help me please? My car won't start.
A I'd be happy to. B Yes, I would.
- 3 Could you open the door for me, please?
A Yes, I could. B Of course.
- 4 Can you do the washing-up for me, please?
A No, I may not. B No problem.
- 5 We could go for a walk this afternoon.
A That's a nice idea. B No, we might not.
- 6 Could I sit down for a minute, please?
A Yes, of course. B No, you couldn't.
- 7 Can I get you anything, madam?
A No, you can't. B No, thank you. I'm just looking.
- 8 Can I go and play football now, please?
A Not at all. B Yes, if you like.

9 Shall I pick you up from work this evening?

A Yes, please. B No, you won't.

10 Will you hold this box for me, please?

A Yes, I may. B Certainly.

16. Complete the sentences, as in the example. Sometimes more than one answer is possible.

	Modal	Use
1	You ...can... go to the cinema.	giving permission
2	You ... have any sweets.	refusing permission
3	... we go for a walk?	making a suggestion
4	... I stay at Paul's house tonight, please?	asking for permission
5	You ...have worked harder.	expressing criticism
6	You .. talk in the library.	expressing prohibition
7	Sally .. invite us to her party.	expressing possibility
8	They ... be lost.	expressing a positive logical assumption
9	You ... do your homework before you go out.	expressing obligation
10	She ... be older than me.	expressing a negative logical assumption
11	Steve ... walk. He's broken his leg.	expressing lack of ability
12	I paint the fence for you?	making an offer

17. Rephrase the following sentences in as many ways as possible.

1 Why don't we go to Spain on holiday this year?

...we can/could go to Spain on holiday this year...

2 Perhaps Tony has gone to work early.

3 Policemen are obliged to wear a uniform while on duty.

4 Simon managed to climb the mountain, although it was steep.

5 It is forbidden to sound the alarm for no reason.

6 How about watching a video this evening?

7 I'm certain Martin heard me calling him.

8 I'm sure Paul isn't an engineer.

18. Choose the correct answer.

1 ...B... I borrow your pen? Mine doesn't work.

A Needn't B Can C Ought

2 I ... go to the bank. I haven't got any money.

A must B mustn't C may

3 Lizzie ... spell her name before she was three.

A might B could C must

4 ... you help me with the shopping, please?

A Must B Shall C Will

5 You ... go to the post office. I'll go later.

A needn't B might C must

6 You ... to study hard for your exams.

A need B can't C shall

7 You ... to be at work by nine o'clock.

A must B should C are

8 No reporters ... approach the scene of the accident.

A might have B were allowed to C needn't

9 We ...phone Mary. It's her birthday today.

A needn't B ought to C are able to

10 What time ... I pick you up from work?

A mustn't B will C shall

19. Choose the correct answer.

- 1 'You ...C... pay the bills today.'
'I know. I promise I won't forget.'
A would B shall C must
- 2 '...we go to the beach tomorrow?'
'Yes. That's a great idea.'
A Shall B Mustn't C Would
- 3 'I'm going to the cinema. Do you want to come with me?'
'No, thank you. I ... do my homework.'
A could B would C have to
- 4 'You ... put that shirt in the washing machine.'
'I know. It has to be dry-cleaned.'
A must B mustn't C couldn't
- 5 'Was your suitcase very heavy?'
'Yes, but I ... carry it by myself.'
A was able to B can't C ought
- 6 '... you drive?'
'Yes, but I haven't got my own car.'
A Might B Should C Can
- 7 'I ... ride a bicycle until I was eight.'
'Neither could I.'
A couldn't B could C can't
- 8 '... you open the door for me, please?'
'Yes, certainly.'
A Shall B Must C Would
- 9 'Ben had a hard time trying to find the leak in the pipe.'
'But he ... stop it, wasn't he?'
A was allowed to B was able to C could
- 10 'I saw Tina in town last night.'
'You ... have seen her. She's on holiday in Spain.'
A would B could C can't
- 11 'Where's Colin?'
'I'm not sure. He ... be in the study.'
A might B will C ought
- 12 'I feel very tired today.'
'You ... have stayed up so late last night.'
A shouldn't B could C might
- 13 'Did you phone Alan yesterday?'
'No, IHe came round to see me.'
A didn't need to B needn't C have to
- 14 '... you give me a lift to work tomorrow?'
'Yes. I'll pick you up at eight o'clock.'
A May B Shall C Will
- 15 '... I help you, madam?'
'Yes, I'm looking for the manager.'
A Would B Must C May

Тема 4: Чтение и перевод научной литературы по направлению исследования

4.1 Запомните слова и выражения, необходимые для освоения темы курса:

КОМПЬЮТЕРНОЕ ОБОРУДОВАНИЕ

laptop - лэптоп; ноутбук; портативный компьютер;
desktop computer (часто используется сокращение desktop) - персональный компьютер;
tablet computer (часто используется сокращение tablet) – планшет;
PC (сокращённо от personal computer) - персональный компьютер;
screen – экран;
keyboard – клавиатура;
mouse – мышка;
monitor – монитор;
printer – принтер;
wireless router - беспроводной роутер; маршрутизатор;
cable – кабель;
hard drive - жёсткий диск;
speakers – громкоговорители;
power cable - кабель питания;

ЭЛЕКТРОННАЯ ПОЧТА

Email - электронная почта;
to email - посылать письма по электронной почте;
to send an email – послать;
email address - адрес электронной почты, email;
username - имя пользователя;
password – пароль;
to reply – ответить;
to forward – переслать;
new message - новое сообщение;
attachment – приложение;

ИСПОЛЬЗОВАНИЕ КОМПЬЮТЕРА

to plug in - подключить что-либо к компьютеру;
to unplug - отсоединить; вытащить из розетки;
to switch on или to turn on – включить;
to switch off или to turn off – выключить;
to start up - запустить систему;
to shut down - выключить систему;
to restart – перезагрузить;

ИНТЕРНЕТ

the Internet – интернет;
website – сайт;
ISP (сокращённо от internet service provider) - поставщик услуг интернета;
Firewall - система защиты доступа; средство сетевой защиты;
web hosting - Web-хостинг;
wireless internet или WiFi – беспроводной;
to download – скачивать;
to browse the Internet - плавать в интернете;

file – файл;
folder – папка;
document – документ;
hardware - элементы электронных устройств; жарг. железо;
software - программное обеспечение;

network – сеть;
to scroll up - прокрутить вверх;
to scroll down - прокрутить вниз;
to log on – войти;
to log off – выйти;
space bar - клавиша для пробела;
virus – вирус;
antivirus software - антивирусная программа;
processor speed - скорость процессора;
memory – память;
word processor - текстовый процессор;
database - база данных;
spreadsheet - электронная таблица;
to print – распечатать;
to type – печатать;
lower case letter - нижний регистр (клавиатуры);
upper case letter или capital letter - заглавные буквы;

4.2 Подготовьте устный рассказ по теме на основе предложенного:

Electromagnetism is everywhere. It is a field that exists throughout space. When particles are electrically charged, the electromagnetic field exerts a force on them. These particles then move and exert a force on the electromagnetic field. By generating these fields when and where we want them and by controlling these forces we have electricity. This gives us the power we use in the modern world. All our TVs, phones, street lights and cars depend on electromagnetism.

So what is electromagnetism? Actually, it is two things, but they are so closely connected that it is convenient for us to think of them as one, as two sides of the same coin. There are two types of field: electric and magnetic. Electrically-charged particles result in an electric field, static electricity. When there is a conductor, a material which will allow electric field to pass through it, then we can create an electric current. In our homes, the conductors are the wires that run through our house to the light bulbs or the TV. A magnetic field results from the motion of an electric current and is used to generate the electricity we use.

In the 19th century, James Clerk Maxwell, the Scottish physicist, produced the equations that proved the two forces acted as one. One effect of this was for physicists all over the world to hurry back to their libraries and laboratories to rewrite the theories on the motion of objects. Maxwell's equations showed that what physicists had believed for centuries was in fact not correct. It was not until Einstein, in the 20th century, that the theory of motion was put right - at least for now.

How do we know the two things are one? Well, sailors had known for centuries that lightning affected the magnetic compasses on their ships. No one, however, made the connection between lightning and electricity until Benjamin Franklin, the American politician and scientist, flew a kite in a thunderstorm to attract the lightning. In other parts of the world, physicists were experimenting with magnets and electricity. Most passed a current across a magnetic needle and watched it move. The Frenchman, Andre Marie Ampere eventually applied mathematics to electromagnetism. It is from his work that we have our modern understanding of electromagnetism.

One piece of the jigsaw remained. No one had discovered a way of generating electricity. True, there were batteries, Alessandro Volta invented the Voltaic pile in 1800, but it was of limited use. Certainly no battery could provide enough electrical power to operate a machine. For that the world would have to wait for Michael Faraday to find a way of creating an electrical current, when and where it was needed.

Innovation

The term innovation derives from the Latin word *innovatus* (to renew or change). Although the term is broadly used, innovation generally refers to the creation of better or more effective products, processes, technologies, or ideas that are accepted by markets, governments, and society. Innovation

differs from invention or renovation in that innovation generally signifies a substantial positive change compared to incremental changes.

Inter-Disciplinary Views. Due to its widespread effect, innovation is an important topic in the study of economics, business, entrepreneurship, design, technology, sociology, and engineering. In society, innovation aids in comfort, convenience, and efficiency in everyday life. For instance, the benchmarks in railroad equipment and infrastructure added to greater safety, maintenance, speed, and weight capacity for passenger services. These innovations included changing from wood to steel cars, from iron to steel rails, stove-heated to steam-heated cars, gas lighting to electric lighting, diesel-powered to electric-diesel locomotives. By mid-20th century, trains were making longer, more comfortable, and faster trips at lower costs for passengers. Other areas that add to everyday quality of life include: the innovations to the light bulb from incandescent to compact fluorescent and LEDs which offer longer-lasting, less energy-intensive, brighter technology; adoption of modems to cellular phones, paving the way to smart phones which meets anyone's internet needs at any time or place; cathode-ray tube to flat-screen LCD televisions and others.

Business and Economics. In business and economics, innovation is the catalyst to growth. With rapid advancements in transportation and communications over the past few decades, the old world concepts of factor endowments and comparative advantage which focused on an area's unique inputs are outmoded for today's global economy. Now, as Harvard economist Michael Porter points out competitive advantage, or the productive use of any inputs, which requires continual innovation, is paramount for any specialized firm to succeed. Economist Joseph Schumpeter, who contributed greatly to the study of innovation, argued that industries must incessantly revolutionize the economic structure from within, that is innovate with better or more effective processes and products, such as the shift from the craft shop to factory. In addition, entrepreneurs continuously look for better ways to satisfy their consumer base with improved quality, durability, service, and price which come to fruition in innovation with advanced technologies and organizational strategies.

One prime example is the explosive boom of Silicon startups out of the Stanford Industrial Park. In 1957, dissatisfied employees of Shockley Semiconductor, the company of Nobel laureate and co-inventor of the transistor William Shockley, left to form an independent firm, Fairchild Semiconductor. After several years, Fairchild developed into a formidable presence in the sector.

Eventually, these founders left to start their own companies based on their own, unique, latest ideas, and then leading employees started their own firms. Over the next 20 years, this snowball process launched the momentous startup company explosion of information technology firms. Essentially, Silicon Valley began as 65 new enterprises born out of Shockley's eight former employees.

Organizations. In the organizational context, innovation may be linked to positive changes in efficiency, productivity, quality, competitiveness, market share, and others. All organizations can innovate, including for example hospitals, universities, and local governments. For instance, former Mayor Martin O'Malley pushed the City of Baltimore to use CitiStat, a performance-measurement data and management system that allows city officials to maintain statistics on crime trends to condition of potholes. This system aids in better evaluation of policies and procedures with accountability and efficiency in terms of time and money. In its first year, CitiStat saved the city \$13.2 million. Even mass transit systems have innovated with hybrid bus fleets to real-time tracking at bus stands. In addition, the growing use of mobile data terminals in vehicles that serves as communication hubs between vehicles and control center automatically send data on location, passenger counts, engine performance, mileage and other information. This tool helps to deliver and manage transportation systems.

Sources of Innovation. There are several sources of innovation. General sources of innovations are different changes in industry structure, in market structure, in local and global demographics, in human perception, mood and meaning, in the amount of already available scientific knowledge, etc. These also include internet research, developing of people skills, language development, cultural background, Skype, Facebook, etc. In the simplest linear model of innovation the traditionally recognized source is manufacturer innovation. This is where an agent (person or business) innovates in order to sell the innovation. Another source of innovation, only now becoming widely recognized, is

end-user innovation. This is where an agent (person or company) develops an innovation for their own (personal or in-house) use because existing products do not meet their needs. End-user¹³ innovation is, by far, the most important and critical source of innovation. In addition, the famous robotics engineer Joseph F. Engelberger asserts that innovations require only three things: 1) a recognized need; 2) competent people with relevant technology; and 3) financial support.

Innovation by businesses is achieved in many ways, with much attention now given to formal research and development (R&D)¹⁴ for "breakthrough innovations. "R&D help spur on patents and other scientific innovations that leads to productive growth in such areas as industry, medicine, engineering, and government. Yet, innovations can be developed by less formal on-the-job modifications of practice, through exchange and combination of professional experience and by many other routes. The more radical and revolutionary innovations tend to emerge from R&D, while more incremental innovations may emerge from practice – but there are many exceptions to each of these trends.

An important innovation factor includes customers buying products or using services. As a result, firms may incorporate users in focus groups (user centred approach), work closely with so called lead users (lead user approach) or users might adapt their products themselves. Regarding this user innovation, a great deal of innovation is done by those actually implementing and using technologies and products as part of their normal activities. In most of the times user innovators have some personal record motivating them. Sometimes user-innovators may become entrepreneurs, selling their product, they may choose to trade their innovation in exchange for other innovations, or they may be adopted by their suppliers.

Nowadays, they may also choose to freely reveal their innovations, using methods like open source. In such networks of innovation the users or communities of users can further develop technologies and reinvent their social meaning.

4.3 Систематизация грамматического материала:

Сослагательное наклонение. Три типа условных предложений

Conditionals are clauses introduced with *if*. There are three types of conditional clause: Type 1, Type 2 and Type 3. There is also another common type, Type 0.

Type 0 Conditionals: They are used to express something which is always true. We can use *when* (whenever) instead of *if*. *If/When the sun shines, snow melts.*

Type 1 Conditionals: They are used to express real or very probable situations in the present or future. *If he doesn't study hard, he won't pass his exam.*

Type 2 Conditionals: They are used to express imaginary situations which are contrary to facts in the present and, therefore, are unlikely to happen in the present or future. *Bob is daydreaming. If I won the lottery, I would buy an expensive car and I would go on holiday to a tropical island next summer.*

Type 3 Conditionals: They are used to express imaginary situations which are contrary to facts in the past. They are also used to express regrets or criticism. *John got up late, so he missed the bus. If John hadn't got up late, he wouldn't have missed the bus.*

	If-clause (hypothesis)	Main clause (result)	Use
Type 0 general truth	if + present simple	present simple	something which is always true
	If the temperature falls below 0 °C, water turns into ice.		
Type 1 real present	if + present simple, present continuous, present perfect or present perfect continuous	future/imperative can/may/might/must/should/ could + bare infinitive	real - likely to happen in the present or future
	If he doesn't pay the fine, he will go to prison. If you need help, come and see me.		

	If you have finished your work, we can have a break. If you're ever in the area, you should come and visit us.		
Type 2 unreal present	if + past simple or past continuous	would/could/might + bare infinitive	imaginary situation contrary to facts in the present; also used to give advice
	If I had time, I would take up a sport. (but I don't have time - untrue in the present) If I were you, I would talk to my parents about it. (giving advice)		
Type 3 unreal past	if + past perfect or past perfect continuous	would/could/might + have + past participle	imaginary situation contrary to facts in the past; also used to express regrets or criticism
	If she had studied harder, she would have passed the test. If he hadn't been acting so foolishly, he wouldn't have been punished.		

Conditional clauses consist of two parts: the if -clause (hypothesis) and the main clause (result). When the if - clause comes before the main clause, the two clauses are separated with a comma. When the main clause comes before the if - clause, then no comma is necessary.

- e.g. a) If I see Tim, I'll give him his book.
b) I'll give Tim his book if I see him.*

We do not normally use will, would or should in an if - clause. However, we can use will or would after if to make a polite request or express insistence or uncertainty (usually with expressions such as / don't know, I doubt, I wonder, etc.).

We can use should after if to talk about something which is possible, but not very likely to happen.

- e.g. a) If the weather is fine tomorrow, will go camping. (NOT: If the weather will be fine...)
b) If you will fill in this form, I'll process your application. (Will you please fill in... - polite request)
c) If you will not stop shouting, you'll have to leave. (If you insist on shouting... - insistence)
d) I don't know if he will pass his exams, (uncertainty)
e) If Tom should call, tell him I'll be late. (We do not think that Tom is very likely to call.)*

We can use unless instead of if... not in the if -clause of Type 1 conditionals. The verb is always in the affirmative after unless.

- e.g. Unless you leave now, you'll miss the bus. (If you don't leave now, you'll miss the bus.) (NOT: Unless you don't leave now, ...)*

We can use were instead of was for all persons in the if - clause of Type 2 conditionals.
e.g. If Rick was/were here, we could have a party.

We use If I were you ... when we want to give advice.
e.g. If I were you, I wouldn't complain about it.

The following expressions can be used instead of if: provided/providing that, as long as, suppose/supposing, etc.

- e.g. a) You can see Mr. Carter provided you have an appointment. (If you have an appointment...)
b) We will all have dinner together providing Mary comes on time. (... if Mary comes ...)
c) Suppose/Supposing the boss came now, ...*

We can omit if in the if - clause. When if is omitted, should (Type 1), were (Type 2), had (Type 3) and the subject are inverted.

- e.g. a) Should Peter come, tell him to wait. (If Peter should come,...)
b) Were I you, I wouldn't trust him. (If I were you, ...)*

c) *Had he known, he would have called. (If he had known, ...)*

1. Look at the prompts and make Type 1 conditional sentences, as in the example.

e.g. If we cut down all the forests, the world's climate will change.

- 1 cut down/ all forests / world's climate / change
- 2 not stop/use / aerosols /destroy / ozone layer
- 3 find / alternative sources of energy / solve / some of our environmental problems
- 4 temperatures / go up / by a few degrees /sea levels / rise
- 5 recycle / waste / save / natural resources
- 6 population / continue to increase / not be enough food for everyone

2. Lisa is trying to decide where to go on holiday. She would like to go to one of these places.

In pairs, ask and answer questions using the prompts below, as in the example.

A) SPAIN FOR A WEEK

£180 Inclusive!!

2-star hotel beach

Free water sports

B) A TWO WEEK CAMPING HOLIDAY IN THE SOUTH OF FRANCE

ONLY £280 per person

Self-catering

1. How long / be away / choose / Spain?

SA: *How long will she be away if she chooses Spain?*

SB: *If she chooses Spain, she'll be away for a week.*

2. Where / go / like / camping?

3. How much / pay / go to / France?

4. What / do / go to / Spain?

5. Where / go / want / cheap holiday?

3. Study the situations, then make Type 2 conditional sentences, as in the example.

I don't have a car, so I have to wait for the bus every day.

1. If I ...*had*... (have) a car, I ...*wouldn't have to*... (not/have to) wait for the bus every day.

I never do my homework, so my teacher always gets angry with me.

2. If I ... (do) my homework, my teacher ... (not/get) angry with me.

I live in a small house, so I can't invite friends over.

3. If I ... (live) in a bigger house, I ... (be able to) invite friends over.

I never get up early, so I y am always late for school.

4. If I ... (get up) earlier, I ... (not/be) late for school.

4. Complete the sentences to make Type 3 conditional sentences, as in the example.

1. If he ...*hadn't noticed*... (not/notice) the mould in one of his glass dishes, Alexander Fleming ...*would never have discovered*... (never/discover) penicillin.

2. If he ... (sell) some of his paintings, Van Gogh ... (get) some recognition during his lifetime.

3. If Barbara Streisand ... (change) the shape of her nose, her career ... (never/be) the same.

4. If Anne Sullivan ... (not/teach) her, Helen Keller ... (not/be able to) communicate.

5. If Naomi Campbell ... (not/be) so beautiful, she ... (never/become) a supermodel.

5. Read the story below and make Type 3 conditional sentences, as in the example.

e.g. 1) ...if Sally hadn't been in a hurry, she would have left some important notes at home....

Sally had a terrible day yesterday. She was in a hurry, so she left some important notes at home. She wasn't prepared for her meeting with a new client, so the meeting was a disaster. The client

was disappointed, and as a result he refused to do business with the company. The boss shouted at Sally, so she got upset.

6. Match the items in column A with those in column B in order to make correct Type 0 conditional sentences, as in the example.

e.g. 1 - c ...if you add sugar to a cup of coffee, the coffee tastes sweeter...

A

1. Add sugar to a cup of coffee.
2. Throw salt onto snow.
3. Put an apple in a bowl of water.
4. Water plants regularly.
5. Lie in the sun too long.
6. Take regular exercise.

B

- a The apple floats.
- b Your skin turns red.
- c The coffee tastes sweeter.
- d You feel healthy.
- e The plants grow.
- f The snow melts.

7. Put the verbs in brackets into the correct tense.

- 1 A: What time will you be home tonight?
B: I'm not sure. If I ...*have to*... (have to) work late. I ... *'ll call*... (call) you.
- 2 A: I felt very tired at work today.
B: Well, if you ... (not/watch) the late film, you ... (not/feel) so tired
- 3 A: Should I buy that car?
B: Why not? If I ... (have) the money, I ... (buy) it myself.
- 4 A: If you ... (pass) a chemist's, ... (you/get) me some cough medicine?
B: Yes, certainly.
- 5 A: My sister seems very upset at the moment.
B: Were I you, I ... (talk) to her about it.
- 6 A: Unless you ... (hurry), you ... (be) late again.
B: No, I won't. There's plenty of time.
- 7 A: Oh! I forgot to ask Sarah over for dinner.
B: If I ... (speak) to her today, I ... (ask) her for you.
- 8 A: May I join the club, please?
B: Provided you ... (be) over eighteen, you can join the club.
- 9 A: What a lovely restaurant! I'm glad we came here.
B: If you ... (not/burn) the dinner, we ... (not/come) here!
- 10 A: Just think. If I ... (not/move) to York, I ... (never/meet) you.
B: I know, wasn't it lucky?
- 11 A: Jo doesn't spend enough time with me.
B: Well, if she ... (have) the time, I'm sure she ... (try), but she's very busy.
- 12 A: Did you give Bill the message?
B: No, but when I ... (see) him, I ... (tell) him the news.

8. Choose the correct answer.

- 1 'If you ...*C*... that plate, you'll burn your fingers.'
'Why? Has it been in the oven?'

- A would touch
B will touch
C touch

- 2 '... you're busy, we'll talk now.'
 'That's fine. I'm not busy at the moment.'
- A If
 B Provided
 C Unless
- 3 'If you watch the news, you ... a lot.'
 'I know. I watch it every day.'
- A learn
 B were learning
 C would learn
- 4 '... you wear warm clothes, you won't get cold.'
 'I'll wear an extra jumper.'
- A Unless
 B Providing
 C Supposing
- 5 'Shall I invite John to the party?'
 'Well, were I you, I ... him.'
- A would invite
 B will invite
 C am inviting
- 6 '... the teacher comes back now, what will you do?'
 'I don't know.'
- A When
 B Providing
 C Supposing
- 7 'Could I see the menu, please?'
 'Yes, sir. If you ... a seat, I will fetch it for you.'
- A take
 B had taken
 C have taken
- 8 'Don't cry. Everything will be alright.'
 'Yes, but if I ... the bus, I wouldn't have been late for school.'
- A didn't miss
 B hadn't missed
 C don't miss
- 9 'When water boils, it ... steam.'
 'Yes, I know; and the steam is hot, too.'
- A would produce
 B produce
 C produces
- 10 'Can you help me, please?'
 'Well, if I wasn't studying, I ... you.'
- A would help
 B help
 C will help
- 11 'John crashed his car yesterday.'
 'I know, but if he hadn't been changing the cassette, he ...'
- A won't crash
 B wouldn't crash
 C wouldn't have crashed
- 12 'Can I have some chocolate, please?'
 'If you behave yourself, I ... you some later.'
- A would buy

B might buy

C buy

13 'Should you see Colin ... and tell me.'

'I will.'

A come

B to come

C will come

14 'If we were rich, we ... expensive clothes.'

'Well, unfortunately we aren't rich!'

A could afford

B can afford

C afford

9. Put the verbs in brackets into the correct tense.

1 If I ...*were*... (be) you, I wouldn't drive in the snow.

2 Peter ... (be able to) help you if he was here.

3 If I had closed the window, the cat ... (not/jump) out.

4 I ... (call) for help if I got stuck in a lift.

5 Had I known him, I ... (talk) to him.

6 John ... (may/lose) his job if he is rude to the boss.

7 If you ... (save) some money, you would have been able to go on holiday last year.

8 You may win if you ... (take) part in the contest.

9 If I had toothache, I ... (go) to the dentist.

10 They would have helped us move house if we ... (ask) them.

11 If Jane ... (be) older, she could live by herself.

12 We would have changed our plans if we ... (hear) the weather forecast.

13 Emma ... (send) a card if she had remembered it was their anniversary.

14 Robert ... (feel) better if you talked to him.

15 If Sam was still living nearby, you ... (can/invite) him for dinner.

16 If you ... (put) your money in your wallet, you will not lose it.

17 If you ... (like) chocolate, you will love this cake.

18 If Bill ... (come) home early, he will eat dinner with us.

19 Sandra will join us later unless she ... (have) a lot of work to do.

IF - WHEN

We use if to say that something might happen.

We use when to say that something will definitely happen.

e.g. If you see Mark, will you give him the message? (You might see Mark.)

When you see Mark, will you give him the message? (It is certain that you will see Mark.)

10. Fill in the gaps using when or if.

1 A: Have you phoned Paul yet?

B: No, I'll phone him ...*when*... I get home.

2 A: ... I get a new job soon, I may have a party.

B: That's a good idea.

3 A: I really liked that dress we saw.

B: Well, you can buy it ... you get paid.

4 A: Shall we go somewhere this weekend?

B: Yes ... it's sunny, we could go to the beach.

5 A: Did you make this cake yourself?

B: Yes ... you like it, I'll give you the recipe.

6 A: Is Jane still asleep?

B: Yes ... she wakes up, I'll tell her you're here.

- 7 A: Have you done your homework?
B: No. I'll do it ... we've finished dinner.
- 8 A: We've run out of milk.
B: Well, ... I go to the shops, I'll buy some more.

11. Choose the correct answer.

- 1 If you are bored ...C... something else.
A you would do
B you will do
C do
- 2 ... I you, I would look for a new job.
A Would be
B Were
C Had been
- 3 I ... you if I had known you were in hospital.
A would visit
B would have visited
C will visit
- 4 If you ... well, lie down for a while.
A hadn't felt
B don't feel
C didn't feel
- 5 Ice ... if the temperature rises above 0°C.
A will melt
B would melt
C melts
- 6 Had I known about the meeting, I ... it.
A would have attended
B attended
C will attend
- 7 If he ... in the garden, he would have heard the doorbell.
A isn't
B was
C hadn't been
- 8 I ... to the bank manager if I were you.
A would talk
B will talk
C talked

MIXED CONDITIONALS

All types of conditionals can be mixed. Any tense combination is possible if the context permits it.

If - clause	Main clause
Type 2 If nobody paid the bill,	Type 1 the electricity will be cut off.
Type 2 If he had money,	Type 3 he would have bought her a gift.
Type 2 If he had won the lottery,	Type 3 he wouldn't be asking for money now.

12. Rewrite the sentences, as in the example.

- 1 He doesn't know her. That's why he didn't speak to her.
...If he knew her, he would have spoken to her...

- 2 He lost his job. He's unemployed now.
 ...*If he hadn't lost his job, he wouldn't be unemployed...*
 3 His pet died. That's why he's unhappy now.
 4 She doesn't have a mobile phone. That's why she couldn't be contacted yesterday.
 5 Tom didn't see the boss earlier. He's waiting for her now.
 6 He is allergic to seafood. That's why he didn't eat paella last night.
 7 I lost my map. That's why I'm asking for directions now.
 8 She doesn't speak French. She didn't have a good time in Paris.
 9 He lost the race. He is not a champion now.
 10 She didn't go to the bank yesterday. That's why she hasn't got any money now.
 11 They went to a party last night. That's why they are tired now.
 12 I crashed my car. That's why I'm taking the bus today.

WISHES

We use the verb wish and the expression if only to express a wish. If only is more emphatic than I wish.

wish/if only + past simple/past continuous: when we want to say that we would like something to be different in the present.

e.g. I wish/If only I had a room of my own. (But I don't have a room of my own.)

wish/if only + past perfect: to express regret that something happened or did not happen in the past.

e.g. I wish I had got your message earlier. (But I didn't get it earlier.) If only I had talked to him. (But I didn't talk to him.)

wish/if only + would: a) for a polite imperative

e.g. I wish you would stop shouting. (Please, stop shouting.)

b) to express our wish for a change in a situation or someone's behavior because we are annoyed by it.

e.g. I wish the wind would stop blowing, (wish for a change in a situation)

If only John would stop insulting people. (wish for a change in someone's behavior)

After the subject pronouns I and we, we use could instead of would.

e.g. I wish we could go to the party. (NOT: I wish we would go...)

Note: We can use were instead of was after wish or if only.

e.g. I wish she were/was more sensitive.

13. Wendy has just started university. It isn't what she expected, and she is disappointed.

Read what she says and make sentences, as in the example.

e.g. I wish my room wasn't/weren't so small.

1. My room is so small.
2. I have to share the bathroom.
3. The kitchen is such a mess.
4. My tutors are strict.
5. The classes are so hard to understand.
6. The people are not friendly.
7. I can't visit my family and friends because they are so far away.
8. I don't have any friends.

14. Elise is a famous singer. These are some of the things she finds annoying. Read what she says and make sentences, as in the example.

e.g. I wish people wouldn't stare at me everywhere I go.

1. People stare at me everywhere I go.
2. People always ask me to sing at parties.
3. Magazines print false stories about my private life.
4. Photographers take photos of me all the time.

5. People make me sign autographs wherever I go.
6. People never give me any privacy.

15. Put the verbs in brackets into the correct tense.

- 1 A: I wish I ...*could play*... (play) a musical instrument.
B: You should take lessons.
- 2 A: If only the wind ... (stop) blowing so hard.
B: Yes, it's very windy today, isn't it?
- 3 A: I wish John ... (come) with us.
B: So do I. He would have really enjoyed it.
- 4 A: Paul, I wish you ... (stop) making so much noise.
B: Sorry, I'll try.
- 5 A: I wish I ... (study) more when I was at school.
B: It doesn't matter now. You've got a good job.
- 6 A: I wish I ... (be) young again.
B: So do I. We had some good times back then.
- 7 A: I wish I ... (not/speak) to Jane like that.
B: Don't worry. I'm sure she'll forgive you.
- 8 A: If only Bob ... (call) me.
B: Well, he promised to call today.
- 9 A: I'm exhausted. I wish I ... (do) some of the housework yesterday.
B: Sorry I wasn't here to help you.
- 10 A: I wish you ... (make) less noise when you come in.
B: It's not my fault. The door squeaks when you open it.
- 11 A: Are you going to your school reunion party next week?
B: No. I wish I ... (go) because I would like to see everyone again.

16. Rewrite the sentences using the correct conditional type, as in the examples.

- 1 I wish Jack were here. (he/help us)
...If Jack were here, he would help us...
- 2 I wish we hadn't got stuck in traffic. (we/be late for work)
...If we hadn't got stuck in traffic, we would have been late for work....
- 3 I wish you paid more attention in class. (you/understand everything)
- 4 I wish they had called before they came. (I/cook something)
- 5 I wish Tim weren't so selfish. (he/make friends much more easily)
- 6 I wish Sandra hadn't got up late today. (we/go shopping together)
- 7 I wish you hadn't left the door unlocked. (thieves/ break in)

17. Complete the wishes. Also make correct conditional sentences, as in the example.

1. I've got to get up.
I wish *I didn't have to get up*. (stay in bed for another hour)
If I didn't have to get up, I would stay in bed for another hour.
2. I should have been more careful.
I wish ... (not crash into the wall)
3. She's always shouting at me.
I wish ... (concentrate on my work)
4. He hasn't called me yet.
I wish ... (stop worrying)

HAD BETTER / WOULD RATHER

We use had better + bare infinitive to give advice or to say what the best thing to do in a particular situation is.

e.g. You had better take some warm clothes with you. (You should/ought to take ...)

I'd better not call him now; he'll be busy.

Had better is stronger than should/ought to, but it is not as strong as must.

e.g. You must call a doctor, (strong advice)

You had better call a doctor, (less strong than must)

You should/ought to call a doctor. (less strong than had better)

We use would rather (= would prefer to) to express preference.

e.g. I'm busy. I'd rather not take a break now.

When the subject of would rather is also the subject of the following verb, we use the following constructions:

a) would rather + bare present infinitive (present/ future)

e.g. I'd rather stay at home tonight.

b) would rather + bare perfect infinitive (past)

e.g. I'd rather have gone on holiday to Italy last summer.

When the subject of would rather is different from the subject of the following verb, we use the following constructions:

a) would rather + past tense (present/future)

e.g. I'd rather Tim did the shopping today.

b) would rather + past perfect (past)

e.g. I'd rather Kate hadn't spent so much money yesterday.

Study the ways in which we can express preference:

a) prefer + gerund + to + gerund (general preference)

e.g. I prefer jogging to cycling.

b) prefer + full infinitive + rather than + bare infinitive (general preference)

e.g. I prefer to go out rather than stay at home.

c) prefer + noun + to + noun (general preference)

e.g. She prefers orange juice to apple juice.

d) would prefer + full infinitive + rather than + (bare infinitive) (specific preference)

e.g. I'd prefer to pay in cash rather than (pay) by credit card.

e) would rather + bare infinitive + than (+ bare infinitive)

e.g. She'd rather have a salad than (have) a steak.

18. In pairs, ask and answer questions using the prompts below, as in the example. The choice of answer is yours.

SA: Would you rather go on holiday to Spain or Italy?

SB: I'd rather go to Spain than Italy.

1. go on holiday to Spain or Italy?
2. eat pizza or spaghetti for dinner?
3. play cards or chess this evening?
4. work in a bank or a school?
5. have a dog or a cat as a pet?
6. learn French or German at school?

19. Complete the sentences, as in the example.

- 1 I'll cook dinner if you really want me to, but ...*I'd rather you cooked it*
- 2 I'll go to the supermarket if you really want me to, but ...
- 3 I'll wash the dishes if you really want me to, but...
- 4 I'll empty the rubbish bin if you really want me to, but...
- 5 I'll iron all the clothes if you really want me to, but...
- 6 I'll clean the bathroom if you really want me to, but...

20. Fill in the gaps with would rather, prefers or (would) prefer.

- 1 Do you ...*prefer*... reading magazines or books?

- 2 She ... go to a disco than to go to the theatre.
 3 Jack ... listening to music to watching television.
 4 He ... study History than Moths.
 5 I ... the piano to the violin.
 6 ... you ... to have spaghetti or steak for dinner tonight?
 7 I ... see a comedy film than an adventure film.
 8 ... you ... going to the cinema or going to the theatre?

21. Put the verbs in brackets into the correct form.

- 1 A: Did you enjoy the party last night?
 B: No, I'd rather ...*have stayed*... (stay) at home.
 2 A: Shall I dust the computer, Tom?
 B: I'd rather you ... (not/touch) it, actually. I'll do it myself.
 3 A: I've got a terrible cold.
 B: You'd better ... (not/go) to work today, then.
 4 A: I'm going to work now.
 B: I think it's going to rain today. You'd better ... (take) your umbrella with you.
 5 A: I didn't enjoy Ben's party. I would rather he ... (invite) more people.
 B: Oh! I enjoyed it.
 6 A: You had better ... (study) hard this weekend for the exam on Monday.
 B: I will, but I would prefer ... (go out) with my friends.
 7 A: My parents prefer ... (spend) their holidays in the mountains.
 B: Do they? I like to be by the sea.
 8 A: We'd better ... (not/book) a taxi to bring us home tonight.
 B: You're right. We might want to stay late.
 9 A: They're organising a party for Susan's birthday.
 B: I know, but it's a secret, so we'd better ... (not/talk) about it in case she hears.
 10 A: I'd rather you ... (not/leave) your shoes in the kitchen every time you come home from school.
 B: Sorry, I keep forgetting.
 11 A: I didn't enjoy my lunch today. I'd rather ... (eat) something else.
 B: I'll make you some sandwiches tomorrow then.
 12 A: Did you enjoy the film last night?
 B: Not really. I would rather we ... (see) a comedy instead.
 13 A: Shall we stay in tonight?
 B: Well, if you don't mind I would prefer ... (visit) my parents.

THE UNREAL PRESENT AND PAST

The past simple can be used to talk about imaginary, unreal or improbable situations which are contrary to facts in the present (unreal present). The past perfect can be used to refer to imaginary, unreal or improbable situations which are contrary to facts in the past (unreal past).

The past simple is used with:

- Type 2 Conditionals
e.g. If he knew the truth, he would be very angry.
- suppose/supposing
e.g. Suppose/Supposing they didn't invite you, what would you do?
- wish/if only
e.g. I wish/If only I had a lot of money.
- would rather (present)
e.g. I'd rather Lisa went to the market.
- as if/as though
e.g. Jim behaves as if last though he were the boss.
- it's (about/high) time

e.g. *It's (about/high) time they did something about it.*

The past perfect is used with:

- Type 3 Conditionals

e.g. *If she had asked me, I would have helped her.*

- suppose/supposing

e.g. *Suppose/Supposing you had lost your money, what would you have done?*

- wish/if only

e.g. *I wish/If only I hadn't invited them to my party.*

- would rather (past)

e.g. *I'd rather you hadn't said anything about it.*

- as if/as though

e.g. *He hadn't seen her before, but he acted as if last though he had known her for years.*

22. Underline the correct tense.

- 1 It's about time she learnt/had learnt how to cook.
- 2 I'd rather you **didn't touch**/had not touched my favorite vase. You may break it.
- 3 If she **heard**/had heard the news, she would have called us by now.
- 4 They would have opened the door if they **knew**/had known who was there.
- 5 It's high time they **made**/had made some changes.
- 6 I wish I **saved**/had saved some money last month.
- 7 Ben would have taken up sport earlier if he **realized**/had realized how much fun it was.
- 8 Tom speaks to everyone as if he **knew**/had known everything.
- 9 He would rather you **didn't open**/hadn't opened the letter. He wanted to do it himself.
- 10 Suppose you **met**/had met him, what would you say to him?
- 11 If only he **called**/had called me last night, we could have gone out.
- 12 I'd rather Mary **spent**/had spent the night with us. It's snowing too heavily for her to drive home.
- 13 If you **knew**/had known what she did yesterday, you would be very surprised.
- 14 Supposing she **were seen**/had been seen leaving early, what would have happened?

23. Complete the following sentences.

1. Your friend wants to go skating, but you want to go bowling. What do you say?
I would prefer ...to go bowling...
2. Your friend likes staying in hotels, but you think camping is more fun. What do you say?
I prefer
3. Your parents want you to take the dog for a walk. You want your brother to do it. What do you say?
I'd rather
4. Your brother has bought a guitar. You want him to stop playing. What do you say?
I'd rather you
5. Your friend is very tired. You think she should go to bed. What do you say?
You'd better

Тема 5: Аннотирование научных статей

5.1 Запомните слова и выражения, необходимые для освоения темы курса:

Основные штампы (key-patterns) аннотаций на английском и русском языках

1. The article (paper, book, etc.) deals with... - Эта статья (работа, книга и т.д.) касается...
2. As the title implies the article describes.... - Согласно названию, в статье описывается...
3. It is specially noted... - Особенно отмечается...
4. A mention should be made... - Упоминается...
5. It is spoken in detail... - Подробно описывается...
6. ...are noted - Упомянуты...
7. It is reported... - Сообщается...
8. The text gives a valuable information on.... - Текст дает ценную информацию...
9. Much attention is given to... - Большое внимание уделяется...
10. The article is of great help to ... - Эта статья окажет большую помощь...
11. The article is of interest to... - Эта статья представляет интерес для...
12. It (the article) gives a detailed analysis of - 12. Она (статья) дает детальный анализ...
13. It draws our attention to... - Она (статья, работа) привлекает наше внимание к...
14. The difference between the terms...and...should be stressed - Следует подчеркнуть

различие между терминами ...и...

15. It should be stressed (emphasized) that... - Следует подчеркнуть, что...
16. ...is proposed - Предлагается...
17. ...are examined - Проверяются (рассматриваются)
18. ...are discussed - Обсуждаются...
19. An option permits... - Выбор позволяет...
20. The method proposed ... etc. - Предлагаемый метод... и т.д.
21. It is described in short ... - Кратко описывается ...
22. It is introduced - Вводится ...
23. It is shown that - Показано, что ...
24. It is given ... - Дается (предлагается) ...
25. It is dealt with - Рассматривается ...
26. It is provided for ... - Обеспечивается ...
27. It is designed for - Предназначен для ...
28. It is examined, investigated ... - Исследуется ...
29. It is analyzed ... - Анализируется ...
30. It is formulated - Формулируется ...
31. The need is stressed to employ... - Подчеркивается необходимость

использования...

32. Attention is drawn to... - Обращается внимание на ...
33. Data are given about... - Приведены данные о ...
34. Attempts are made to analyze, formulate ... - Делаются попытки проанализировать, сформулировать ...
35. Conclusions are drawn.... - Делаются выводы ...
36. Recommendations are given ... - Даны рекомендации ...

Образцы клише для аннотаций на английском языке

- The article deals with ...
- As the title implies the article describes ...
- The paper is concerned with...
- It is known that...
- It should be noted about...
- The fact that ... is stressed.
- A mention should be made about ...

- It is spoken in detail about...
- It is reported that ...
- The text gives valuable information on...
- Much attention is given to...
- It is shown that...
- The following conclusions are drawn...
- The paper looks at recent research dealing with...
- The main idea of the article is...
- It gives a detailed analysis of...
- It draws our attention to...
- It is stressed that...
- The article is of great help to ...
- The article is of interest to ...
- is/are noted, examined, discussed in detail, stressed, reported, considered.

5.2 *Подготовьте устный рассказ по теме на основе предложенного:* *№5*

When Should You Summarize an Article?

There are a few instances when you might want to summarize an article. These are:

To show how an author's ideas support your argument

To argue against the author's ideas

To condense a lot of information into a small space

To increase your understanding of an article

What Needs to Be Included in a Summary of an Article?

A great summary should include certain important elements that make the reading experience easier on the reader. A good summary will consist of the following elements.

The main idea of the article is conveyed clearly and concisely

The summary is written in the unique style of the writer

The summary is much shorter than the original document

The summary explains all of the important notions and arguments

The summary condenses a lot of information into a small space

How Do You Summarize an Article?

Summarizing an article can be boiled down to three simple steps. By following these steps, you should have a thorough, clear, and concise summary in no time.

Identify the main idea or topic.

Identify the important arguments.

Write your summary.

Continue reading for detailed explanations of each of these steps.

Identify the Main Idea or Topic

The aim of an article is to convey a certain idea or topic through the use of exposition and logic.

In a summary, you want to identify the main idea of the article and put this information into your own words. To do this, you must be willing to read the article several times. On the first reading, try to gain a general notion of what the article is trying to say. Once you've done this write down your initial impression. This is most likely the thesis, or main idea, of the article. Also, be sure to include the author's first and last name and the title of the article in your notation for later reference.

Example: In the article "Why Two Best Friends Doesn't Work," author Cassandra Grimes argues that most teenage girls can't get along in groups of more than two.

When trying to identify the central idea, you should ask yourself, "Why was this essay written and published?" Clues to help determine this include the following.

How to Identify the Main Idea of an Article

Gather information from the title.

Identify the place it was published, as this can help you determine the intended audience.

Determine the date of publication.

Determine the type of essay. (Is it expository, argumentative, literary, scholarly?)

Take note of the tone of the piece.

Identify certain notions or arguments that seem to be repeated throughout.

Applying these methods of identification, let's take a look at the article "Bypass Cure" by James Johnson. We can assume the subject of the article from the title. Upon further examination, it becomes clear that the author is arguing that new research suggests the best cure for diabetes is the surgical solution of a gastric bypass.

Example: "Bypass Cure" by James Johnson records a recent discovery by researchers that people who have bypass surgery for weight control are also instantly cured of diabetes. Since rising diabetic rates and obesity has become a worldwide concern, the article provides a startling but controversial potential solution.

Now that we have identified the main idea of the article, we can move onto the next step.

Identify Important Arguments

At this point in the preparation process, you should read the article again. This time, read more carefully. Look specifically for the supporting arguments. Some tips on how to identify the important arguments of an article are listed below.

How to Identify Important Arguments in an Article

Read on a paper copy or use a computer program that lets you make annotations.

Underline the topic sentence of each paragraph. (If no one sentence tells the main concept, then write a summary of the main point in the margin.)

Write that sentence in your own words on the side of the page or on another piece of paper.

When you finish the article, read all the topic sentences you marked or wrote down.

In your own words, rewrite those main ideas.

Use complete sentences with good transition words.

Be sure you don't use the same words, phrases, or sentence structure as the original.

You may find you need to leave out some of the unimportant details.

Your summary should be as short and concise as possible.

In short, you want to boil the article down to its main, supporting arguments. Let everything else fall away, and what you are left with is an argument or an opinion, and the arguments that support it.

Write Your Summary

Your summary should start with the author's name and the title of the work. Here are several ways to do this correctly:

Introduction Sentence Examples for an Article Summary

In "Cats Don't Dance," John Wood explains ...

John Wood, in "Cats Don't Dance," explains ...

According to John Wood in "Cats Don't Dance" ...

As John Wood vividly elucidates in his ironic story "Cats Don't Dance" ...

John Wood claims in his ironic story "Cats Don't Dance" that ...

Combine the thesis of the article with the title and author into your first sentence of the summary. Reference the following sentence as an example.

In "Cats Don't Dance," John Wood explains that in spite of the fact that cats are popular pets who seem to like us, felines are not really good at any activities that require cooperation with someone else, whether that is dancing or sharing.

If possible, your first sentence should summarize the article. The rest of your summary should cover some of the central concepts used to support the thesis. Be sure to restate these ideas in your own words, and to make your summary as short and concise as possible. Condense sentences and leave out unimportant details and examples. Stick to the important points.

How to Quote the Author of an Article

When you refer to the author for the first time, you always use their full name. When you refer to the author after that, you always use their last name. The following examples show how to use the author's name in an article summary after you have already introduced them.

Johnson comments ...

According to Wood's perspective ...

As Jones implies in the story about ...

Toller criticizes...

In conclusion, Kessler elaborates about ...

You don't need to use an author's title (Dr., Professor, or Mr. and Mrs.), but it does help to add their credentials to show they are an authoritative source. The sentences below show ways to do this.

In "Global Warming isn't Real," Steven Collins, a professor at the University of Michigan, claims that ...

New York Times critic Johann Bachman argues in "Global Warming is the Next Best Thing for the Earth" that ...

If you are discussing the ideas of the author, you always need to make it clear that you are reciting their ideas, not your own.

How to Introduce the Ideas of the Author in an Article Summary

Use author tags

Use mentions of "the article" or "the text"

Add the page number that the information is found on in parenthesis at the end of the sentence

Using Author Tags

In writing your summary, you need to clearly state the name of the author and the name of the article, essay, book, or other source. The sentence below is a great example of how to do this.

According to Mary Johnson in her essay, "Cats Make Good Pets," the feline domestic companion is far superior to the canine one.

You also need to continue to make it clear to the reader when you are talking about the author's ideas. To do this, use "author tags," which are either the last name of the author or a pronoun (he or she) to show you are still discussing that person's ideas.

Also, try to make use of different verbs and adverbs. Your choice of author tag verbs and adverbs can contribute to the way you analyze the article. Certain words will create a specific tone. See the tables for a selection of different word choices.

How Long Is a Summary of an Article?

The length of an article summary will depend on the length of the article you are writing about.

If the article is long (say, 10-12 pages) then your summary should be about four pages. If the article is shorter, your summary should be about one to two pages. Sometimes, an article summary can be less than one page.

The length of a summary will also depend on the instructions you have been given. If you are writing a summary for yourself, it's up to you how long or short it will be (but remember, a summary is supposed to be a short regurgitation of the information outline in an article). If you are writing a summary for a class assignment, the length should be specified.

How to Edit and Revise Your Summary

Before you are officially done, it is important to edit your work. The steps below explain the process of editing and revision.

Re-read the summary and edit out any obvious mistakes.

Read your summary aloud. If anything sounds off, fix it.

Let one of your peers read your summary. Make changes according to their feedback.

With that, your summary should be complete.

5.3 Систематизация грамматического материала:

Синтаксис: Побудительные предложения, восклицательные предложения, вопросительные предложения.

В побудительном предложении выражаются различные побуждения к действию – приказ, просьба, запрещение, рекомендация, совет и т.д. Повелительные предложения, выражающие приказания, произносятся с понижающейся интонацией, а предложения, выражающие просьбу, - с повышающейся интонацией.

Повелительное предложение может быть как утвердительным, так и отрицательным. Глагол в повелительном предложении употребляется в форме повелительного наклонения. Подлежащее как правило отсутствует, и предложение начинается прямо со сказуемого. Подразумевается, что действие должен выполнять тот, кому адресовано обращение.

Open the book. *Откройте книгу.*

Translate this article, please. *Переведите, пожалуйста, эту статью.*

Take off your hat! *Снимите шляпу!*

Don't go there. *Не ходите туда.*

Tell me all about it. *Расскажи мне все об этом.*

Put the dictionary on the shelf. *Положите словарь на полку.*

Don't be late, please. *Не опоздайте, пожалуйста.*

Предложение может состоять и из одного сказуемого, выраженного глаголом в повелительном наклонении:

Write! *Пиши(те)!*

Don't talk! *Не разговаривай(те)!*

Для выражения просьбы в конце повелительного предложения часто употребляется *will you?* или *won't you?*, отделяющиеся запятой:

Come here, **will you?** *Идите сюда, пожалуйста.*

Close the window, **will you?** *Закройте, пожалуйста, окно.*

Fetch me a chair, **won't you?** *Принесите мне стул, пожалуйста.*

Come and see me, **won't you?** *Заходите ко мне, пожалуйста.*

Просьба может быть выражена также в форме вопросительного предложения, начинающегося с *will* или *would*. В отличие от общего вопроса, предложение, выражающее просьбу, произносится с падающей интонацией:

Will you come here? *Идите сюда, пожалуйста.*

Will you give me that book? *Дайте мне эту книгу, пожалуйста.*

Would you mind lending me your dictionary? *Не будете ли вы добры одолжить мне ваш словарь?*

Would you give me some water? *Дайте мне воды, пожалуйста.*

Will you fetch me a chair, please? *Принесите мне стул, пожалуйста.*

Would you be good enough to close the window? *Не будете ли вы добры закрыть окно?*

Для усиления просьбы перед глаголом в повелительном наклонении употребляется вспомогательный глагол **do**:

Do write to me! *Пожалуйста, пишите мне!*

Do listen to me. *Послушайте же меня!*

Do come with me. *Идемте со мной, ну!*

Восклицательные предложения передают различные эмоциональные чувства – радость, удивление, огорчение и т.д. Любое предложение: повествовательное,

вопросительное или повелительное может стать восклицательным, если высказываемая мысль сопровождается сильным чувством и интонацией. На письме оно обычно обозначается восклицательным знаком. Восклицательные предложения произносятся с понижающейся интонацией.

At last you have returned! *Наконец вы вернулись!*
Have you ever seen such weather?! *Вы когда-нибудь видели такую погоду?!*
How can you be so lazy! *Ну как можно быть таким ленивым!*
Oh, please, forgive me! *О, пожалуйста, прости меня!*
Hurry up! *Спешите!*
You are so stupid! *Ты так глуп!*

Среди них выделяют восклицательные предложения, начинающиеся с местоимения **what** – *какой, какая, что за* или наречия **how** – *как*. В этих предложениях сохраняется прямой порядок слов, т.е. сказуемое следует за подлежащим. В отличие от русского языка, слова **what** и **how** всегда стоят непосредственно перед определяемым словом. То есть, если по-русски возможна конструкция: "**Какую** я сделал ошибку!", то в английском возможно лишь: "**Какую** ошибку я сделал!"

Местоимение **what** относится обычно к существительному, перед которым могут находиться еще и определяющие его прилагательное или наречие:

What a beautiful house that is! *Какой это красивый дом!*
What beautiful hair she has got! *Какие у нее прекрасные волосы!*
What interesting news I've heard! *Какую интересную новость я узнал!*
What a cold day it is! *Какой холодный день!*
What clever people they are! *Какие они умные люди!*
What a large house that is! *Какой это большой дом!*

А наречие **how** относится к прилагательному или наречию; предложение строится по схеме: **How** + прилагательное (наречие) + подлежащее + сказуемое:

How beautifully she sings! *Как красиво она поет!*
How slowly they run! *Как медленно они бегут!*
How far it is! *Как это далеко!*
How hot it was! *Как жарко было!*
How well she sings! *Как хорошо она поет!*
How quickly you walk! *Как быстро вы ходите! = Как вы быстро ходите!*

Если местоимение **what** определяет исчисляемое существительное в единственном числе, то это существительное употребляется с неопределенным артиклем:

What a foolish mistake I have made! *Какую глупую ошибку я сделал!*
What a beautiful girl she is! *Какая она красивая девушка!*
What a fine building that is! *Какое это красивое здание!*

С исчисляемым существительным во множественном числе и с неисчисляемым существительным артикль не употребляется:

What foolish mistakes I have made! *Какие глупые ошибки я сделал!*
What interesting books you have brought! *Какие интересные книги вы принесли!*
What fine weather it is! *Какая хорошая погода!*
What strange ideas he has! *Какие у него странные идеи!*

Чаще всего восклицательные предложения неполные. В них опускаются подлежащее, часть сказуемого, или все сказуемое целиком:

What a fine building (that is)! *Какое прекрасное здание!*
What a silly story (it is)! *Что за глупая история!*

What a funny girl (she is)! *До чего смешная девчонка!*
How late (it is)! *Как поздно!*
How wonderful! *Как замечательно!*
How beautiful! *Как красиво!*
What a girl! *Ну и девушка!*
How cold (it is)! *Как холодно!*

Порядок слов в английском предложении

В русском языке, благодаря наличию падежных окончаний, мы можем переставлять члены предложения, не меняя основного смысла высказывания. Например, предложения Студенты изучают эти планы и Эти планы изучают студенты совпадают по своему основному смыслу. Подлежащее в обоих случаях - студенты, хотя в первом предложении это слово стоит на первом месте, а во втором предложении - на последнем.

По-английски такие перестановки невозможны. Возьмём предложение The students study these plans Студенты изучают эти планы. Если подлежащее и дополнение поменяются местами, то получится бессмыслица: These plans study the students Эти планы изучают студентов. Произошло это потому, что слово plans, попав на первое место, стало подлежащим.

Английское предложение имеет твёрдый порядок слов.

Порядок слов в английском предложении показан в этой таблице:

I	II	III Дополнение			IV Обстоятельство
		Косвенное без предлога	Прямое	Косвенное с предлогом	
Подлежащее	Сказуемое				
We Мы	study изучаем		math математику		
He Он	gives дает	us нам	lessons уроки		in this room. в этой комнате
She Она	reads читает		her notes свои заметки	to Peter Петру	every day. каждый день

Вопросительное предложение

Общее правило построения вопросов в английском языке таково: Все вопросы (кроме специальных вопросов к подлежащему предложения) строятся путем инверсии. Инверсией называется нарушение обычного порядка слов в английском предложении, когда сказуемое следует за подлежащим.

В тех случаях, когда сказуемое предложения образовано без вспомогательных глаголов (в Present и Past Indefinite) используется вспомогательный глагол to do в требуемой форме - do/does/did.

Общие вопросы

Общий вопрос задается с целью получить подтверждение или отрицание высказанной в вопросе мысли. На общий вопрос обычно дается краткий ответ: "да" или "нет".

Для построения общего вопроса вспомогательный или модальный глагол, входящий в состав сказуемого, ставится в начале предложения перед подлежащим.

а) Примеры сказуемого с одним вспомогательным глаголом: Is he speaking to the teacher?
 - Он говорит с учителем?

б) Примеры сказуемого с несколькими вспомогательными глаголами:

You will be writing letters to us. – Ты будешь писать нам письма.

Will you be writing letters to us? – Будешь ли ты писать нам письма?

Примеры с модальными глаголами:

She can drive a car. – Она умеет водить машину.

Can she drive a car? - Она умеет водить машину? (Yes, she can.; No, she cannot)

Когда в составе сказуемого нет вспомогательного глагола (т.е. когда сказуемое выражено глаголом в Present или Past Indefinite), то перед подлежащим ставятся соответственно

формы do / does или did; смысловой же глагол ставится в форме инфинитива без to (словарная форма) после подлежащего.

С появлением вспомогательного глагола do на него переходит вся грамматическая нагрузка - время, лицо, число: в Present Indefinite в 3-м лице ед. числа окончание -s, -es смыслового глагола переходит на глагол do, превращая его в does; а в Past Indefinite окончание прошедшего времени -ed переходит на do, превращая его в did.

Do you go to school? – Ходишь ли ты в школу?

Do you speak English well? - Ты хорошо говоришь по-английски?

Ответы на общие вопросы

Общий вопрос требует краткого ответа "да" или "нет", которые в английском языке образуются следующим образом:

а) Положительный состоит из слова Yes за которым (после запятой) идет подлежащее, выраженное личным местоимением в им. падеже (никогда не используется существительное) и тот вспомогательный или модальный глагол, который использовался в вопросе (вспомогательный глагол согласуется с местоимением ответа);

б) Отрицательный ответ состоит из слова No, личного местоимения и вспомогательного (или модального) глагола с последующей частицей not

Например: Are you a student? - Ты студент?

Yes, I am. - Да.; No, I am not. - Нет.

Do you know him? – Ты знаешь его?

Yes, I do. – Да (знаю).; No, I don't. – Нет (не знаю).

Специальные вопросы

Специальный вопрос начинается с вопросительного слова и задается с целью получения более подробной уточняющей информации. Вопросительное слово в специальном вопросе заменяет член предложения, к которому ставится вопрос.

Специальные вопросы могут начинаться словами:

who? – кто? whom? – кого? whose? – чей? what? – что? какой? which? – который?

when? – когда? where? – где? куда? why? – почему? how? – как?

how much? – сколько? how many? – сколько? how long? – как долго? сколько времени?

how often? – как часто?

Построение специальных вопросов:

1) Специальные вопросы ко всем членам предложения, кроме подлежащего (и его определения) строятся так же, как и общие вопросы – посредством инверсии, когда вспомогательный или модальный глагол ставится перед подлежащим.

Специальный вопрос (кроме вопроса к подлежащему) начинается с вопросительного слова или группы слов за которым следуют вспомогательный или модальный глагол, подлежащее и смысловой глагол (сохраняется структура общего вопроса).

Вопрос к прямому дополнению:

What are you reading? Что ты читаешь?

What do you want to show us? Что вы хотите показать нам?

Вопрос к обстоятельству

Обстоятельства бывают разного типа: времени, места, причины, условия, образа действия и др.

He will come back tomorrow. – Он вернется завтра.

When will he come back? – Когда он вернется?

What did he do it for? Зачем он это сделал?

Where are you from?

Вопрос к определению

Вопрос к определению начинается с вопросительных слов what какой, which (of) который (из), whose чей, how much сколько (с неисчисляемыми существительными), how many сколько (с исчисляемыми существительными). Они ставятся непосредственно перед

определяемым существительным (или перед другим определением к этому существительному), а затем уже идет вспомогательный или модальный глагол.

What books do you like to read? Какие книги вы любите читать?

Which books will you take? Какие книги (из имеющихся) вы возьмете?

Вопрос к сказуемому

Вопрос к сказуемому является типовым ко всем предложениям: "Что он (она, оно, они, это) делает (делал, будет делать)?", например:

What does he do? Что он делает?

Специальные вопросы к подлежащему

Вопрос к подлежащему (как и к определению подлежащего) не требует изменения прямого порядка слов, характерного для повествовательного предложения. Просто подлежащее (со всеми его определениями) заменяется вопросительным местоимением, которое исполняет в вопросе роль подлежащего. Вопросы к подлежащему начинаются с вопросительных местоимений:

who – кто (для одушевленных существительных)

what - что (для неодушевленных существительных)

The teacher read an interesting story to the students yesterday.

Who read an interesting story to the students yesterday?

Сказуемое в таких вопросах (после who, what в роли подлежащего) всегда выражается глаголом в 3-м лице единственного числа (не забудьте про окончание -s в 3-м лице ед. числа в Present Indefinite. Правила образования -s форм см. здесь.):

Who is reading this book? Кто читает эту книгу?

Who goes to school?

Альтернативные вопросы

Альтернативный вопрос задается тогда, когда предлагается сделать выбор, отдать чему-либо предпочтение.

Альтернативный вопрос может начинаться со вспомогательного или модального глагола (как общий вопрос) или с вопросительного слова (как специальный вопрос) и должен обязательно содержать союз or - или. Часть вопроса до союза or произносится с повышающейся интонацией, после союза or - с понижением голоса в конце предложения.

Например вопрос, представляющий собой два общих вопроса, соединенных союзом or:

Is he reading or is he writing?

Did he pass the exam or did he fail?

Вторая часть вопроса, как правило, имеет усеченную форму, в которой остается (называется) только та часть, которая обозначает выбор (альтернативу):

Is he reading or writing?

Разделительные вопросы

Основными функциями разделительных вопросов являются: проверка предположения, запрос о согласии собеседника с говорящим, поиски подтверждения своей мысли, выражение сомнения.

Разделительный (или расчлененный) вопрос состоит из двух частей: повествовательной и вопросительной.

Первая часть - повествовательное утвердительное или отрицательное предложение с прямым порядком слов.

Вторая часть, присоединяемая через запятую, представляет собой краткий общий вопрос, состоящий из местоимения, заменяющего подлежащее, и вспомогательного или модального глагола. Повторяется тот вспомогательный или модальный глагол, который входит в состав сказуемого первой части. А в Present и Past Indefinite, где нет вспомогательного глагола, употребляются соответствующие формы do/ does/ did.

В второй части употребляется обратный порядок слов, и она может переводиться на русский язык: не правда ли?, не так ли?, верно ведь?

1. Если первая часть вопроса утвердительная, то глагол во второй части стоит в отрицательной форме, например:

You speak French, don't you? You are looking for something, aren't you? Pete works at a plant, doesn't he?

2. Если первая часть отрицательная, то во второй части употребляется утвердительная форма, например:

It is not very warm today, is it? John doesn't live in London, does he?

Безличные предложения

Поскольку в английском языке подлежащее является обязательным элементом предложения, в безличных предложениях употребляется формальное подлежащее, выраженное местоимением *it*. Оно не имеет лексического значения и на русский язык не переводится.

Безличные предложения используются для выражения:

1. Явлений природы, состояния погоды: *It is/(was) winter.* (Была) Зима. *It often rains in autumn.* Осенью часто идет дождь. *It was getting dark.* Темнело. *It is cold.* Холодно. *It snows.* Идет снег.

2. Времени, расстояния, температуры: *It is early morning.* Раннее утро. *It is five o'clock.* Пять часов. *It is two miles to the lake.* До озера две мили. *It is late.* Поздно.

3. Оценки ситуации в предложениях с составным именным (иногда глагольным) сказуемым, за которым следует подлежащее предложения, выраженное инфинитивом, герундием или придаточным предложением: *It was easy to do this.* Было легко сделать это. *It was clear that he would not come.* Было ясно, что он не придет.

It was clear that he would not come. Было ясно, что он не придет.

4. С некоторыми глаголами в страдательном залоге в оборотах, соответствующих русским неопределенно-личным оборотам: *It is said he will come.* Говорят, он придет.

Выполните упражнения для закрепления материала:

1. Write questions and answers for the following statements, as in the example.

- 1 Sam was hungry when he reached the restaurant.
...*Was Sam hungry when he reached the restaurant? Yes, he was...*
- 2 They should concentrate in class.
- 3 She can't speak any foreign languages.
- 4 They have to work overtime.
- 5 The boss was angry when Stuart arrived late.
- 6 The children didn't enjoy the film.
- 7 She wanted to go to the supermarket.
- 8 The train leaves at half past six.

2. Fill in *who, whose, what, which, where, when, how long, how often, what time, why, how much, how many or how long ago.*

1. ...*How often ... do you play football?* Twice a week.'
2. '... does the train leave?' 'Nine o'clock.'
3. '... is Martin?' 'In the garden.'
4. '... is it?' 'Half past ten.'
5. '... does he earn?' '£1,000 a month.'
6. '... sisters have you got?' Two.'
7. '... is this book?' '£5.'
8. '... did he call?' To invite me out to dinner.'
9. '... is the new driver like?' He's very friendly.'
10. '... shall we do this evening?' Let's go out.'
11. '... is the office party?' 'On Saturday.'
12. '... have you been waiting?' About half an hour.'
13. '... is that briefcase?' 'I think it's Tom's.'
14. '... of these rings do you prefer?' The gold one.'

15. '... spilt coffee on the desk?' 'I did. Sorry.'
16. '... did you get your exam results?' 'Last Friday.'
17. '... did you meet Jessie?' 'Two years ago.'
18. '... is the easiest way to get to the cinema?' 'Go through the city centre.'

3. Write questions to which the words in bold are the answers.

- 1 They live **near the beach**.
...Where do they live?...
- 2 It takes **ten minutes** to drive to the supermarket.
- 3 George is **selfish**.
- 4 Mary is **tall, with dark hair and green eyes**.
- 5 I go swimming **twice a week**.
- 6 **The joke** made them laugh.
- 7 They are **Miss Drake's** books.
- 8 The shoes cost **twenty pounds**.
- 9 The film starts **at 7 pm**.
- 10 **Mr Samson** wants to open a shop.
- 11 Todd has been **to Spain**.
- 12 **She is happy because** she has won the competition.
- 13 Alan is a **very serious** person.
- 14 They moved here **six months ago**.

4. Write questions to which the words in bold are the answers.

Louise is **eight years old**. She lives in **Brighton, England**, and she has lived there **since she was two years old**. Louise goes to school every day and her favourite subjects are **English and History**. She has **two** brothers. Their names are **Steven and James**. Louise has several hobbies, such as **collecting wild flowers and playing the violin**. She practises the violin **every evening**. Her mother enjoys this, **because she likes listening to music**.

5. Write questions to which the words in bold are the answers.

- 1 Mark is decorating **the living room**.
...What is Mark decorating?...
- 2 She found **Steven's** wallet.
- 3 **Mum** made these cakes.
- 4 **Fiona's** dress was ruined at the party.
- 5 Melissa is wearing a **blue dress**.
- 6 **Bob** is the older of the two brothers.
- 7 Stacey has bought a **new bag**.
- 8 I like **the blue** jumper best.
- 9 **The roof** was blown off in the storm.
- 10 I ran into **Jason** the other day.
- 11 I spoke to the **manager's** secretary about my complaint
- 12 **The Ethiopian runner** won the 1500m race.

6. Complete the questions.

- 1 Ryan won two races.
a 'Who ...won two races...?' 'Ryan.'
b 'How many ...races did Ryan win...?' 'Two.'
- 2 Stanley goes swimming three times a week.
a 'Who ... ?' 'Stanley.'
b 'How often ... ?' 'Three times a week.'
- 3 There are two shirts. The yellow one is mine.
a 'Which ... ?' 'The yellow one.'

- b 'Whose ... ?' 'Mine.
 4 Steven has broken Jim's mug.
 a 'Whose ... ?' 'Jim's.
 b 'Who ... ?' 'Steven.
 5 Linda is going to the theatre this evening.
 a 'Who ... ?' 'Linda.
 b 'Where ... ?' 'To the theatre.
 6 Anne bought Ralph a present yesterday.
 a 'Who ... ?' 'Anne.
 b 'Who ... ?' 'Ralph.
 7 There are two bags. The one on the chair is Fay's.
 a 'Whose ... ?' 'Fay's.
 b 'Which ... ?' 'The one on the chair.'

7. Use the prepositions in brackets to write questions to match the statements.

- 1 She bought some flowers. Who ...*did she buy them for?* ... (for)
 2 I got an invitation this morning. Who ...? (from)
 3 Pedro comes from Spain. Where exactly ...? (from)
 4 I read an interesting article yesterday. What ...? (about)
 5 Lisa is excited. What ...? (about)
 6 Linda played tennis. Who ...? (with)
 7 Sam wrote a letter. Who ...? (to)
 8 I went to a restaurant last night. Who ...? (with)

8. Write the short form of the following negative questions.

- 1 Has she not replied to your letter yet?
 ...*Hasn't she replied to your letter yet?*...
 2 Do they not live here any more?
 3 Can she not drive a car?
 4 Does he not understand what he has to do?
 5 Do you not know the answer to this question?
 6 Did he not offer you anything to drink?
 7 Have we not got any milk left?
 8 Could you not do anything to help him?

9. Make negative questions using the words given, as in the example.

- 1 A: I'm really tired today.
 B: Why? ...*Didn't you go...* (go) to bed early last night?
 2 A: ... (know) what time the film starts?
 B: No, but I'll phone the cinema and ask now.
 3 A: Let's go to see the new Brad Pitt film tonight.
 B: ... (already/see) it?
 4 A: ... (help) me make dinner?
 B: No, sorry. I'm very busy at the moment.
 5 A: ... (type) the reports yet?
 B: No, sir. I'll finish them before I go home, though.
 6 A: ... (cold)?
 B: No. Actually I think it's quite warm in here.

10. Turn the following into indirect questions.

- 1 Who left this bag here? Do you know ...*who left this bag here?*...
 2 Who is that woman? We need to find out ...
 3 What time does the next train leave? Can you tell me ...

- 4 How much does this dress cost? Could you tell me ...
 5 Where does Mary live? I don't know ...
 6 Are the police investigating the robbery? Have you any idea ...
 7 Did the caller leave a message? I'd like to find out ...
 8 Is he the manager? I'd like to know ...
 9 Who reported the crime? Do you know ...
 10 How did they find the missing jewellery? Have you any idea ...

11. Decide if the statement after each exchange is true (T) or false (F).

- 1 Mark: I love playing football.
 Paul: So do I.
 ...T... *Paul loves playing football.*
 2 Lucy: I don't enjoy watching horror films.
 Jessica: Neither do I.
 Jessica enjoys watching horror films.
 3 Simon: I have never been to America before.
 Steven: Neither have I.
 Steven has never been to America before.
 4 Richard: I have got a lot of pen-friends.
 Julia: So have I.
 Julia hasn't got a lot of pen-friends.
 5 Belinda: I am going to take the bus to school.
 Lucy: So am I.
 Lucy is going to take the bus to school.

12. Fill in the gaps with appropriate responses.

- 1 A: I didn't go to the party last night.
 B: ...*Neither/Nor did I...* I wish I had, though.
 2 A: I enjoyed that film.
 B: It was brilliant.
 3 A: I don't like omelettes.
 B: I think they're horrible.
 4 A: I'm not looking forward to this exam.
 B: I'm sure it will be very difficult.
 5 A: I'm going to York next weekend.
 B: ... ! Perhaps I'll see you there.
 6 A: I've just bought a new car.
 B: Mine is a Rover.
 7 A: I haven't got any pets.
 B: I used to have a dog, though.
 8 A: I was quite ill last week.
 B: I had the flu.

13. Fill in the blanks with phrases using the verbs given and so or not.

- 1 A: Are they going on holiday this year?
 B: ...*I don't imagine so...* (imagine). They haven't saved any money.
 2 A: Is Debbie ill?
 B: ... (think). I saw her in town this morning.
 3 A: Did John fail his exams?
 B: ... (afraid). He'll have to take them again.
 4 A: Will you be finished soon?
 B: (expect). I haven't got much left to do.
 5 A: Can you come to the meeting after work?

- B: ... (think). I haven't got any other plans.
 6 A: Have they sold their house?
 B: ... (appear). There's a 'sold' sign up outside.
 7 A: Has he got a new car?
 B: ... (believe). I saw him driving a different one last week.
 8 A: Could you lend me some money, please?
 B: ... (afraid). I haven't got any.
 9 A: Are you going anywhere nice this weekend?
 B: ... (suppose). My boss wants me to work.

14. Fill in the correct question tags and short answers.

- 1 A: You've seen that film, ...*haven't you*...?
 B: Yes, ...*I have*....
 2 A: They want to go skiing this year, ... ?
 B: No,They want to go on an adventure holiday.
 3 A: He'll probably be hungry when he comes in, ... ?
 B: Yes,I'll make him some sandwiches.
 4 A: She likes going to the cinema, ... ?
 B: NoShe prefers going to the theatre.
 5 A: You've been to university, ... ?
 B: Yes,
 6 A: I'm a bit younger than Sally, ... ?
 B: Yes,
 7 A: They aren't moving, ... ?
 B: Yes,
 8 A: You won't forget to call me, ... ?
 B: No,Don't worry.
 9 A: You took some photographs at the ceremony, ... ?
 B: Yes,... .They're in this album.
 10 A: He knows I'm planning a party for him, ... ?
 B: No,He doesn't suspect a thing.
 11 A: They have bought a new car, ...?
 B: Yes,It's a Volvo.
 12 A: He works for his father, ... ?
 B: Yes,His father owns a large company.
 13 A: I'm not late, ... ?
 B: No,You're just on time.
 14 A: They'll be here in a minute, ... ?
 B: Yes, We'd better tidy up.
 15 A: You did the washing-up, ... ?
 B: Yes, ... , and I cleaned the kitchen.

15. Underline the correct answer.

- 1 A: You're new here, **are you/aren't you?**
 B: Yes. I started work here yesterday.
 A: Ah. Well, you've met everyone in the office, **hadn't you/haven't you?**
 B: Yes. There are a lot of people working here, **aren't they/aren't there?**
 2 A: You will remember to lock all the doors when you leave, **will you/won't you?**
 B: Of course. I'm not stupid, **am I/aren't I?**
 A: No. But you forgot to lock the doors last week, **didn't you/did you?**
 B: You're not going to let me forget that, **aren't you/are you?**
 3 A: You haven't seen Linda lately, **have you/haven't you?**
 B: I saw her today. I told you, **did I/didn't I?**

A: Oh, yes! She didn't mention the party, **did she/didn't she?**

B: No, she didn't. It's tomorrow night, **is it/isn't it?**

16. Fill in the question tags.

- 1 You haven't got any money, ...*have you*...?
- 2 There's some water in the jug, ...?
- 3 She will be here on time, ...?
- 4 Mum can give me a lift, ...?
- 5 You know my brother, ...?
- 6 They live together, ...?
- 7 We have plenty of time, ...?
- 8 That boy is very clever, ...?
- 9 You have a car, ...?
- 10 The train will arrive soon, ...?
- 11 He has finished his homework, ...?
- 12 That's my wallet, ...?

Тема 6: Основные правила презентации научно-технической информации

6.1 Запомните слова и выражения, необходимые для освоения темы курса:

Начало презентации

Good morning / afternoon / evening ladies and gentlemen	Доброе утро / день / вечер дамы и господа
My name is... I am ...	Меня зовут ... Я являюсь ...
Today I would like to talk with you about ...	Сегодня я хотел бы поговорить с вами о...
My aim for today's presentation is to give you information about ...	Цель моей сегодняшней презентации – проинформировать вас о...
I have been asked to comment on what I think of the way ...	Меня попросили сказать / прокомментировать, что я думаю о способе ...
Please feel free to interrupt me if there are any questions.	Пожалуйста, не стесняйтесь прерывать меня, если возникнут любые вопросы.
If you have any questions, please feel free to ask me at the end of the presentation.	Если у вас есть какие-либо вопросы, пожалуйста, задайте их по окончании презентации.

Сообщение о плане презентации

At the outset ...	Вначале ...
First of all, ... / Above all, ...	Прежде всего ...
First I would like to talk about ...	Сначала я хотел бы сказать о ...
I'd like to start by saying ...	Я бы хотел начать с ...
Before discussing ...	Перед тем как обсуждать ...
Describing this process, it is necessary to start with ...	Описывая этот процесс, необходимо начать с ...
Firstly, we must become accustomed to the terminology, which uses ...	Сначала мы должны ознакомиться с терминологией, которую использует ...
I'd like to come to the right point ...	Я бы хотел сразу приступить к делу ...
I am going to divide my review / report / article into 3 areas / parts ...	Я собираюсь разделить свой обзор / доклад / статью на 3 части ...
I will begin with a definition of ..., then go on to a brief review ...	Я начну с определения ..., затем перейду к краткому обзору ...
Let us start by mentioning a few facts ...	Давайте начнем с упоминания некоторых фактов ...
Then I would like to take a look at...	Затем я хотел бы взглянуть на ...
Following that we should talk about ...	Вслед за этим мы должны поговорить о ...
Lastly we are going to discuss ...	В заключение мы обсудим ...
I would like to talk to you today about _____ for _____ minutes.	Сегодня я хотел бы поговорить с вами о _____ в течение _____ минут.
We should be finished here today by _____ o'clock.	Мы должны закончить сегодня к _____ часам.

Управление презентацией

Now we will look at ...	Сейчас мы посмотрим на ...
I'd like now to discuss...	Я бы хотел обсудить сейчас ...
Before moving to the next point I need to ...	Прежде чем перейти к следующему вопросу, мне необходимо ...
Let's now talk about...	Давайте сейчас поговорим о ...
Let's now turn to...	Давайте перейдем сейчас к ...
Let's move on to...	Давайте перейдем к ...
That will bring us to our next point ...	Это приведет нас к нашему следующему пункту ...
Moving on to our next point ...	Переходим к нашему следующему пункту ...
Let us now turn to ..., namely to ...	Теперь перейдем к ..., а именно к ...

We come now to the description of ...	Теперь мы подошли к описанию ...
Let's switch to another topic ...	Перейдем на другую тему ...
Let us now proceed to consider how ...	Давайте перейдем к рассмотрению того, как ...
Firstly ...	Во-первых ...
Secondly ...	Во-вторых ...
Thirdly ...	В-третьих ...
I'd like to describe in detail ...	Я бы хотел подробно описать ...
Let's face the fact ...	Давайте обратимся к факту ...
Consider another situation.	Рассмотрим другую ситуацию ...
Let's go back a bit to ...	Давайте немного вернемся к ...
It will take up too much time / space ...	Это займет слишком много времени / места ...
This point will be discussed later / after ...	Этот вопрос будет обсуждаться позднее / после ...
Lastly ...	Наконец / в заключение ...
Eventually we must confess ...	В конечном итоге, мы должны признаться ...
Now we come to the final phase of ...	Теперь перейдем к заключительному этапу ...
One more question remains to discuss ...	Остается еще один вопрос для обсуждения ...
And the last point, ...	И последний вопрос / замечание, ...
A final remark.	Последнее замечание.
Подведение итогов	
I would just like to sum up the main points again ...	Я бы еще раз хотел подвести итоги основных пунктов ...
If I could just summarize our main points before your questions. So, in conclusion ...	Я хочу только подвести итоги наших главных пунктов перед тем, как вы начнете задавать вопросы. Итак, в заключение ...
Finally let me just sum up today's main topics ...	В заключение, позвольте мне подвести итоги сегодняшних основных тем ...
Concluding what has been said above, I want to stress that ...	Подводя итог тому, что было сказано выше, я хочу подчеркнуть, что ...
I will sum up what has been said ...	Я подытожу все сказанное ...
To conclude this work ...	В завершение этой работы ...
To summarize, the approach to ... described here is ...	Резюмируем: подход к ..., описанный здесь, состоит в ...
We arrived at the conclusion that ...	Мы пришли к заключению, что ...
We shouldn't rush to a conclusion ...	Мы не должны делать поспешный вывод ...
We find the following points significant ...	Мы находим важными следующие моменты ...
We can draw just one conclusion since ...	Мы можем сделать лишь один вывод, поскольку ...
As a summary I would like to say that ...	В качестве обобщения, я бы хотел сказать, что ...
Finally, the results are given in ...	И, наконец, результаты представлены в ...
Уточнения	
I'm sorry, could you expand on that a little?	Простите, можно немножко поподробнее?
Could you clarify your question for me?	Могли бы вы прояснить этот вопрос для меня?
I'm sorry I don't think I've understood your question, could you rephrase it for me?	Извините, по-моему, я не понял вашего вопроса. Могли бы вы изложить его иначе (перефразировать) для меня?
I think what you are asking is ...	Я думаю то, о чем вы спрашиваете, это ...
If I've understood you correctly you are asking about ...	Если я правильно вас понял, вы спрашиваете о ...
So you are asking about ...	Итак, вы спрашиваете о ...
Thus ...	Таким образом ...
Thus we see ...	Таким образом, мы видим ...
In consequence ...	В результате ...

In consequence of ...	Вследствие ...
Turning now to possible variants ...	Переходя теперь к возможным вариантам ...
We can further divide this category into two types ...	В дальнейшем мы можем разделить эту категорию на два типа ...
>We can now go one step further ...	Теперь мы можем продвинуться на шаг вперед ...
That is why we have repeatedly suggested that ...	Вот почему мы неоднократно предлагали ...
However this conclusion may turn out to be hasty, if ...	Однако этот вывод может оказаться поспешным, если ...
Maybe we could get definite results at an earlier date ...	Возможно, мы могли бы получить определенные результаты на более раннюю дату (раньше) ...
No definite conclusions have so far been reached in these discussions ...	В ходе этих дискуссий так и не были сделаны какие-либо определенные выводы ...
Results are encouraging for ...	Результаты обнадеживающие, поскольку ...
Results from such research should provide ...	Результаты такого исследования должны обеспечить ...
That yields no results ...	Это не дает никаких результатов ...
The logical conclusion is that ...	Логическим заключением является то, что ...
The result was astounding ...	Результат был ошеломляющим ...
The results are not surprising ...	Результаты неудивительны ...
Then eventually I came to the conclusion that ...	Затем, со временем, я пришел к выводу, о том что ...
There are two important consequences of ...	Есть два важных следствия ...
The first step is to develop ...	Первый шаг состоит в том, чтобы разработать ...
The second phase of is that ...	Второй этап ... в том, чтобы ...
There are two main stages in the procedure ...	В данной процедуре есть два главных этапа ...
Although I think that ...	Хотя я полагаю, что ...
I strongly believe that ...	Я решительно полагаю, что ...
In order to understand ...	Для того чтобы понять ...
It has to be said that ...	Необходимо сказать, что ...
Many experts are coming to believe that only ...	Многие эксперты все больше приходят к убеждению, что только ...
Some experts, however, think that ...	Некоторые эксперты, однако, думают, что ...
Someone may say that ...	Кто-то может сказать, что ...
Though we used to think ...	Хотя мы привыкли полагать ...
It is generally considered that ...	Обычно полагают, что ...
We should realize that ...	Мы должны осознавать, что ...
Now we understand why it is so hard to ...	Теперь мы понимаем, почему так трудно ...
Consider how it can be done ...	Рассмотрим, как это может быть сделано ...
At first glance it would seem that ...	На первый взгляд могло бы показаться, что ...
It can be viewed in a different light ...	Можно иначе смотреть на это ...
It has been assumed that ...	Предполагалось, что ...
Let us assume for a moment that ...	Предположим на минуту, что ...
Suppose, for example, that ...	Предположим, например, что ...
Though it might seem paradoxical, ...	Хотя это могло бы показаться парадоксальным ...
You might know that ...	Вы, возможно, знаете, что ...
But it can be claimed that ...	Но можно утверждать, что ...
Let us not forget that ...	Давайте не будем забывать, что ...
This simplified approach ignores the importance of ...	Этот упрощенный подход игнорирует важность ...

6.2 Подготовьте устный рассказ по теме на основе предложенного:

A presentation is the practice of showing and explaining the content of a topic to an audience or learner. In the business world, there are sales presentations, informational and motivational presentations, interviews, status reports, image-building, and training sessions.

Students are often asked to make oral presentations. You might have been asked to research a subject and use a presentation as a means of introducing it to other students for discussion.

Before you prepare for a presentation, it is important that you think about your objectives. There are three basic purposes of giving oral presentations: to inform, to persuade, and to build goodwill.

Decide what you want to achieve:

- inform – to provide information for use in decision making;
- persuade – to reinforce or change a receiver’s belief about a topic;
- build relationships – to send some messages which have the simple goal of building good-will

between you and the receiver.

Preparation

A successful presentation needs careful background research. Explore as many sources as possible, from press cuttings to the Internet. Once you have completed your research, start writing for speech bearing in mind the difference between spoken and written language. Use simple, direct sentences, active verbs, adjectives and the pronouns “you” and “I”.

Structuring a Presentation

A good presentation starts with a brief introduction and ends with a brief conclusion. The introduction is used to welcome your audience, introduce your topic/ subject, outlines the structure of your talk. The introduction may include an icebreaker such as a story, an interesting statement or a fact. Plan an effective opening; use a joke or an anecdote to break the ice. The introduction also needs an objective, that is, the purpose or goal of the presentation. It informs the audience of the purpose of the presentation too.

Next, ***the body*** of the presentation comes. Do not write it out word for word. All you want is an outline. There are several options for structuring the presentation:

- 1) Timeline: arrangement in a sequential order.
- 2) Climax: the main points are delivered in order of increasing importance.
- 3) Problem/ Solution: a problem is presented, a solution is suggested.
- 4) Classification: the important items are the major points.

5) Simple to complex: ideas are listed from the simplest to the most complex; it can also be done in a reverse order.

After the body, comes ***the closing***. A strong ending to the presentation is as important as an effective beginning. You should summarise the main points. This is where you ask for questions, provide a wrap-up (summary), and thank the participants for attending.

Each successful presentation has three essential objectives: the three Es – to educate, to entertain, to explain.

The main objective of making a presentation is to relay information to your audience and to capture and hold their attention. Adult audience has a limited attention span of about 45 minutes. In that time, they will absorb about a third of what you said, and a maximum of seven concepts. Limit yourself to three or four main points, and emphasise them at the beginning of your speech, in the middle, and again at the end to reiterate your message. You should know your presentation so well that during the actual presentation you should only have to briefly glance at your notes.

People process information in many ways. Some learn visually, others learn by listening, and the kinesthetic types prefer to learn through movement. It’s best to provide something for everyone. Visual learners learn from pictures, graphs, and images. Auditory learners learn from listening to a speaker. And, kinesthetic learners like to be involved and participate.

Scientific report writing requires the use of certain techniques and conventions that are detailed, strict and not always easy to master. The main purpose of a scientific report is to communicate. A typical structure and style have evolved to convey essential information and ideas as concisely and effectively as possible. The main aim of the report is to state your opinion on the issue or to provide precise information about a practical investigation.

Audience. Assume that your intended reader has a background similar to yours before you started the project. That is, a general understanding of the topic but no specific knowledge of the details. The reader should be able to reproduce whatever you did by following your report.

Clarity of Writing. Good scientific reports share many of the qualities found in other kinds of writing. To write is to think, so a paper that lays out ideas in a logical order will facilitate the same kind of thinking. Make each sentence follow from the previous one, building an argument piece by piece. Group related sentences into paragraphs, and group paragraphs into sections. Create a flow from beginning to end.

Style. It is customary for reports to be written in the third person or the 'scientific passive', for example, instead of writing 'I saw', one writes 'it was observed'; rather than, 'I think that ...' one writes 'it could be stated that ...' and so on. Avoid jargon, slang, or colloquial terms. Define acronyms and any abbreviations not used as standard measurement units. Most of the report describes what you did, and thus it should be in the past tense (e.g., "values were averaged"), but use present or future tense as appropriate (e.g., "x is bigger than y" or "that effect will happen"). Employ the active rather than passive voice to avoid boring writing and contorted phrases (e.g., "the software calculated average values" is better than "average values were calculated by the software").

Typical Sections. There are four major sections to a scientific report, sometimes known as IMRAD – Introduction, Methods, Results, And Discussion. Respectively, these sections structure your report to say "here's the problem, here's how I studied it, here's what I found, and here's what it means." There are additional minor sections that precede or follow the major sections including the title, abstract, acknowledgements, references, and appendices. All sections are important, but at different stages to different readers. When flipping through a journal, a reader might read the title first, and if interested further then the abstract, then conclusions, and then if he or she is truly fascinated perhaps the entire paper. You have to convince the reader that what you have done is interesting and important by communicating appeal and content in all sections.

Title of the report. Convey the essential point of the paper. Be precise, concise, and use key words. Avoid padding with phrases like "A study of ..." or headlines like "Global warming will fry Earth!" It is usual to write the title as one phrase or sentence. A good title is brief and informative. Titles should not exceed 10 or 12 words, and they should reveal the content of the study. Many titles take one of these two forms: a simple nominal sentence (Asymmetric Information, Stock Returns and Monetary Policy) or beginning with The effect of (for example, The Effects of Financial Restrictions and Technological Diversity on Innovation). Sometimes it is impossible to make word-by-word translation from Russian into English, for example, Об оценке работы фирмы should be translated as Assessing the Firm Performance or К проблеме хеджевых фондов is translated as Hedge Funds. Sometimes the title contains two parts, the first one is the topic, while the second is its specific details (International Financial Contagion: Evidence from the Argentine Crisis of 2001- 2002). If the report is of a very problematic issue its title may be in the form of a question (Was There a Credit Crunch in Turkey?)

Introduction. This section should contain a brief history of the research problem with appropriate references to the relevant literature and the purpose of the study. Introduce the problem, moving from the broader issues to your specific problem, finishing the section with the precise aims of the paper (key questions). Craft this section carefully, setting up your argument in logical order. Refer to relevant ideas/theories and related research by other authors. Answer the question "what is the problem and why is it important?" The introduction should also explain whether the study is an extension of a previous one, or whether a completely new hypothesis is to be tested. The final section of the introduction generally includes a list of all the hypotheses being tested in the study. The results of the current study are not to be referred to in the introduction.

You may use the following expressions:

This paper	aims at deals with, considers describes examines presents reports on	Настоящий доклад имеет своей целью... В настоящем докладе рассматриваются... В настоящем докладе делается описание... В настоящем докладе исследуется ... В настоящем докладе представлен... В настоящем докладе сообщается о ...
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Examples of an Introduction

A. There has been a European Union foreign policy, confirmed in constitutional form in the Union Treaty, since 1993. The first decade, most commentators agree, has proved to be difficult: 'painful and problematic' according to one. As the twenty-first century progresses, replete with an array of new challenges, the need for a reassessment, and perhaps reinvigoration of Union 'foreign and security policy' is widely argued. The purpose of this article is to provide both a retrospective, of the evolution of the Union's foreign policy so far, and a prospective, of the challenges which it presently faces.

B. This paper examines companies incorporated under the Companies Act 1985. Its purpose is to consider the suitability of such companies for not-for-profit-organisations ('NFPOs').

Methods. Explain how you studied the problem, which should follow logically from the aims. Depending on the kind of data, this section may contain subsections on experimental details, materials used, data collection/sources, analytical or statistical techniques employed, study area, etc. Provide enough detail for the reader to reproduce what you did. Include flowcharts, maps or tables if they aid clarity or brevity. Answer the question "what steps did I follow?" but do not include results yet. Here you may use such expressions as:

A method of ...is proposed	Предлагается метод...
Data on... are discussed	Обсуждаются данные по ...
Present data encompass a period of ...	Настоящие данные охватывают период в
The design of the experiments was to reveal...	Эксперименты были направлены на выявление
	...
The effect of... on... is discussed	Обсуждается влияние ... на ...
The methods used for ... are discussed	Описываются методы, используемые для ...

Results. Explain your actual findings, using subheadings to divide the section into logical parts, with the text addressing the study aims. Tables are an easy and neat way of summarizing the results. An alternative or additional way of presenting data is in the form of line graphs, bar-charts, pie-charts, etc. Graphs, charts and illustrations are referred to as 'figures' (for example, Fig. 1) in the text of the report. All figures should be numbered in order of appearance in the text. For each table or graph, describe and interpret what you see (you do the thinking -- do not leave this to the reader). Expressions to describe results obtained may be:

The most important results are as follows	Самые важные результаты имеют следующий вид...
The results indicate the dominant role of	Результаты указывают на доминирующую роль...
The results of ... are discussed	Обсуждаются результаты ...
The results of observations are supported by...	Результаты наблюдений дополняются

Discussion. This is the most difficult section of a report to write and requires considerable thought and care. Essentially it is a consideration of the results obtained in the study, guided by any statistical tests used, indicating whether the hypotheses tested are considered true or are to be rejected.

This is best thought of in three steps: the main results must be very briefly summarized; the procedure must be critically assessed and weaknesses noted; and a final evaluation of the results made

in terms of the design, leading to a final judgment concerning the hypotheses being tested. The discussion can only refer to results, which are presented in the results section. Any detailed results which only appear in the appendixes cannot be discussed.

Evaluation of the results should include reference to other research with indications as to whether or not the current findings are in agreement with other findings (that is, reference is made to the introduction). The main conclusions reached should be summarized at the end of the discussion. Suggestions for follow-up research can also be given.

Discuss the importance of what you found, in light of the overall study aims. Stand back from the details and synthesize what has (and has not) been learned about the problem, and what it all means. Say what you actually found, not what you hoped to find. Begin with specific comments and expand to more general issues. Recommend any improvements for further study. Answer the question "what is the significance of the research?"

Important Note: this section is often combined with either the Results section or the Conclusions section. Decide whether understanding and clarity are improved if you include some discussion as you cover the results, or if discussion material is better as part of the broader summing up.

Conclusions. Restate the study aims or key questions and summarize your findings using clear, concise statements. Keep this section brief and to the point.

Acknowledgments. This is an optional section. Thank people who directly contributed to the paper, by providing data, assisting with some part of the analysis, proofreading, typing, etc. It is not a dedication; so don't thank Mom and Dad for bringing you into the world, or your roommate for making your coffee.

References. Within the text, cite references by author and year unless instructed otherwise, for example "Comrie (1999) stated that ..." or "several studies have found that x is greater than y (Comrie 1999; Smith 1999)." For two authors, list both names, and for three or more use the abbreviation "et al." (note the period) following the first name, for example "Comrie and Smith (1999)" or "Comrie et al. (1999)." Attribute every idea that is not your own to avoid plagiarism.

6.3 Систематизация грамматического материала:

Согласование времен в английском предложении (Sequence of Tenses)

Если в главном предложении сказуемое выражено глаголом в одной из форм прошедшего времени, то в придаточном предложении употребление времен ограничено. Правило, которому в этом случае подчиняется употребление времен в придаточном предложении, называется согласованием времен.

Правило 1: Если глагол главного предложения имеет форму настоящего или будущего времени, то глагол придаточного предложения будет иметь любую форму, которая требуется смыслом предложения. То есть никаких изменений не произойдет, согласование времен здесь в силу не вступает.

Правило 2: Если глагол главного предложения имеет форму прошедшего времени (обычно Past Simple), то глагол придаточного предложения должен быть в форме одного из прошедших времен. То есть в данном случае время придаточного предложения изменится. Все эти изменения отражены в нижеследующей таблице:

Переход из одного времени в другое	Примеры	
Present Simple » Past Simple	He can speak French – Он говорит по-французски.	Boris said that he could speak French – Борис сказал, что он говорит по-французски.
Present Continuous » Past Continuous	They are listening to him – Они слушают его	I thought they were listening to him – Я думал, они слушают его.
Present Perfect » Past Perfect	Our teacher has asked my parents to help him – Наш	Mary told me that our teacher had asked my parents to help him –

	учитель попросил моих родителей помочь ему.	Мария сказала мне, что наш учитель попросил моих родителей помочь ему.
Past Simple » Past Perfect	I invited her – Я пригласил ее.	Peter didn't know that I had invited her – Петр не знал, что я пригласил ее.
Past Continuous » Past Perfect Continuous	She was crying – Она плакала	John said that she had been crying – Джон сказал, что она плакала.
Present Perfect Continuous » Past Perfect Continuous	It has been raining for an hour – Дождь идет уже час.	He said that it had been raining for an hour – Он сказал, что уже час шел дождь.
Future Simple » Future in the Past	She will show us the map – Она покажет нам карту.	I didn't expect she would show us the map – Я не ожидал, что она покажет нам карту.

Изменение обстоятельств времени и места при согласовании времен.

Следует запомнить, что при согласовании времен изменяются также некоторые слова (обстоятельства времени и места).

this » that
 these » those
 here » there
 now » then
 yesterday » the day before
 today » that day
 tomorrow » the next (following) day
 last week (year) » the previous week (year)
 ago » before
 next week (year) » the following week (year)

Прямая и косвенная речь

Перевод прямой речи в косвенную в английском языке

Для того чтобы перевести прямую речь в косвенную, нужно сделать определенные действия. Итак, чтобы передать чьи-то слова в английском языке (то есть перевести прямую речь в косвенную), мы:

1. Убираем кавычки и ставим слово *that*

Например, у нас есть предложение:

She said, "I will buy a dress". Она сказала: «Я куплю платье».

Чтобы передать кому-то эти слова, так же как и в русском, мы убираем кавычки и ставим слово *that* – «что».

She said that Она сказала, что....

2. Меняем действующее лицо

В прямой речи обычно человек говорит от своего лица. Но в косвенной речи мы не можем говорить от лица этого человека. Поэтому мы меняем «я» на другое действующее лицо. Вернемся к нашему предложению:

She said, "I will buy a dress". Она сказала: «Я куплю платье».

Так как мы передаем слова девушки, вместо «я» ставим «она»:

She said that she Она сказала, что она....

3. Согласовываем время

В английском языке мы не можем использовать в одном предложении прошедшее время с настоящим или будущим. Поэтому, если мы говорим «сказал» (то есть используем прошедшее время), то следующую часть предложения нужно согласовать с этим прошедшим временем. Возьмем наше предложение:

She said, "I will buy a dress". Она сказала: «Я куплю платье».

Чтобы согласовать первую и вторую части предложения, меняем will на would. см. таблицу выше.

She said that she would buy a dress. Она сказала, что она купит платье.

4. Меняем некоторые слова

В некоторых случаях мы должны согласовать не только времена, но и отдельные слова. Что это за слова? Давайте рассмотрим небольшой пример.

She said, "I am driving now". Она сказала: «Я за рулем сейчас».

То есть она в данный момент за рулем. Однако, когда мы будем передавать ее слова, мы будем говорить не про данный момент (тот, когда мы говорим сейчас), а про момент времени в прошлом (тот, когда она была за рулем). Поэтому мы меняем now (сейчас) на then (тогда) см. таблицу выше.

She said that she was driving then. Она сказала, что она была за рулем тогда.

Вопросы в косвенной речи в английском языке

Вопросы в косвенной речи, по сути, не являются вопросами, так как порядок слов в них такой же, как в утвердительном предложении. Мы не используем вспомогательные глаголы (do, does, did) в таких предложениях.

He asked, "Do you like this cafe?" Он спросил: «Тебе нравится это кафе?»

Чтобы задать вопрос в косвенной речи, мы убираем кавычки и ставим if, которые переводятся как «ли». Согласование времен происходит так же, как и в обычных предложениях. Наше предложение будет выглядеть так:

He asked if I liked that cafe. Он спросил, нравится ли мне то кафе.

Давайте рассмотрим еще один пример:

She said, "Will he call back?" Она сказала: «Он перезвонит?»

She said if he would call back. Она сказала, перезвонит ли он.

Специальные вопросы в косвенной речи

Специальные вопросы задаются со следующими вопросительными словами: what – что when – когда how – как why – почему where – где which – который

При переводе таких вопросов в косвенную речь мы оставляем прямой порядок слов (как в утвердительных предложениях), а на место if ставим вопросительное слово.

Например, у нас есть вопрос в прямой речи:

She said, "When will you come?" Она сказала: «Когда ты придешь?»

В косвенной речи такой вопрос будет выглядеть так:

She said when I would come. Она сказала, когда я приду.

He asked, "Where does she work?" Он спросил: «Где она работает?»

He asked where she worked. Он спросил, где она работает.

Выполните упражнения для закрепления материала:

1. Ruth met lots of students when she went to visit a university last month. Read their words, then report what they said.

e.g. I Sarah told her (that) she had made lots of friends.

1. I've made lots of friends. (Sarah)
2. The library is huge. (Tina)
3. I'm learning lots of interesting things. (Paul)
4. The teachers are very friendly. (Simon)
5. I will always remember my time here. (Elaine)
6. I'm taking my final exams next month. (Roger)

2. Turn the following sentences into reported speech.

- 1 Robert said, 'This film is very funny'.

...Robert said (that) the film was very funny....

- 2 'I'm starting a new job next week,' she said.
- 3 'I got my exam results last week,' he told them.
- 4 'I can't afford to buy this dress,' said Sally.
- 5 'I would buy a car if I had enough money,' he said to her.
- 6 Frank said, 'That's the house where I was born.'
- 7 'That was a wonderful party,' said Jill.
- 8 'Oranges grow in hot countries,' the teacher said.
- 9 'A lot of people visit museums,' he said.
- 10 'This is a very famous statue,' the tour guide told us.
- 11 'I don't like that jacket,' said Bob.
- 12 'I'm lost,' the boy said. (up-to-date reporting)
- 13 'I may be a little late this evening,' she said.
- 14 'You'd better clean up this mess,' Mum said to Claire.
- 15 'I've already done the shopping,' she said. (up-to-date reporting)
- 16 'I found this note under the sofa,' said Sue.
- 17 'I won't be late again,' he said to us.
- 18 'If I finish work early, I'll call you,' she said.
- 19 'I've been training hard recently,' he told the reporters.
- 20 'Shall I make some tea?' said Zoe.
- 21 'We must go home now,' said the man to his children.
- 22 'Those are the boys who chased me,' Sarah said.
- 23 'I'm going to a party tonight,' Lynne told her friends (up-to-date reporting)
- 24 'I used to have long hair,' Laura said.
- 25 'There is too much violence on TV,' said Grandad.
- 26 'You ought to make a decision soon,' Andrew told her.

3. Complete the sentences with your own ideas using reported speech, as in the example.

- 1 'I bought a new dress yesterday.'
- 'Did you? But you told me ... *you had bought trousers.*'...
- 2 'Bill is moving house on Saturday.'
- 'Is he?'
- 3 'I like Chinese food a lot.'
- 'Do you? '
- 4 'Tom can speak German fluently.'
- 'Can he? '
- 5 'I haven't seen Anna for months.'
- 'Haven't you?'
- 6 'Sam is working for his father at the moment.'
- 'Is he? '
- 7 'I'm afraid I have to work this weekend.'
- 'Do you? '
- 8 'Janet knows about the surprise party.'
- 'Does she?'

4. Turn the sentences into reported speech. In which of the following sentences do the tenses not change? In which do they not have to be changed? Why?

- 1 'The instructions say, The camera needs two batteries.'
- The instructions say (that) the camera needs two batteries.*
- The tenses do not change because the introductory verb is in the present simple.*
- 2 'I've finished the letters you asked me to write,' Jill said.
- 3 'Pandas live in China,' the teacher said.
- 4 'Dad says, 'It's time for bed.'

- 5 'I have to tidy my bedroom now,' Toby said.
 6 The article says, 'There has been an increase in the number of university students.'
 7 Mr Brown says, 'My son is going to work abroad.'
 8 'I should have bought her a present,' he said.
 9 'I'm never going to have a pet,' my sister always says.
 10 Alison says, 'The taxi is here.'
 11 Mr Collins says, 'You needn't work late this evening.'
 12 'I'll pick you up at eight o'clock,' she told me.
 13 'Coal is found underground,' he said.
 14 'You ought to go to the doctor's,' she said to her son.
 15 'It is raining hard today,' she said.
 16 They said, 'We've never travelled by plane before.'
 17 'We might go to the cinema tonight,' they said.
 18 Mum always says, 'You should wear warmer clothes.'

5. Lucy's grandmother was a famous actress. Now that she has retired, she is showing Lucy reviews from some of the films she made. Using the prompts below, make sentences, as in the example.

e.g. 'When I starred in 'The Love Affair' in 1952, 'Movie World' said that I was an extremely talented actress. The Stars' said that...

1 'The Love Affair' - 1952

'Frances Garner is an extremely talented actress. Movie World

'Garner gives an amazing performance in this film. The Stars

2 'Over the Moon' - 1958

'Garner brings any character to life.' Film Stars

'Frances Garner is always a pleasure to watch.' Movie News

3 'The Secret House' - 1961

'Ms Garner is the best actress ever seen on screen. Film Weekly

'Garner has a gift which is very rare.' Movie Times

4 'Only for You' - 1963

'Frances Garner has made this film a success.' Film World

'Garner truly is a star of the screen.' Screen Play

REPORTED QUESTIONS

Yesterday, they carried out an experiment.

One student asked the teacher why he was mixing the liquids.

The other student asked the teacher if/whether they should take notes.

◆ Reported questions are usually introduced with the verbs ask, inquire, wonder or the expression want to know. The verb is in the affirmative. The question mark and words/expressions such as please, well ..., oh, etc. are omitted. The verb tenses, pronouns and time expressions change as in statements.

e.g. 'What did you make for dinner yesterday?' Bob asked me.

Bob asked me what I had made for dinner the day before.

◆ When the direct speech begins with a question word (who, where, how old, how long, when, why, what, etc.), the reported question is introduced with the same question word. When the direct question begins with an auxiliary (is, do, have) or a modal verb (can, may, etc.), then the reported question begins with if or whether.

e.g. 'Why do you want to leave your job?'

Pam asked me. Pam asked me why I wanted to leave my job.

'Do you like rock music?' he asked us.

He asked us if/whether we liked rock music.

'Can you ride a motorcycle?' Ben asked David.

Ben asked David if/whether he could ride a motorcycle.

6. Turn the questions into reported speech. Begin each one with I asked the ... and give the name of the person who does the job, as in the example.

- 1 'Do I need another filling?'
- ...I asked the dentist if I needed another filling....
- 2 'How much does this blouse cost?'
- 3 'How many tablets should I take each day?'
- 4 'Can I borrow the book for another week?'
- 5 'Will it cost very much to repair the television?'
- 6 'May I look at the menu, please?'
- 7 'What do I have to do for homework?'
- 8 'When will the report be typed?'
- 9 'Will you be able to deliver the flowers today?'
- 10 'Can I make an appointment to have my hair cut?'

7. Turn the following into reported questions.

- 1 'What is your name?' he asked me.
- ...He asked me what my name was....
- 2 'Where are your parents?' Uncle Bill asked us.
- 3 'Will you help me carry the box, please?' Dad asked.
- 4 'What time will you be home?' Mum asked me.
- 5 'Can you play the guitar?' he asked her.
- 6 'Who was at the door?' David asked Janet.
- 7 'Where is the post office?' they asked us.
- 8 'When will you do your homework?' Meg asked me.
- 9 The boss asked me, 'Have you finished those reports?'
- 10 John asked Sam, 'Do you like computer games?'
- 11 'Will you give me a lift to work, please?' he asked her
- 12 'Where is your jacket?' she asked him.

8. Yesterday, Simon interviewed a famous actor. He asked him the following questions. Turn them into reported questions.

- 1 'Do you enjoy being famous?'
- ...Simon asked him if/whether he enjoyed being famous....
- 2 'What is the best part of your job?'
- 3 'What do you find difficult about acting?'
- 4 'How many films have you starred in?'
- 5 'What is your favourite film?'
- 6 'Have you met many other famous people?'
- 7 'Where would you most like to make a film?'
- 8 'Have you visited many interesting places?'
- 9 'What are your plans for the future?'
- 10 'Are you happy with your life?'

REPORTED COMMANDS / REQUESTS / SUGGESTIONS

“Inform the manager immediately.”

“Let's call the computer expert.”

“Please don't tell anyone about this.”

Lorna asked them not to tell anyone about it.

Peter told them to inform the manager right away.

Jim suggested calling the computer expert.

◆ To report commands, instructions, requests or suggestions in reported speech, we use an appropriate introductory verb (ask, order, beg, suggest, tell, etc.) and the to-infinitive, -ing form or that-clause depending on the introductory verb.

- a) 'Stop the car!' the policeman said to him.
The policeman ordered him to stop the car.
- b) 'Put all the ingredients in a bowl,' she said to me.
She told me to put all the ingredients in a bowl.
- c) 'Will you please hold this bag for me?' Laura said to Helen.
Laura asked Helen to hold the bag for her.
- d) 'How about going to the cinema?' I said to them.
I suggested going to the cinema.

9. Turn the following sentences into reported speech.

- 1 The teacher said to the student, 'Come and see me after the lesson.'
...The teacher asked the student to go and see him/ her after the lesson....
- 2 He said, 'Shall we go out for dinner?'
- 3 Colin said to Dave, 'Please hold this book for me.'
- 4 He said to her, 'Close the door, please.'
- 5 Father said, 'How about going to the beach?'
- 6 She said, 'Let's watch the game on TV.'
- 7 He said to them, 'Please, please don't hurt me.'
- 8 The policeman said to the thieves, 'Put your hands up!'
- 9 The man said to the waiter, 'Can you bring me some water, please?'
- 10 Jason said to his father, 'Please, please let me go to the party.'
- 11 The librarian said to the boys, 'Don't make so much noise.'
- 12 The chef said to me, 'Put the cake in the oven.'

10. First read, then report what the teacher told the students before the exam.

- 1 Please leave your bags at the front room.
...He asked the students to leave their bags at the front of the room....
- 2 Don't talk during the exam.
- 3 Raise your hand if you need anything.
- 4 Write all you answers in pen.
- 5 Answer all the questions.
- 6 Don't forget to write your name at the top of the page.
- 7 Check your answers again before you hand the paper in.
- 8 Please, leave quietly when you finish.

11. Study the speech bubbles, then complete the sentences below using reported speech, as in the example.

Hurry up!

Be quiet!

Let's go to the theatre.

We'll discuss it later.

Can I have a biscuit, please, Mum?

I won't be home tonight, Dad.

Will you help me with these bags, please, Jim?

I'm going to bed.

- 1 It was very late, so I *...said I was going to bed.*
- 2 Clare was planning to stay with friends, so she
- 3 I was hungry, so I
- 4 The shopping was very heavy, so Sarah
- 5 Mark wasn't ready for school, so his brother
- 6 The children were shouting, so the teacher
- 7 Susie wanted to watch a play, so she
- 8 Pam was busy when I asked for some advice, so she

12. Turn the following sentences into reported

- 1 'Where are you going?' she said to them.
...*She asked them where they were going...*
2 'I'm going shopping,' said Anna, (up-to-date reporting)
3 'Go away!' said his friend.
4 She asked me, 'Are you ready to leave?'
5 'I'll pick you up at five o'clock,' he said to her.
6 'It's time for lunch,' Ruth says.
7 'When did you arrive?' asked Marilyn.
8 The meeting started ten minutes ago,' she said, (up-to-date reporting)
9 My father said to me, 'Don't be late.'
10 Tom has already left,' said Pam to us.
11 'Who's there?' said Joe.
12 'What colour skirt did you buy?' she asked me.
13 They said to him, 'We're leaving early in the morning. (up-to-date reporting)
14 'Don't go near the fire,' Dad said to the boys.
15 'Let's have a barbecue this weekend,' said Liz.

13. Choose the correct answer.

- 1 She said that it was going to be a wonderful party.
a 'It was going to be a wonderful party.'
b 'It's going to be a wonderful party.'
2 He said the bus might be a little late that day.
a 'The bus was a little late today.'
b 'The bus might be a little late today.'
3 She told him that he should study harder.
a 'You should study harder.'
b 'You should have studied harder.'
4 He said that the fire had done a lot of damage to the building.
a 'The fire had done a lot of damage to the building'
b 'The fire has done a lot of damage to the building,
5 He said that Michael was the best student he had ever taught.
a 'Michael is the best student I have ever taught.'
b 'Michael was the best student I have ever taught.'
6 She told us that the new furniture had been delivered the day before.
a 'The new furniture had been delivered yesterday.'
b 'The new furniture was delivered yesterday.'
7 They said that the manager would inspect the office the following day.
a 'The manager will inspect the office the following day.'
b 'The manager will inspect the office tomorrow.'
8 He said that if we hadn't acted so quickly, the accident would have been even worse.
a 'If you hadn't acted so quickly, the accident would have been even worse.'
b 'If you haven't acted so quickly, the accident would be even worse.'

14. Complete the sentences.

- 1 'You should spend more time studying.'
The teacher advised *...me to spend more time studying...*
2 'Don't forget to lock the door before you leave.'
Sam reminded
3 'I'm sorry I forgot to call you.'
Jim apologised
4 'You never listen to me, Stuart.'

Mary complained
 5 'Shall we go bowling this evening?'
 Mark suggested
 6 'You mustn't play near the road.'
 Father forbade
 7 'This man stole my wallet!'
 Mr Brown accused
 8 'I'm the best basketball player in the school.'
 Steve boasted
 9 'Yes, I took the letter.'
 Claire admitted
 10 'You must stay for lunch, Sarah.'
 Mrs Stamp insisted
 11 'Please, please, let me borrow your bicycle.'
 Martin begged
 12 'Don't touch the oven. It's hot.'
 Mother warned

15. Fill in the gaps with one of the introductory verbs from the list below in the past simple.

deny	suggest	boast	agree
insist	accuse	promise	complain
advise	threaten	warn	remind

1 'I'm the fastest runner on the team,' he said.
 He ...*boasted*... about being the fastest runner on the team.
 2 'I didn't take your jacket,' he said to her.
 He ... taking her jacket.
 3 'You should go to the doctor's,' Mum said to me.
 Mum ... me to go to the doctor's.
 4 'I'll call you next week,' she said to him.
 She ... to call him next week.
 5 'Yes, I'll set the table for dinner,' he said to her.
 He ... to set the table for dinner.
 6 'He always forgets my birthday,' she said.
 She ... that he always forgot her birthday.
 7 'Let's go for a walk,' she said.
 She ... going for a walk.
 8 'Leave, or I'll shoot,' the man said to them.
 The man ... to shoot them if they didn't leave.
 9 'Don't forget to feed the cat,' she said to him.
 She ... him to feed the cat.
 10 'You broke my CD player,' she said to him.
 She ... him of breaking her CD player.
 11 'Don't go near the edge of the cliff,' Dad said to their
 Dad ... them not to go near the edge of the cliff.
 12 'You must do your homework before you go out,' she said to us.
 She ... on us doing our homework before we went out.

16. Turn the sentences into reported speech using an appropriate introductory verb.

1 'No, I won't do your homework for you,' she said to me.
 ...*She refused to do my homework for me*....
 2 'You lied to me,' Dennis told Ann.
 3 'I promise I won't tell anyone your secret,' Tara said to Diana.
 4 'Don't forget to post the letters,' Mum said to me.

- 5 'I'm sorry I ruined your shirt,' Sarah told Frances.
 6 'No, I didn't use Tim's computer,' George said.
 7 'Don't get too close to the fire,' Mike said to the children.
 8 'Let's have a party,' Simon said.
 9 'I'll punish you if you behave badly,' Mum told the twins.
 10 'It was me who broke the vase,' she said.
 11 'Could I use your phone, please?' David asked me.
 12 'Yes, I'll help you with the washing-up,' Sandra told me.
 13 'Everyone stop talking!' Mr Jones told the class.
 14 'Please, please, don't tell anyone about this,' he said to us.
 15 'You should go to the dentist's,' she told her brother.
 16 'Children, sit down!' the school bus driver said.
 17 'Throw down your weapons!' the policeman said to the robbers.
 18 'No, you may not stay out late tonight,' Dad said to Louise.
 19 'You must wash your hands before eating dinner,' she told the children.
 20 'That's the most beautiful necklace I've ever seen' Amanda said.

EXCLAMATIONS – YES/NO SHORT ANSWERS – QUESTION TAGS

- We use the verbs exclaim/say that to report exclamations which begin with 'What a/an ...' or 'How...'' in direct speech.

e.g. 'What an unusual design!' he said.

He exclaimed/said that it was an unusual design.

He exclaimed/said that the design was unusual. But with exclamations such as 'Splendid!', 'Great!', 'Good!', 'Excellent!', 'Oh!', 'Oh dear!' etc. we use the expression give an exclamation of delight/ disgust/ relief/surprise, etc.

e.g. 'Wow!' he said as he unwrapped his gift.

He gave an exclamation of surprise as he unwrapped his gift.

- Study the following examples:

5 g. a) They said, 'Thank you.' - They thanked us.

b) "You fool!" she said. - She called him a fool.

c) 'Happy Birthday!' we said to Tamzin. We wished Tamzin a happy birthday.

d) 'Congratulations!' they said to us. They congratulated us.

- Yes /No short answers are expressed in reported speech with subject + appropriate auxiliary verb/introductory verb.

e. g. 'Will you help me decorate the cake?' she asked him. "Yes," he said.

She asked him to help her decorate the cake and he said he would/he agreed.

- Question tags are omitted in reported speech. We use an appropriate introductory verb to convey the same meaning.

e. g. 'You won't tell anyone, will you?' she said to him. She asked him not to tell anyone.

17. Turn the following sentences into reported speech.

1 "Will you call me?" he asked. 'Yes, of course,' she said.

He asked her to call him and she said she would.

2 "Wow!" they said as the fireworks exploded in the sky.

3 'You'll try to visit John, won't you?' he said to us.

4 'How delicious!' she said as she tasted the dessert.

5 'What a surprise!' he said when he saw the present.

6 'Amazing!' she said when she saw the magician's act.

7 'Well, good luck, then,' she said to him.

8 'Can you do this puzzle?' she asked. 'No', he said.

REPORTING A DIALOG

In dialogues we use a mixture of statements, questions, commands, requests, etc. In reported speech, we use: and, as, adding that, and (he/she) added that, because, but, since, and then (he/she) went on to say (that), while, then, etc. to link the sentences in a dialogue. We can also use introductory verbs in the present participle form (offering, begging, explaining, etc.).

a) 'I'm exhausted,' she said to him. 'Can you make me a cup of tea?'

She exclaimed that she was exhausted and asked him to make her a cup of tea.

b) 'I'll take a taxi home. It's getting late', he said.

He said that he would take a taxi home as/ because/since it was getting late.

c) Mr Adams: Can I talk to Mr Stephens?

Secretary: I'm sorry, but he's not here. Would you like me to take a message?

Mr Adams: No, thank you. I need to see him in person.

Mr Adams asked to talk to Mr Stephens. His secretary said that he wasn't there and offered to take a message. Mr Adams declined, explaining that he needed to see him in person.

18. Turn the following sentences into reported speech.

1 'I'm hungry,' she said. 'I haven't eaten all day.'

...*She said that she was hungry, explaining that she hadn't eaten all day...*

2 'Let's go to the cinema,' he said. 'We haven't seen a film for months.'

3 Tim: Dave is ill. He can't come to the party.

Mike: What's wrong with him?

Tim: He's got flu. He has to stay in bed.

4 'You're early,' he said to her. 'I'm not ready yet.'

5 'Hurry up!' she told him. 'We're going to miss the bus.'

6 'Have you got your key?' she said. 'I've forgotten mine.'

7 'I'm going out,' Colin said. 'I might be back late.'

8 Sally: I've bought a car. It's being delivered tomorrow.

John: What kind of car is it?

Sally: It's a sports car. It was very expensive.

9 'I'm sorry I'm late. I overslept,' he said to them.

10 Martin: Can you help me? I need some advice.

James: What's the problem?

Martin: I don't know what to buy my mother for her birthday. I want to get something special.

19. Turn the following sentences into direct speech, as in the example.

1 He threatened to tell the headmaster if we didn't behave properly.

...*I'll tell the headmaster if you don't behave properly,' he said....*

2 She invited me to go to the cinema with her.

3 He offered to help me clean the house.

4 We explained that we were late because we had missed the bus.

5 She advised me to see a professional.

6 She admitted to reading my diary.

7 She agreed to help me interview the candidates.

8 He accused me of breaking his glasses.

9 We apologised for missing their dinner party.

10 Edward complained that the children were always disturbing him.

20. Turn the following sentences from direct into reported speech or vice versa.

1 'What are your plans for the weekend?' he asked her.

...*He asked her what her plans for the weekend were....*

2 Malcolm suggested that they go fishing that afternoon.

3 Simon denied having damaged the car.

4 'Could you open the door for me, please?' Kate asked Harry.

- 5 Julia claimed to have met Kevin Costner.
 6 'You never listen when I'm talking to you,' she said.
 7 The instructor said, 'This is how you open the parachute.'
 8 'I promise I won't lose your necklace,' she told her friend.
 9 Stuart begged his parents to let him go to the disco.
 10 His father said to him, 'No, you can't go to the concert.'
 11 'Yes, you may stay out late on Saturday,' said Mum.
 12 The man demanded to speak to his lawyer.
 13 'I'm afraid there are no tickets left,' he said to us.
 14 The path is very slippery,' the guide said to the climbers.
 15 He asked her to write to him while she was away.

21. Turn the following into reported speech. Use appropriate introductory verbs.

- 1 Sam: 'We're having trouble finding a good sales assistant.'
 ...*Sam complained that they were having trouble finding a good sales assistant...*
 2 Dave: 'We've been interviewing people for two weeks.'
 3 Lucy: 'Why don't you contact the Job Centre?'
 4 Ann: 'I think that Julie Smith is looking for a job.'
 5 Tom: 'Yes, right. We forgot that she has been looking for a job.'
 6 Dave: 'Actually, Julie might be perfect for the job. Ann, do you have her phone number?'
 7 Ann: 'Yes, I do. I'll give her a call if you like.'
 8 Sam: 'Don't forget to ask her if she can work flexible hours.'

Сравнительно-сопоставительные конструкции и обороты в предложении

Все три формы прилагательных – основная (или положительная), сравнительная и превосходная используются в сравнительных конструкциях.

Положительная степень

(или основная форма прилагательного)

1 Одинаковое качество двух предметов (лиц, явлений) выражается прилагательными в положительной степени (основная форма) в конструкции с союзами **as...as** в значении *такой же ...как, так же...как*:

He is as tall as his brother.	<i>Он такой же высокий, как и его брат.</i>
This text is as difficult as that one.	<i>Этот текст такой же трудный, как и тот.</i>

Иногда употребляется конструкция с прилагательным **same** *тот же самый, одинаковый*: **the same...as** – *такой же, тот же самый*:

Mary is the same age as Jane.	<i>Мэри того же возраста, что и Джейн.</i>
--------------------------------------	--

2 Разное качество предметов выражается конструкцией **not so/as...as** в значении *не так...как, не такой...как*:

He is not so (as) tall as his brother.	<i>Он не такой высокий, как его брат.</i>
The problem is not so simple as it seems.	<i>Эта проблема не такая простая, как кажется.</i>

Если после второго **as** следует личное местоимение в третьем лице, то обычно глагол повторяется:

I am not as strong as he <u>is</u> .	<i>Я не такой сильный, как он.</i>
Her sister is not so pretty as she <u>is</u> .	<i>Ее сестра не такая хорошенькая, как она.</i>

А если следует личное местоимение в первом или втором лице, то глагол может опускаться:

She is **not so beautiful as** you (are). *Она не такая красивая, как ты.*

3 Если один из сравниваемых объектов превосходит другой вдвое (**twice** [twaɪs]) или в несколько раз (... **times**) по степени проявления какого-либо качества, то употребляется следующая конструкция:

Your room is **twice as large as** mine. *Ваша комната в два раза больше моей.*

This box is **three times as heavy as** that. *Этот ящик в три раза тяжелее того.*

Когда второй объект сравнения не упомянут, то **as** после прилагательного не употребляется:

This grade is **twice as expensive**. *Этот сорт в два раза дороже.*

He is **twice as old**. *Он в два раза старше.*

А если один из объектов уступает по качеству в два раза, то употребляется **half** половина, наполовину, в два раза меньше. Обратите внимание на то, что стоящее за ним прилагательное в конструкции **as... as** имеет противоположное значение тому, что принято в русском языке:

Your flat is **half as large as** mine. *Ваша квартира вдвое меньше моей.*

Moscow is **half as big as** New York. *Москва наполовину меньше Нью-Йорка.*

В подобных сравнительных конструкциях союз **as...as** и последующее прилагательное могут вообще опускаться, что должно компенсироваться наличием соответствующего существительного:

Your flat is **three times the size of** mine. *Ваша квартира в три раза больше моей.*

He is **half my age**. *Он в два раза моложе меня.*

Сравнительная степень

1 При сравнении степени качества одного предмета с другим после прилагательного в СРАВНИТЕЛЬНОЙ степени употребляется союз **than** [ðən] - чем, который при переводе на русский язык часто опускается:

He is **older than** I am. *Он старше, чем я. (меня)*

This book is **more interesting than** that one. *Эта книга интереснее, чем та (книга).*

Эта конструкция может содержать и количественный компонент сравнения:

My mother is **ten years younger than** my father. *Моя мама на 10 лет моложе отца.*

Уменьшение качества выражается с помощью **less... than**:

I am **less musical than** my sister. *Я менее музыкален, чем моя сестра.*

Если после **than** следует личное местоимение в третьем лице, то глагол обычно повторяется:

She has **more good marks than he has**. *У нее больше хороших отметок, чем у него.*

А если следует личное местоимение в первом или втором лице, то глагол может опускаться:

He is **stronger than** you. *Он сильнее, чем ты.*

В этом случае, если нет второго сказуемого, после **than** обычно употребляется личное местоимение в объектном падеже **me/ him/ her/ them/ us**, а не в именительном:

You are taller **than I am**. или You are taller **than me**. *Ты выше, чем я (меня).*

I got up earlier **than she did**. или I got up earlier **than her**. *Я встал раньше ее (чем она).*

She runs quicker **than him**. *Она бежит быстрее (чем он).*

2 Для усиления сравнительной степени часто употребляются слова **much** [mʌʃ] или **far** [fɑː] со значением - значительно, гораздо, намного, а также **still** еще, **even** ['iːvən] даже, **by far** намного, безусловно. Причем **much more** [mʌʃ mɔː] и **far more** употребляется перед неисчисляемыми существительными, а **many more** перед исчисляемыми существительными :

My boyfriend is **much older than** me. *Мой друг гораздо старше меня.*

This book is **far better than** that one. *Эта книга значительно лучше той.*

It is **still colder** today.
He has **much more free** time than I have.
I have **many more** books than he (has).

Сегодня еще холоднее.
У него гораздо больше свободного времени, чем у меня.
У меня гораздо больше книг, чем у него.

3 При передаче зависимости одного качества от другого (обычно их параллельное возрастание или убывание) используется конструкция **the... the**, например:

The more you have, **the more** you want. *Чем больше ты имеешь, тем больше ты хочешь.*
The longer I stay here **the better** I like it. *Чем дольше я нахожусь здесь, тем больше мне нравится.*

Превосходная степень

Если один предмет или лицо превосходят остальные в каком-либо качестве, то употребляется прилагательное в превосходной степени с артиклем **the**. Речь обычно идет не о сравнении двух предметов (лиц, явлений), а трех или более.

"Why did you stay at that hotel?" – "It was **the cheapest** (that) we could find." *"Почему вы остановились в той гостинице?" – "Она была самая дешевая, которую мы могли найти".*

Обычно при сравнении употребляется конструкция **the прилагательное... in**, если речь идет о местоположении, например:

Tom is **the cleverest** (boy) **in** the class. *Том – самый умный (парень) в классе.*
What's **the longest** river **in** the world? *Какая самая длинная река в мире?*

Или конструкция **the прилагательное... of**, например:

the happiest day of my life *счастливейший день моей жизни*
He is **the best** of my friends. *Он лучший из моих друзей.*
Pete is **the best** student of us all. *Пит лучший студент из всех нас.*
She is **the prettiest** of them all. *Она самая хорошенькая из них.*

После превосходной степени часто употребляется определительное придаточное предложение со сказуемым в **Present Perfect** (как вы помните, здесь речь идет о свершившемся факте в прошлом, значение которого продолжается до настоящего момента). Это предложение может вводиться относительным местоимением **that который**, но оно обычно опускается.

This is **the most interesting** book (that) *Это самая интересная книга, которую я I have ever read.*
когда-либо читал.

Типы придаточных предложений и способы их связи TIME CLAUSES

They had booked tickets before they went to the cinema. They will go home when the film is over.

◆ We use the following time conjunctions to introduce time clauses.

when - as - while - before - after - since - until/till - whenever - as long as - by the time- as soon as -the moment that - no sooner ...than - hardly... when - once - immediately - the first/last/next time etc.

◆ When the time clause precedes the main clause, a comma is used.

e.g. *Whenever he is in town, he visits us.*

He visits us whenever he is in town.

Sequence of Tenses

◆ Time clauses follow the rule of the sequence of tenses. That is, when the verb of the main clause is in a present or future form, the verb of the time clause is in a present form. When the verb of the main clause is in a past form, the verb of the time clause is in a past form too.

Main clause

Time clause

present / future / imperative → present simple or present perfect

She takes off her shoes the moment that she gets home.

I'll call you as soon as I get to my hotel.

Turn off the lights before you leave.

past simple/ past perfect → past simple or past perfect

He took a shower after he had finished painting the room.

They had reserved a table before they went to the restaurant.

TIME CONJUNCTIONS

◆ ago - before

ago = before now

e.g. *My parents got married twenty years ago. (= twenty years before now)*

before = before a past time

e.g. *Helen and Mike got married last month.*

They had met six months before. (= six months before last month)

◆ until/till - by the time

until/till = up to the time when

e.g. *You must stay in the office until/till you finish/have finished the report.*

(= up to the time when you finish the report) They'll be at their summer house until/till Sunday.

(= up to Sunday)

by the time + clause = not later than the moment something happens

e.g. *I will have set the table by the time you come home. (= before, not later than the moment you come home)*

by = not later than

e.g. *I'll let you know my decision by Friday. (= not later than Friday)*

Note: a) **not... until/till**

e.g. *I won't have finished my work until/till/ before Thursday.*

b) Both until/till and before can be used to say how far away a future event is.

e.g. *There's only one week until/till/ before my summer holidays.*

◆ during - while/as

during + noun = in the time period

e.g. *We learnt several interesting facts during the lecture.*

while/as + clause = in the time period

e.g. *We learnt several interesting facts while/as we were listening to the lecture.*

◆ **when = (time conjunction) + present tense**

e.g. *We'll order some pizzas when our friends get here.*

when = (question word) + will/would

e.g. *I'm not sure when his next book will be published.*

CLAUSES OF RESULT

Dolphins are so appealing (that) it is hard not to like them.

They are such intelligent creatures (that) they can communicate with each other.

Clauses of result are used to express the result of something. They are introduced with the following words/expressions:

as a result - therefore - consequently/as a consequence - so - so/such ... that etc.

◆ **as a result/therefore/consequently**

e.g. *The president was taken ill and, as a result/ therefore/consequently the summit meeting was cancelled.*

The president was taken ill. As a result/therefore/ consequently, the summit meeting was cancelled.

◆ **so** e.g. *It was hot, so I turned on the air-conditioning.*

◆ **such a/an + adjective + singular countable noun**

e.g. *It was such an interesting book (that) I couldn't put it down.*

◆ **such + adjective + plural/uncountable noun**

e.g. *They are such good friends (that) they've never had an argument.*

It was such expensive jewellery (that) it was kept in a safe.

◆ **such a lot of + plural/uncountable noun**

e.g. *She invited such a lot of guests to her party that there wasn't enough room for all of them.*
He has such a lot of money (that) he doesn't know what to do with it.

◆ **so + adjective/adverb**

e.g. *He is so devoted that he deserves praise.*
He speaks so quickly that I can't understand him.

◆ **so much/little + uncountable noun**

so many/few + plural noun

e.g. *There is so much traffic that we won't be on time. He pays so little attention to what I say that it makes me angry.*

He made so many mistakes that he failed. There are so few wolves left that we have to protect them.

CLAUSES OF REASON

Traffic is getting worse because/as more people are buying cars. Traffic is getting worse on account of the fact that more people are buying cars.

Causes of reason are used to express the reason for something. They are introduced with the following words/expressions:

because - as/since - the reason for/why - because of /on account of/due to - now that - for
etc.

◆ **because** e.g. *I took a taxi because it was raining.*

Because it was raining, I took a taxi.

◆ **as/since (=because)** e.g. *They bought him a gift as/since it was his birthday. As/Since it was his birthday, they bought him a gift.*

◆ **the reason for + noun/-ing form**

the reason why + clause

e.g. *The reason for his resignation was (the fact) that he had been offered a better job. The fact that he had been offered a better job was the reason for his resigning. The reason why he resigned was (the fact) that he had been offered a better job.*

◆ **because of/on account of/due to + noun**

because of/on account of/due to the fact that + clause

e.g. *All flights were cancelled because of /on account of the thick fog.*
All flights were cancelled due to the thick fog. He asked for a few days off because of /on account of the fact that he was exhausted. He asked for a few days off due to the fact that he was exhausted.

◆ **now (that) + clause** e.g. *Now (that) they have children, they have less free time.*

◆ **for = because (in formal written style)**

A clause of reason introduced with for always comes after the main clause.

e.g. *The citizens of Harbridge were upset, for a new factory was to be built near their town.*

CLAUSES OF PURPOSE

They met in a café to discuss their holiday.

They met in a café so that they could discuss their holiday.

Clauses of purpose are used to express the purpose of an action. That is, they explain why someone does something. They are introduced with the following words/expressions:

to - in order to/so as to-so that/in order that - in case-for etc.

◆ **to - infinitive**

e.g. *She went shopping to look for some new clothes.*

◆ **in order to/so as to + infinitive (formal)**

e.g. *He did a postgraduate course in order to/so as to widen his knowledge of international politics.*

In negative sentences we use in order not to or so as not to. We never use not to alone.

e.g. *He wrote the number down in order not to/so as not to forget it.*

◆ **so that + can/will (present or future reference)**

e.g. *Emma has booked a first-class ticket so that she can travel in comfort.*

so that + could/would (past reference)

e.g. *He recorded the match so that he could watch it later.*

Note: In order that has the same structure as so that. However, it is not used very often as it is formal.

e.g. *We will send you the forms in order that you can make your application.*

◆ **in case + present tense (present or future reference)**

in case + past tense (past reference)

In case is never used with will or would.

e.g. *Take your credit card in case you run out of cash. He took a jumper in case it got cold.*

◆ **for + noun (when we want to express the purpose of an action)**

e.g. *He went to the doctor's for a check-up.*

for + -ing form (when we want to express the purpose or function of something)

e.g. *We use a spade for digging.*

Clauses of purpose follow the rule of the sequence of tenses, like time clauses.

e.g. *He borrowed some money so that he could pay his phone bill.*

Note: We can express negative purpose by using:

a) **prevent + noun/pronoun + (from) + -ing form**

e.g. *She covered the sofa with a sheet to prevent it (from) getting dirty.*

b) **avoid + -ing form**

e.g. *They set off early in the morning to avoid getting stuck in traffic.*

EXCLAMATIONS

Exclamations are words or sentences used to express admiration, surprise, etc.

To form exclamatory sentences we can use what (a/an), how, such, so or a negative question.

◆ **so + adjective/adverb**

e.g. *This cake is so tasty! He works so hard!*

◆ **such + a/an (+ adjective) + singular countable noun**

e.g. *This is such an original design!*

◆ **such (+ adjective) + uncountable/plural noun**

e.g. *You gave me such valuable information!*

She's wearing such elegant clothes!

◆ **what + a/an (+ adjective) + singular countable noun**

e.g. *What a lovely view!*

What an unusual pattern! What a day!

◆ **what (+ adjective) + uncountable/plural noun**

e.g. *What expensive furniture!*

What comfortable shoes!

◆ **how + adjective/adverb**

e.g. *How clever he is! How well she behaved!*

◆ **negative question (+ exclamation mark)**

e.g. *Isn't she a graceful dancer!*

CLAUSES OF CONTRAST

He prefers to make things by hand although/even though he could use a machine.

Clauses of contrast are used to express a contrast. They are introduced with the following words/phrases:

but - although/even though/though - in spite of/despite - however - while/whereas - yet - nevertheless - on the other hand

◆ **but** e.g. *It was cold, but she wasn't wearing a coat.*

◆ **although/even though/though + clause**

Even though is more emphatic than although. Though is informal and is often used in everyday speech. It can also be put at the end of a sentence.

e.g. *Although/Even though/Though it was summer, it was chilly.*

It was chilly although/even though/though it was summer.

It was summer. It was chilly, though.

◆ **in spite of/despite + noun/-ing form**

e.g. *In spite of/Despite his qualifications, he couldn't get a job.*

He couldn't get a job in spite of/despite (his) being qualified.

in spite of/despite the fact that + clause

e.g. *In spite of/Despite the fact that he was qualified, he couldn't get a job.*

◆ **however/nevertheless** A comma is always used after however/nevertheless.

e.g. *The man fell off the ladder. However/Nevertheless, he wasn't hurt.*

◆ **while/whereas**

e.g. *She is tall, while/whereas her brother is rather short.*

◆ **yet (formal)/still**

e.g. *The fire was widespread, yet no property was damaged. My car is old. Still, it is in very good condition.*

◆ **on the other hand**

e.g. *Cars aren't environmentally friendly.*

On the other hand, bicycles are. / Bicycles, on the other hand, are.

CLAUSES OF MANNER

They look as if/as though they are in a hurry.

Clauses of manner are introduced with as if/as though and are used to express the way in which something is done/said, etc.

◆ We use **as if /as though** after verbs such as act, appear, be, behave, feel, look, seem, smell, sound, taste to say how somebody or something looks, behaves, etc.

e.g. *He is acting as if/as though he's had bad news.*

We also use **as if /as though** with other verbs to say how somebody does something.

e.g. *She talks as if/as though she knows everything.*

◆ We use **as if /as though + past tense** when we are talking about an unreal present situation. Were can be used instead of was in all persons.

e.g. *He spends his money as if /as though he was I were a millionaire. (But he isn't.) He behaves as if/as though he owned the place. (But he doesn't.)*

Note: We can use like instead of as if/as though in spoken English.

e.g. *She looks like she's going to faint, (informal spoken English).*

RELATIVE CLAUSES

A camel is an animal which/that lives in hot countries.

A computer is something which/ that we use for storing information.

A firefighter is someone who/that puts out fires and whose job is very risky.

Relative clauses are introduced with a) relative pronouns (who(m), which, whose, that) and b) relative adverbs (when, where, why).

We use:

◆ **who/that to refer to people.**

◆ **which/that to refer to objects or animals.**

Who/which/that can be omitted when it is the object of the relative clause; that is, when there is a noun or subject pronoun between the relative pronoun and the verb. It cannot be omitted when it is the subject of the relative clause. We can use whom instead of who when it is the object of the relative clause. Whom is not often used in everyday English.

e.g. a) *I saw a friend. I hadn't seen him for years.*

I saw a friend (who/whom/that) I hadn't seen for years. (Who/whom/that is the object, therefore it can be omitted.)

b) *I met a woman. She was from Japan.*

I met a woman who/that was from Japan. (Who/that is the subject, therefore it cannot be omitted.)

◆ **whose instead of possessive adjectives** (my, your, his, etc.) with people, objects and animals in order to show possession.

e.g. a) *That's the boy — his bicycle was stolen yesterday.*

That's the boy whose bicycle was stolen yesterday.

b) *That's the building —its windows were smashed.*

That's the building whose windows were smashed.

◆ We usually avoid using prepositions before relative pronouns.

e.g. a) *The person to whom the money will be entrusted must be reliable, (formal English — unusual structure)*

b) *The chair that you are sitting on is an antique. (usual structure)*

c) *The chair you are sitting on is an antique. (everyday English)*

◆ Which can refer back to a whole clause.

e.g. *He helped me do the washing-up. That was kind of him. He helped me do the washing-up, which was kind of him. (Which refers back to the whole clause. That is, it refers to the fact that he helped the speaker do the washing-up.)*

◆ We can use the structure all/most/some/a few/half/none/two, etc. + of + whom/which.

e.g. a) *He invited a lot of people. All of them were his friends.*

He invited a lot of people, all of whom were his friends.

b) *He has a number of watches. Three of them are solid gold.*

He has a number of watches, three of which are solid gold.

◆ That is never used after a comma or preposition.

e.g. a) *The Chinese vase, which is on the coffee table, is very expensive. (NOT: ...that is on the coffee table ...)*

b) *The bank in which the money was deposited is across the street. (NOT: The bank in that the money...)*

◆ We use that with words such as all, everything), something), anything), no(thing), none, few, little, much, only and with the superlative form.

e.g. *Is this all that you can do for me? (more natural than ...all which you can do ...) The only thing that is important to me is my family. It's the best song that I've ever heard.*

who/that (people) subject — cannot be omitted

who/whom/that(people) object — can be omitted

which/that (objects, animals) subject — cannot be omitted

object — can be omitted

whose (people, objects, animals) possession — cannot be omitted

RELATIVE ADVERBS

We use:

◆ **where** to refer to place, usually after nouns such as place, house, street, town, country, etc. It can be replaced by **which/that + preposition** and, in this case, which/that can be omitted.

e.g. *The house where he was born has been demolished.*

The house (which/that) he was born in has been demolished.

◆ when to refer to time, usually after nouns such as **time, period, moment, day, year, summer**, etc. It can either be replaced by that or can be omitted.

e.g. *That was the year when she graduated.*

That was the year (that) she graduated.

◆ **why** to give reason, usually after the word reason. It can either be replaced by that or can be omitted.

e.g. *The reason why she left her job was that she didn't get on with her boss.*

The reason (that) she left her job was that she didn't get on with her boss.

IDENTIFYING/NON-IDENTIFYING CLAUSES

There are two types of relative clause: identifying relative clauses and non-identifying relative clauses. An identifying relative clause gives necessary information and is essential to the meaning of the main sentence. It is not put in commas. A non-identifying relative clause gives extra information and is not essential to the meaning of the main sentence. It is put in commas.

Identifying relative clauses are introduced with:

◆ **who, which, that.** They can be omitted if they are the object of the relative clause.

e.g. a) *People are prosecuted.* (*Which people? We don't know. The meaning of the sentence is not clear.*)

People who/that lie in court are prosecuted. (*Which people? Those who lie in court. The meaning of the sentence is clear.*)

b) *The papers are missing.* (*Which papers? We don't know. The meaning of the sentence is not clear.*)

The papers (which/that) you gave me to check are missing. (*Which papers? The ones you gave me to check. The meaning of the sentence is clear.*)

◆ **whose, where, when, (the reason) why.** Whose cannot be omitted. Where can be omitted when there is a preposition. When and why can either be replaced by that or can be omitted.

e.g. a) *The man was angry.* (*Which man? We don't know. The meaning of the sentence is not clear.*)

The man whose car was damaged was angry. (*Which man? The one whose car was damaged. The meaning of the sentence is clear.*)

b) *The shop is near my house.* (*Which shop? We don't know.*)

The shop where I bought this shirt is near my house. OR The shop I bought this shirt from is near my house. (*Which shop? The one I bought this shirt from.*)

c) *The day was the happiest day of my life.* (*Which day? We don't know.*)

The day (when/that) I got married was the happiest day of my life. (*Which day? The day I got married.*)

d) *I was upset. This is the reason.* (*The reason for what? We don't know.*)

I was upset. This is the reason (why/that) I didn't call you. (*The reason I didn't call you.*)

Non-identifying relative clauses are introduced with:

◆ **who, whom, which.** They cannot be omitted or replaced by that.

e.g. a) *Jenny Ladd is my favourite author.* (*The meaning of the sentence is clear.*) *Jenny Ladd, who has written a lot of successful books, is my favourite author.* (*The relative clause gives extra information.*)

b) *My cousin Peter is a doctor.* (*The meaning of the sentence is clear.*)

My cousin Peter, who(m) you have just met, is a doctor. (*The relative clause gives extra information.*)

c) *His flat is modern and spacious.*

His flat, which he bought two years ago, is modern and spacious.

◆ **whose, where, when.** They cannot be omitted.

e.g. a) *The bride looked stunning.* (*The meaning of the sentence is clear.*)

The bride, whose wedding dress was designed by Valentino, looked stunning. (*The relative clause gives extra information.*)

b) *Stratford-upon-Avon is visited by thousands of tourists every year.*

Stratford-upon-Avon, where Shakespeare was born, is visited by thousands of tourists every year.

c) *The best time to visit the island is in May. The best time to visit the island is in May, when it isn't too crowded.*

LINKING WORDS

Linking words show the logical relationship between sentences or parts of a sentence.

Positive Addition

and, both ... and, too, besides (this/that), moreover, what is more, in addition (to), also, as well as (this/that) furthermore etc.

She is both intelligent and beautiful.

Negative Addition

neither... nor, nor, neither, either

Neither John nor David goes to university.

Contrast

but, although, in spite of, despite, while, whereas, ever though, on the other hand, however, yet, still etc.

Sarah is kind but not very reliable.

Giving Examples

such as, like, for example, for instance, especially, in particular etc.

All the food was delicious, but the steak in particular was excellent.

Cause/Reason

as, because, because of, since, for this reason, due to, so, as a result (of) etc.

I stayed in bed because I felt ill.

Condition

if, whether, only if, in case of, in case, provided (that providing (that), unless, as/so long as, otherwise, or (else on condition (that) etc.

We took an umbrella with us in case it rained.

Purpose

to, so that, so as (not) to, in order (not) to, in order that, in case etc.

I took some paper and a pen so that I could make notes.

Effect/Result

such/so ... that, so, consequently, as a result, therefore, for this reason etc.

It was so cold that we decided to light a fire.

Time

when, whenever, as, as soon as, while, before, until/till after, since etc.

We did not leave until/till the babysitter arrived.

Place

where, wherever

We can't decide where to go on holiday this year.

Exception

except (for), apart from

The party was good fun, apart from the problem with the stereo.

Relatives

who, whom, whose, which, what, that

That's the horse which/that won the Grand National.

Listing Points/Events

To begin: initially, first, at first, firstly, to start/begin with, first of all etc.

First of all, we greeted the guests.

To continue: secondly, after this/that, second, afterwards, then, next etc.

Then, we offered them drinks.

To conclude: finally, lastly, in the end, at last, eventually etc.

Finally, we served them the meal.

Summarising

in conclusion, in summary, to sum up, on the whole, all in all, altogether, in short etc.

To sum up, I firmly believe that animals have the right to a happy life.

МИНОБРНАУКИ РОССИИ

ФГБОУ ВО «Уральский государственный горный
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МЕТОДИЧЕСКИЕ МАТЕРИАЛЫ

ПО УЧЕБНЫМ И ПРОИЗВОДСТВЕН- НЫМ ПРАКТИКАМ

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**Методические указания по решению типовых задач по
направлениям подготовки:**

38.04.02 Менеджмент «Управление международными про-
ектами природообустройства и водопользования»,

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Общие положения

С интенсивным распространением научно-технического прогресса и увеличением объемов производства человек оказывает на весь окружающий его мир мощное и растущее влияние. Это вызывает необходимость усиления охраны природы, земли и ее недр, атмосферного воздуха, водоемов, животного и растительного мира, их рационального использования во всех сферах деятельности человека и в первую очередь в экономической.

Настоящий сборник задач составлен с целью научить студентов определять степень влияния предприятий и других источников загрязнения на окружающую среду, производить расчеты платы за загрязнение и эффективности мероприятий по защите атмосферы, литосферы и других сред от загрязнений и т.д. Все это поможет будущим специалистам не только усвоить сумму знаний по читаемым на кафедре курсов лекций, но и воспользоваться данным материалом для решения производственных задач по рациональному использованию природных ресурсов и природоохранной деятельности на предприятиях, куда придут работать после окончания учебного заведения выпускники университета.

Наиболее часто встречаемые в сборнике задачи понятия:

Рациональное природопользование – система деятельности, обеспечивающая экономную эксплуатацию природных ресурсов и условий с учетом интересов народного хозяйства и сохранения здоровья людей.

Ущерб от загрязнения окружающей среды – фактические и возможные убытки народного хозяйства, связанные с загрязнением среды жизни.

Плата за загрязнение среды – денежное возмещение предприятиями социально-экономического ущерба, наносимого народному хозяйству и здоровью людей от загрязнения среды.

Эффективность природоохранных мероприятий – результат сопоставления суммарного эффекта от мероприятий, в том числе удовлетворения потребностей и получения продукции на основе ресурсосберегающей технологии с необходимыми затратами.

При составлении задач использованы материалы и официальные документы, содержащие утвержденные размеры платежей и другие нормативы.

Требования к решению задач

1. Студент решает индивидуальный вариант задачи, номер которого определяется порядковым номером зачетки. При числе студентов в группе более 25 вариант задачи соответствует последней цифре номера зачетки.

2. Условия задачи, пояснительный текст к ее решению, промежуточные математические действия и конечные результаты должны излагаться в объеме, позволяющем проверяющему понять смысл решенной задачи, характер допущенных ошибок, если таковые имеются, не обращаясь к тексту и справочным материалам задачника.

3. Задачи, решенные студентом по чужому варианту, не рассматриваются.

Условные обозначения, принятые в сборнике

u – суммарный ущерб, нанесенный природной среде и территории, руб.

γ – удельный ущерб, руб./усл. т;

b – показатель, имеющий разное значение для:

различных типов территорий (при определении ущерба от загрязнения воздуха);

различных водохозяйственных участков (при определении ущерба от загрязнения воды);

M – приведенная масса годового сброса (выброса) примесей данным источником; усл. т/год;

i – номер загрязняющего вещества (ЗВ);

N – общее число ЗВ;

m – общая масса годового сброса (выброса) i -го вещества, усл. т/т;

$S_{\text{зав}}$ – общая площадь зоны активного загрязнения (ЗАЗ), га, тыс.м²;

f – безразмерная величина, определяемая в зависимости от характера рассеивания примесей в атмосфере;

h – геометрическая высота устья источника по отношению к среднему уровню ЗАЗ, м;

φ – поправка на тепловой подъем факела выброса в атмосферу, безразмерная величина;

u – среднегодовое значение модуля скорости ветра на уровне флюгера, м/с;

ΔT – среднегодовое значение разности температур в устье источника (трубы) и в окружающей атмосфере, $^{\circ}\text{C}$;

$K_{\text{п}}$ – капитальные затраты на природоохранные мероприятия, тыс. руб.;

C – текущие затраты на содержание природоохранных объектов, тыс. руб.;

Π – плата за загрязнение, тыс. руб.;

P – норматив платы за загрязнение, руб./усл. т;

Э – экономический эффект от природоохранного мероприятия, тыс. руб.;

ε – коэффициент эффективности (сравнивается с нормативным).

ЗВ – загрязняющее вещество.

Задача 1

Расчет эффективности мероприятий по защите атмосферы от загрязнения

1. Исходные данные

1.1. В районе действует тепловая электростанция (ТЭС), работающая на кузнецком угле.

1.2. В процессе эксплуатации ТЭС в атмосферный воздух попадают примеси в виде аэрозолей и газообразных веществ. Массы годового поступления выбросов (m_j) по видам составляют:

а) группа аэрозолей: m_1 – зола угля, m_2 – пыль угля;

б) группа газообразных веществ: m_3 – сернистый ангидрид, m_4 – серный ангидрид, m_5 – оксиды азота (по NO_2), m_6 – оксид углерода.

1.3. Характер выбросов по скорости оседания частиц различен:

а) примеси из группы аэрозолей имеют скорость оседания частиц от 1 до 20 см/с;

б) примеси из группы газообразных веществ имеют скорость оседания менее 1 см/с.

1.4. Зона активного загрязнения (ЗАЗ) ТЭС неоднородна и состоит из разных типов территорий (таб.1).

Таблица 1

Структура ЗАЗ

№ типа территории	Тип территории	S_i	δ_i
1	Территория населенных мест с плотностью населения (β), равной 3 чел/га	S_1	$\beta \times 0.1$
2	Территория промышленных предприятий	S_2	4
3	Леса 2-ой группы	S_3	0.1
4	Пашни	S_4	0.25
5	Территории садовых и дачных участков	S_5	8

1.5. Среднегодовое значение разности температур в устье источника выброса (трубы) и в окружающей среде составляет величину ΔT . Среднегодовой модуль скорости ветра – u .

1.6. По всем загрязняющим веществам (ЗВ) объем выбросов в рассматриваемом году не превышал установленных лимитов. При этом 80% массы каждого из ЗВ находилось в пределах

установленного допустимого норматива выброса ($m_{\text{ПДВ}}$) и 20% массы – в пределах установленного лимита ($m_{\text{ВСВ}}$).

1.7. В планируемом году на ТЭС предполагается установка дополнительных газо- и пылеуловителей. Капитальные затраты (К) и годовые эксплуатационные затраты (С) данного мероприятия см. в таблице 4. расчетный период окупаемости капитальных затрат (t) – 4 года.

1.8. В результате проведения природоохранных мероприятий (в планируемом году) ожидается снижение ущерба от загрязнения атмосферного воздуха на 75%; при этом величина поступающих в атмосферный воздух всех видов ЗВ не будет превышать пределов установленных допустимых нормативов (ПДВ_j).

2. Задание

Определить:

Зону активного загрязнения ТЭС.

Величину ущерба от загрязнения атмосферы ТЭС до проведения природоохранного мероприятия.

Сумму платежей за загрязнения атмосферы в текущем году.

Суммарный эффект запланированных природоохранных мероприятий.

3. Методика расчетов

3.1. Определение ЗАЗ.

Источником загрязнения является труба ТЭС (согласно классификации – организованный источник). Для подобных источников ЗАЗ представляет собой кольцо, заключенное между окружностями с радиусами:

$$r^{\text{внутр}} = 2\phi h,$$

$$R^{\text{внеш}} = 20\phi h,$$

где h – высота источника, м (см. № варианта, табл.4);

ϕ – безразмерная поправка, вычисляемая по формуле

$$\phi = 1 + \frac{\Delta T}{75}$$

где ΔT – разность температур в устье трубы и в ОС, град. (см. табл. 4).

Вычислив радиусы, находим площадь ЗАЗ по формуле:

$$S = \pi \times (R_{\text{внеш}}^2 - r_{\text{внутр}}^2) \times (\text{м}^2)$$

Площадь ЗАЗ выразить в гектарах (1га = 10000 м²).

3.2. Определение ущерба от загрязнения атмосферы ($U = \gamma \delta f M$)

3.2.1. Показатель удельного ущерба атмосферному воздуху (γ), наносимого выбросом единицы массы ЗВ, для Уральского экономического района принимается равным 67,4 руб./усл. т (Методика определения предотвращенного экологического ущерба. М., 1999. – 71С.).

3.2.2. Показатель относительной опасности загрязнения атмосферного воздуха над ЗАЗ (δ) следует рассчитать, поскольку ЗАЗ неоднородна и состоит из 5 типов территорий (пункт 1.4.). Каждому типу территории (S_i) соответствует табличное значение константы δ_i . Усредненное значение δ для всей ЗАЗ определяют по формуле:

$$\delta = \frac{\sum_{i=1}^5 S_i \times \delta_i}{S}$$

- где δ – показатель относительной опасности загрязнения атмосферы над всей зоной активного загрязнения;
- i – номер части ЗАЗ, относящийся к одному из типов территорий (всего по задаче их 5);
- S_i – площадь одного из типов территорий (табл.4);
- $S_{\text{зав}}$ – общая площадь ЗАЗ (поскольку в условии задачи S_i выражается в %, $S_{\text{зав}} = 100\%$);
- δ_i – показатель относительной опасности загрязнения атмосферы над i -тым типом территории (см. пункт 1.4.).

3.2.3. Приведенная масса годового выброса ЗВ ($M = M_{\text{общ.}}$) рассчитывается как сумма газообразных и аэрозольных примесей:

$$M_{\text{газ.}} + M_{\text{аэр.}} (\text{усл. т/год})$$

а) значение приведенной массы годового выброса газообразных примесей определяется по формуле:

$$M_{\text{газ.}} = \sum_{j=3}^6 A_j \times m_j;$$

б) годовая масса аэрозольных примесей рассчитывается аналогично:

$$M_{\text{аэр.}} = \sum_{j=3}^3 A_j \times m_j;$$

где j – вид загрязняющего вещества (по условию задачи вещества j_1 и j_2 – аэрозольные, а j_3, j_4, j_5, j_6 – газообразные),
 A_j – показатель относительной агрессивности примеси j -ого вида (табл.2).

Таблица 2

Значение показателя относительной агрессивности вещества (A_j)

Загрязняющие вещества, выбрасываемые в атмосферу	Значение параметра A_j (усл. т\т)
1. Зола угля	84
2. Пыль угля (недожог)	48
3. Сернистый ангидрид (SO_2)	22
4. Серный ангидрит (SO_3)	49
5. Оксиды азота (по NO_2)	41.1
6. Оксид углерода (CO)	1

3.2.4. Значение множителя f – поправки, учитывающей характер рассеивания примесей в атмосфере, определяется следующим образом:

а) для газообразных примесей с очень малой скоростью оседания (менее 1 см/с) принимается, что

$$f_1 = f_{\text{газ.}} = \frac{100(\text{м})}{100(\text{м}) + \varphi h} \times \frac{4(\text{м/с})}{1(\text{м/с}) + y},$$

б) для частиц, оседающих со скоростью от 1 до 20 м/с (в данной задаче – группа аэрозольных примесей), принимается, что

$$f_2 = f_{\text{аэр.}} = \sqrt{\frac{1000(\text{м})}{60(\text{м}) + \varphi h}} \times \frac{4(\text{м/с})}{1(\text{м/с}) + y},$$

где u – среднегодовое значение модуля скорости ветра (табл.1);
 φ – безразмерная поправка (пункт 3.1);
 h – высота трубы (табл.4).

3.2.5. Определение ущерба от загрязнения атмосферы. Общий ущерб складывается из суммы ущербов от двух видов примесей – газообразных и аэрозольных, с двумя различными параметрами f (пункт 3.2.4.), поэтому

$$U_{\text{общ.}} = U_{\text{газ.}} + U_{\text{аэр.}} = (\gamma \times \delta \times f_{\text{газ.}} \times M_{\text{газ.}}) + (\gamma \times \delta \times f_{\text{аэр.}} \times M_{\text{аэр.}}) = \\ = \gamma \times \delta (f_{\text{газ.}} \times M_{\text{газ.}} + f_{\text{аэр.}} \times M_{\text{аэр.}}).$$

3.3. Расчет платежа за загрязнение атмосферы

Общая сумма платежа определяется по формуле:

$$П_{\text{общ.}} = П_1 + П_2 + П_3;$$

где $П_1$ – плата за допустимый выброс (в пределах ПДВ);
 $П_2$ – плата за выброс ЗВ сверх ПДВ, но в пределах установленного лимита (ВСВ);
 $П_3$ – плата за выброс ЗВ сверх лимита (сверх ВСВ).

По условию задачи (пункт 1.6.) объем выбросов по всем загрязняющим веществам не превышает установленных лимитов, значит

$$П_{\text{общ.}} = П_1 + П_2.$$

$$П_1 = \sum_{j=1}^6 m_{\text{ПДВ}j} \times R_{\text{ПДВ}j};$$

$$П_2 = \sum_{j=1}^6 m_{\text{ВСВ}j} \times R_{\text{ВСВ}j};$$

где $П_1$ и $П_2$ – плата за выбросы ЗВ в пределах установленных допустимых нормативов (ПДВ) и установленных лимитов (ВСВ), руб./год;
 $m_{\text{ПДВ}j}$ и $m_{\text{ВСВ}j}$ – массы j -ого вида ЗВ в пределах ПДВ и ВСВ, т;
 $R_{\text{ПДВ}j}$ и $R_{\text{ВСВ}j}$ – нормативы платы за выброс 1 тонны j -ого ЗВ в пределах ПДВ и ВСВ, руб./т. (табл.3).

Таблица 3

**Нормативы платы за выбросы в атмосферный воздух
загрязняющих веществ стационарными источниками
на территории Уральского экономического района (руб./т)**

№ п/п	Наименование ЗВ	Нормативы платы за выброс одной тонны ЗВ в атмосферный воздух (вне городов)	
		В пределах установленных допустимых нормативов выбросов (ПДВ)	В пределах установленных лимитов выбросов (ЛВВ)
1	Зола угля	14	70
2	Пыль угля	27,4	137
3	Сернистый ангидрид	80	400
4	Серный ангидрид	42	210
5	Оксиды азота	70	350
6	Оксид углерода	1,2	6

3.4. Определение суммарного годового эколого-экономического эффекта запланированного природоохранного мероприятия

Годовой суммарный эффект рассчитывается по формуле:

$$R=P-Z,$$

где R – годовой эколого-экономический эффект, руб;

P – положительный суммарный результат, полученный благодаря проведенным мероприятиям.

Положительными результатами по условию задачи являются:

а)предотвращенный ущерб и

б)снижение платежей за загрязнение в результате уменьшения массы выбросов (пункт 1.8); таким образом:

$$P=0,75U+П_2,$$

где Z – годовые суммарные затраты, вычисляются по формуле

$$Z=C+E_p \times K,$$

где C – эксплуатационные затраты (табл.4);

K – капитальные затраты (табл.4);

E_p – расчетный коэффициент окупаемости капитальных затрат.

$$E_p = \frac{1}{t};$$

где t – период окупаемости капитальных затрат (см. пункт 1.7.).

Таблица 4

Данные для решения задачи

Вариант	m ₁ (т./год)	m ₂ (т./год)	m ₃ (т./год)	m ₄ (т./год)	m ₅ (т./год)	m ₆ (т./год)	% от S _{3аз}					ΔT (°C)	y (м/с)	h (м)	С	К
							S ₁	S ₂	S ₃	S ₄	S ₅					
1	3000	100	1000	1000	3100	400	20	25	30	15	10	150	1	250	15	150
2	3050	105	9800	1010	3050	402	25	10	15	25	25	150	1	240	15	140
3	3100	100	9500	1005	3040	390	15	15	20	15	35	150	1	260	15	140
4	3150	95	9600	1000	3030	385	10	15	25	30	20	140	1,5	250	15,5	145
5	3200	102	9500	1006	3020	390	15	20	20	25	20	140	1,5	240	15,5	145
6	3250	104	9400	1007	3010	390	20	15	30	20	15	140	1,5	270	15,5	150
7	3300	100	9300	1004	3000	385	25	10	30	15	20	130	2	300	16	150
8	3350	89	9200	1003	2950	375	30	10	30	15	15	130	2	300	16	150
9	3400	101	9150	980	2940	375	25	10	15	25	25	130	2	280	16	150
10	3450	105	9100	985	2930	360	20	25	5	25	25	140	2,5	280	15,5	145
11	3500	100	9050	970	2940	360	15	20	20	25	20	140	2,5	300	15,5	145
12	3450	98	9000	980	2850	375	10	20	40	15	15	140	2,5	270	15,5	140
13	3400	97	9050	800	2800	375	5	25	20	30	20	150	3	300	15	145
14	3350	90	8950	850	2850	370	5	20	20	25	30	150	3	290	15	145
15	3300	102	9000	890	2900	370	5	15	35	15	30	150	3	290	15	150
16	3250	100	8900	880	2930	400	10	15	30	30	15	140	2,5	280	15	140
17	3200	98	8800	870	2940	390	10	20	30	25	15	140	2,5	280	16	135
18	3150	95	9100	860	2800	390	15	20	25	20	20	140	2,5	270	16	135
19	3100	97	9150	850	2750	395	10	25	5	40	20	130	3	280	16	135
20	3050	90	9000	850	2700	400	5	25	25	15	30	130	3	300	16	145
21	3000	92	7800	860	2650	402	5	20	25	30	20	130	3	300	15	145
22	2950	89	9200	870	2700	401	10	20	10	30	30	140	3	300	15	150
23	2900	100	8800	900	2650	402	5	25	25	15	30	140	2	280	15	150
24	2950	95	8900	950	2800	401	10	25	25	27	15	150	2	280	15	150
25	3000	93	9000	1000	2850	400	5	15	25	25	30	150	2	280	15	140

Задача 2

Расчет платы предприятия за загрязнение окружающей среды

1. Исходные данные

Промышленные предприятия, находящиеся на территории Свердловской области выбрасывают загрязняющие вещества в атмосферу и водные объекты. Также источником загрязнения окружающей среды являются образующиеся на предприятиях отходы. Согласно Федеральному закону «Об охране окружающей среды» от 26.12.2001 вводится плата за негативное воздействие на окружающую среду. К видам негативного воздействия относятся: выбросы в атмосферный воздух загрязняющих веществ; сбросы загрязняющих веществ, иных веществ и микроорганизмов в поверхностные водные объекты, подземные водные объекты и на водосборные площади; загрязнение недр, почв; размещение отходов производства и потребления; загрязнение окружающей среды шумом, теплом, электромагнитными, ионизирующими и другими видами физических воздействий; иные виды негативного воздействия на окружающую среду.

Порядок исчисления и взимания платы за негативное воздействие на окружающую среду устанавливается законодательством РФ.

2. Задание

Определить плату предприятия за загрязнение окружающей среды.

3. Методика расчета

Общая сумма платы складывается из платы за загрязнение атмосферы, водного объекта и размещения отходов:

$$P_{\text{общ}} = P^a + P^b + P^{\text{отх}}$$

в свою очередь плата за каждый вид вредного воздействия определяется следующим образом:

$$\Pi = \Pi_{\text{н}} + \Pi_{\text{л}} + \Pi_{\text{сл}},$$

где $\Pi_{\text{н}}$ – плата за загрязнение в пределах предельно допустимого выброса, сброса (ПДВ, ПДС, норматива на размещение отходов), руб.;

$\Pi_{\text{л}}$ – плата за загрязнение в пределах временно согласованного выброса, сброса (ВСВ, ВСС, лимита на размещение отходов), руб.;

$\Pi_{\text{сл}}$ – плата за сверх лимитное загрязнение, руб.

Если фактическая масса загрязняющих веществ $M_{\text{ф}}$ не превышает нормативную $M_{\text{н}}$, то $\Pi = \Pi_{\text{н}}$.

$$\Pi_{\text{н}} = p_{\text{н}} + M_{\text{ф}},$$

где $p_{\text{н}}$ – Норматив платы за загрязнение в пределах ПДВ (ПДС, норматива на размещение отходов), руб./т.;

Нормативы платы устанавливаются ежегодно постановлением правительства РФ (по типам загрязняющих веществ и в зависимости от класса токсичных отходов);

$M_{\text{н}}$ – ПДВ (ПДС, лимит на размещение отходов)

Если фактическая масса загрязняющих веществ превышает норматив, но меньше лимитной, тогда

$$\Pi = \Pi_{\text{н}} + \Pi_{\text{л}},$$

$$\Pi_{\text{н}} = p_{\text{н}} \times M_{\text{н}},$$

$$\Pi_{\text{л}} = p_{\text{л}} \times (M_{\text{ф}} - M_{\text{н}}),$$

где $p_{\text{л}}$ – ставка платы за загрязнение в пределах ВСВ (ВСС, лимита на размещение отходов), руб./т.;

Если фактическая масса загрязняющих веществ превышает установленные лимиты $M_{\text{л}}$, то

$$\Pi = \Pi_{\text{н}} + \Pi_{\text{л}} + \Pi_{\text{сл}},$$

$$\Pi_{\text{н}} = p_{\text{н}} \times M_{\text{н}},$$

$$\Pi_{\text{л}} = p_{\text{л}} \times (M_{\text{л}} - M_{\text{н}})$$

$$\Pi_{\text{сл}} = 5p_{\text{л}} \times (M_{\text{ф}} - M_{\text{л}})$$

где $M_{\text{л}}$ – ВСВ (ВСС), лимит на размещение отходов.

4. Данные для решения задачи

Таблица 1

Предприятие №1							
Вещество	ПДВ, ПДС, т/год	ВСВ, ВСС, т/год (лимит)	М факт, т/год	Размер платы, руб.			Всего
				за ПДВ, ПДС	за ВСВ, ВСС, (лимит)	за сверхлимит	
1. Ванадия пя- тиокись	2,202	2,703	3,206				
2. Азота диоксид	4392,1	5872,6	6021,5				
3. Кислота серная	0,004	0,005	0,006				
4. Фтористые	0,029	0,043	0,025				
Итого за выбро- сы							
1. Медь	0,019	0,023	0,025				
2. Железо	1,85	2,34	2,65				
3. Сульфаты	1948,54	2537,62	3261,5				
4. Фтор	12,341	13,875	12,632				
Итого за сбросы:							
1. Бытовые не- токсичные отхо- ды	–	1520,8 м ³	1745,6 м ³				
2. Промышлен- ные нетоксичные отходы	–	100,0	245,6				
Итого размер платы по пред- приятию							

Считать, что предприятие расположено в Свердловской области г. Н. Тагил, сбросы осуществляются в водоем, принадлежащий бассейну реки Обь.

Таблица 2

Предприятие №2							
Вещество	ПДВ, ПДС, т/год	ВСВ, ВСС, т/год (лимит)	М факт, т/год	Размер платы, руб.			Всего
				за ПДВ, ПДС	за ВСВ, ВСС, (лимит)	за сверхли- мит	
1. Углерода оксид	–	–	2,675				
2. Фурфурол	9,62	10,42	10,5				
3. Фенол	0,5	0,7	0,75				

Окончание

4. Формальдегид	0,607	0,703	0,805				
Итого за выбросы							
1. Азотаммония	0,75	1,25	6,25				
2. Азот нитритов	2,605	3,402	3,5				
3. Формальдегид	0,298	0,345	0,54				
4. Фосфаты	4,65	4,93	5,25				
Итого за сбросы:							
1. Шлам (II кл. токсичности)	–	35,0	67,0				
2. Активный ил (IV кл. токсичности)	–	1240,0	8500,0				
Итого размер платы по предприятию							

Считать, что предприятие находится в Свердловской области в г. Екатеринбурге; загрязняющие вещества сбрасываются в водоем, принадлежащий бассейну реки Обь

Таблица 3

Предприятие №3

Вещество	ПДВ, ПДС, т/год	ВСВ, ВСС, т/год (лимит)	М факт, т/год	Размер платы, руб.			Всего
				за ПДВ, ПДС	за ВСВ, ВСС, (лимит)	за сверхлимит	
1. Азота диоксид	–	–	81,65				
2. Аммиак	1,172	1,743	2,650				
3. Сажа	0,132	0,647	0,250				
4. Фурфурол	9,365		10,70				
Итого за выбросы							
1. Азот аммонийный	1,034	5,730	2,650				
2. СПАВ	0,345	0,764	0,850				
3. Фенолы	0,007	1,034	0,60				
4. Фосфаты	4,681	6,751	2,42				
Итого за сбросы:							
1. Шлам (IV класс токсичности)	–	1240,0	1350,0				
2. Активный ил (IV класс токсичности)	–	850,0	1250,0				
Итого размер платы по предприятию							

Считать, что предприятие расположено в Свердловской области г. Первоуральск, сбросы осуществляются в водоем, принадлежащий бассейну реки Волги.

Таблица 4

Предприятие №4

Вещество	ПДВ, ПДС, т/год	ВСВ, ВСС, т/год (лимит)	М _{факт} , т/год	Размер платы, руб.			Всего
				за ПДВ, ПДС	за ВСВ, ВСС, (лимит)	за сверхли- мит	
1. Аммиак	0,620	0,830	0,750				
2. Фтористые	0,03	0,072	0,240				
3.Фенол	1,508	2,405	5,602				
4. Ванадия пя- тиокись	10,75	12,34	18,64				
Итого за выбро- сы							
1. Нефтепродук- ты	176,0	245,0	742,0				
2. Цинк	0,07	0,078	0,085				
3. Хлориды	670,5	730,1	840,2				
4. СПАВ	54,7	81,5	92,3				
Итого за сбросы:							
1. Отходы древе- сины		842 м ²	850 м ³				
2. Активный ил (IV класс ток- сичности)	–	6845	8125 м ³				
Итого размер платы по пред- приятию							

Предприятие расположено в Свердловской области г. Новоуральск, сбросы осуществляются в водоем, принадлежащий бассейну реки Обь.

Таблица 5

Предприятие №5

Вещество	ПДВ, ПДС, т/год	ВСВ, ВСС, т/год (лимит)	М _{факт} , т/год	Размер платы, руб.			Всего
				за ПДВ, ПДС	за ВСВ, ВСС, (лимит)	за сверхлимит	
1. Кислота сер- ная	0,150	0,950	1,240				
2. Ванадия пя- тиокись	8,206	10,47	10,24				

Окончание

3. Углерода оксид	–	–	245,6				
4. Пыль неорганическая (доломит)	6351,0	8162,0	9024,0				
Итого за выбросы							
1. Азот аммонистый	–	–	10,148				
2. Медь	0,019	0,170	0,20				
3. Азот нитритов	0,507	0,803	0,602				
4. Фтор	0,014	0,640	0,250				
Итого за сбросы:							
1. Активный ил (IV класс токсичности)	–	1560,0	1820,0				
2. Шлам (I класс токсичности)	–	12,0	11,9				
Итого размер платы по предприятию							

Считать, что предприятие расположено в Свердловской области г. Ревда, сбросы осуществляются в водоем, принадлежащий бассейну реки Волги.

*) Значение нормативов платы приведены в таблицах 6, 7, 8 в соответствии с Постановлением Правительства Свердловской области от 28.11.2003г. № 738 – ПП «О взимании платы за негативное воздействие на окружающую среду на территории Свердловской области».

В текущем году при осуществлении расчетов платы за негативное воздействие на окружающую среду к указанным нормативам платы применяется коэффициент инфляции, определяемый законом о федеральном бюджете на текущий год. В 2004г. был принят коэффициент 1,1, в 2005г. 1,2.

Таблица 6

Значение нормативов платы за выбросы в атмосферный воздух загрязняющих веществ стационарными источниками, подлежащих применению при ее расчете с использованием коэффициента, учитывающего экологические факторы по территории Уральского экономического района

№ п/п	Наименование загрязняющего вещества	Нормативы платы за выброс одной тонны загрязняющих веществ в атмосферный воздух городов, руб.		
		В пределах ПДВ	В пределах ВСВ	Сверх установленных лимитов выбросов
1	Азота диоксид	124,8	624	3120
2	Аммиак	124,8	624	3120
3	Ванадий пятиоксид	2460	12300	61500
4	Кислота серная	50,4	252	1260
5	Сажа	98,4	492	2460
6	Углерода оксид	1,44	7,2	36
7	Фенол	1639,2	8196	40980
8	Формальдегид	1639,2	8196	40980
9	Фурфурол	984	4920	24600
10	Фторогазообразные соединения	98,4	492	2460
11	Пыль неорганическая, содержащая диоксид кремния ниже 20% (долоний, слюда, тальк и др.)	32,88	164,4	822

Примечание. При установлении нормативов платы за выбросы в атмосферный воздух загрязняющих веществ стационарными источниками в соответствии с постановлением Правительства Российской Федерации от 12.06.2003г. №344 «О нормативах платы за выбросы в атмосферный воздух загрязняющих веществ стационарными и передвижными источниками, сбросы сбросы загрязняющих веществ в поверхностные и подземные водные объекты, размещение отходов производства и потребления использованы»:

коэффициент, учитывающий состояние атмосферного воздуха по территории Уральского экономического района, равный 2;
дополнительный коэффициент 1,2 при выбросе загрязняющих веществ в атмосферный воздух городов.

Таблица 7.

Значение нормативов платы за сбросы загрязняющих веществ в поверхностные подземные водные объекты, подлежащих применению при ее расчете с использованием коэффициентов, учитывающих экологические факторы по бассейнам, рек и морей.

№ п/п	Наименование загрязняющего вещества	Нормативы платы за сброс одной тонны загрязняющих веществ по бассейну р. Волги, руб.			Нормативы платы за сброс одной тонны загрязняющих веществ по бассейну р. Оби, руб		
		В пределах ПДС	В пределах ВСС	Сверх установленных лимитов сбросов	В Пределах ПДС	В Пределах ВСС	Сверх установленных лимитов сбросов
1	Азот аммониевых соединений	757,9	3789,5	18947,5	813,02	4065,1	20325,5
2	Железо	60605,6	303028	1515140	65013,28	325066,4	1625332
3	Медь (Cu ²⁺)	303029,1	1515145,5	7575727,5	325067,58	1625337,9	8126689,5
4	Нефть и нефтепродукты	6061	3030,5	151525	6501,8	32509	162545
5	Нитрат-ион	34,1	170,5	852,5	36,58	182,9	914,5
6	СПАВ (алкилсульфанаты)	606,76	3033,8	15169	650,89	3254,44	16272,2
7	Сульфат-ион (сульфаты)	2,75	13,75	68,75	2,95	14,75	73,75
8	Фенол	303029,1	1515145,5	7575727,5	325067,58	1625337,9	8126689,5
9	Фосфаты (по P)	1515,8	7579	37895	1626,04	8130,2	40651
10	Формальдегид	3030,5	15152,5	75762,5	3250,9	16254,5	81272,5
11	Фтор (F ⁻)	404,8	2024	10120	434,24	2171,2	10856
12	Хлориды (Cl ⁻)	0,99	4,95	24,75	1,06	5,30	26,5
13	Цинк(Zn ²⁺)	30302,8	151514	757570	32506,64	162533,2	812666

Примечание. При установлении нормативов платы за сбросы загрязняющих веществ в поверхностные и подземные водные объекты в соответствии с постановлением правительства Российской Федерации от 12.06.2003г. №344 использованы:

коэффициент, учитывающий состояние водных объектов по бассейну реки Волги для Свердловской области, равный 1,1;

коэффициент, учитывающий состояние водных объектов по бассейну реки Оби для Свердловской области, равный 1,18.

Таблица 8

Значение нормативов платы за размещение отходов производства и потребления, подлежащих применению при ее расчете с использованием коэффициента, учитывающего экологические факторы по территории Уральского экономического района.

№ п/п	Вид отходов (по классам опасности для окружающей среды)	Единица измерения	Норматив платы за размещение одной единицы измерения отходов	
			В пределах установленных лимитов размещения отходов	Сверх установленных лимитов размещения отходов
1	Отходы I класса опасности (чрезвычайно опасные)	тонн	2956,64	14783,2
2	Отходы II класса опасности (высокоопасные)	тонн	1267,18	6335,9
3	Отходы III класса опасности (умеренно опасные)	тонн	844,9	4224,5
4	Отходы IV класса опасности (малоопасные)	тонн	422,28	2111,4
5	Отходы V класса опасности (практически не опасные): добывающей промышленности перерабатывающей промышленности	тонн	0,68	3,4
		куб. метров	25,5	127,5

Примечание. При установлении нормативов платы за размещение отходов производства и потребления в соответствии с постановлением Правительства Российской Федерации от 12.06.2003г. №344 использован коэффициент, учитывающий состояние почв по территории Уральского экономического района, равный 1,7.

Задача 3

Оценка влияния автомобильного транспорта на окружающую среду

1. Исходные данные

1.1. Фирма, осуществляющая автотранспортные услуги, имеет на балансе 150 единиц грузовых автомобилей (N) и 130 единиц легковых (n). Грузовой автотранспорт оснащён двигателями дизельного типа (работает на дизтопливе), легковой – двигателями карбюраторного типа (работает на неэтилированном бензине).

1.2. В среднем за день каждый автомобиль расходует дизельного топлива 100 л, неэтилированного бензина – 50 л.

1.3. По территории городов совершается 80% всех поездок. Остальные 20% - вне городов.

1.4. Один легковой автомобиль за неделю постоянной эксплуатации выбрасывает в атмосферу в составе выхлопных газов следующее количество загрязняющих веществ (ЗВ) (Таблица 1):

Таблица 1

№ п/п	Наименование ЗВ	Масса ЗВ за неделю (m_i), кг	Показатель опасности вещества (A_i), усл.т./Т
1	Оксид углерода	14,5	1
2	Углеводородов	1,8	3,16
3	Окиси азота	3,6	41,1
4	Аммиак	0,008	10,4
5	Ацетальдегида	0,082	41,6
6	Сернистого ангидрида	0,077	22

Один грузовой автомобиль выбрасывает в 2 раза больше ЗВ, чем легковой.

1.5. Для уменьшения отрицательного воздействия на атмосферу города фирма может осуществить следующие мероприятия:

оснастить легковые автомобили устройствами снижения выбросов (каталитический нейтрализатор, автомат пуска и подогрева топлива (затраты на 1 автомобиль – 30 тыс. рублей; снижение расхода топлива – 20%);

своевременно проводить диагностику состояния двигателей на соблюдение нормативных требований (затраты на оборудование – 5 млн. рублей, снижение расхода топлива – 5%).

1.6. В городе всего зарегистрировано 1700 тыс. автомобилей (Z), из них 50% легковых.

2. Задание

2.1. Определить годовую плату за выбросы загрязняющих веществ в атмосферу передвижными источниками.

2.2. Оценить: выгодно ли фирме осуществлять атмосферно-охранные мероприятия.

2.3. Определить количество выбрасываемых автотранспортом загрязняющих веществ в городе.

2.4. Определить удельный выброс ЗВ на 1 жителя города, если в нем проживает 1,5 млн. человек (I).

3. Методика расчета

3.1. Плата за выбросы загрязняющих веществ в атмосферу рассчитывается по следующей формуле:

$$\Pi = p_1 \times T_1 + p_2 \times T_2 ,$$

где p_1, p_2 – нормативы платы за одну единицу измерения топлива соответственно вне городов и в городах (таблица 2).

T_1, T_2 – количество топлива определённого вида, израсходованного соответственно вне городов и в городах (по условию 1.3).

По условиям данной задачи (1.2 и 1.3)

$$T_1 = 0,2 (100N+50n)$$

$$T_2 = 0,8 (100N+50n)$$

Таблица 2

Значения нормативов платы за выбросы в атмосферный воздух загрязняющих веществ передвижными источниками, подлежащих применению при её расчете с использованием коэффициента, учитывающего экологические факторы по территории Уральского экономического района*.

№ п/п	Вид топлива	Единица измерения	Нормативы платы за одну единицу измерения вне городов (р ₁), руб.	Нормативы платы за одну единицу измерения в городах (р ₂), руб.
1	Бензин неэтилированный	тонн	2,6	3,12
2	Дизельное топливо	тонн	5	6
3	Керосин	тонн	5	6
4	Сжатый природный газ	тыс. куб. метров	2,4	2,88
5	Сжиженный газ	тонн	2,4	2,88

3.2. Оценка эффективности атмосфероохранных мероприятий производится путём, во-первых, сопоставления затрат на данные мероприятия с величиной возможного снижения платежей за выбросы, а, во-вторых, соотнесения полученной величины с нормативом.

$$а) \frac{0,2П}{30000 \times (N + n)} = E_1 ;$$

$$б) \frac{0,05П}{5000000} = E_2$$

где П – Плата за выбросы в атмосферный воздух ЗВ передвижными источниками

*Примечание. При установлении нормативов платы за выбросы в атмосферный воздух загрязняющих веществ передвижными источниками в соответствии с постановлением правительства Российской Федерации от 12.06.2003г. №344 «О нормативах платы за выбросы в атмосферный воздух загрязняющих веществ стационарными и передвижными источниками, сбросы загрязняющих веществ в поверхностные и подземные водные объекты, размещение отходов производства и потребления» использованы:

коэффициент, учитывающий состояние атмосферного воздуха по территории Уральского экономического района, равный 2;

дополнительный коэффициент 1,2 при выбросе загрязняющих веществ в атмосферный воздух городов.

0,2 – по условию 1.5 а.

0,05 – по условию 1.5 б.

Норматив эффективности затрат в природоохранные мероприятия $E_n=0,16$.

3.3. Количество выбрасываемых автотранспортом ЗВ в городе (М) рассчитывается по следующей формуле:

$$M = \sum_{i=1}^6 m_i \times 1,5Z \times 52,$$

где i – индекс ЗВ

m_i – масса ЗВ, выброшенных за неделю (таблица 1)

52 – количество недель в году

1,5Z – По условию данной задачи 1,4 и 1,6

3.4. Удельный выброс на 1 жителя города рассчитывается делением данных, полученных в п. 3.3 на численность населения города (Н).

Таблица 3

Данные для решения задачи

№ варианта	N, ед.	n, ед.	Z, тыс. ед.	H, тыс. чел.
1	150	130	1700	2500
2	1200	-	1000	1500
3	170	250	700	750
4	1000	200	500	800
5	100	500	450	900
6	900	150	750	2000
7	200	450	1500	1150
8	1150	300	1200	1200
9	300	250	650	950
10	850	-	1100	1400
11	110	400	1150	1300
12	900	130	600	1250
13	1200	150	1550	1900
14	140	700	1450	1800
15	900	-	1300	1500
16	250	300	700	700
17	1150	20	800	1250
18	400	150	900	1600
19	870	140	1120	1800
20	115	350	650	900
21	1100	-	2000	2500
22	300	250	800	1200
23	490	120	1600	1800
24	770	-	950	1000
25	888	50	762	950

Задача 4

Определение экономического ущерба от загрязнения водоёма средствами химизации, используемыми в сельском хозяйстве

1. Исходные данные

1.1. Сельскохозяйственное предприятие на орошаемом участке, расположенном в пойме реки, выращивает картофель на площади (S_1), столовую свёклу (S_2) и морковь (S_3).

1.2. Интенсивная технология выращивания этих культур предусматривает использование средств химизации – ядохимикатов и минеральных удобрений.

Посадки картофеля обрабатываются атразином в дозе (D) 2,4 кг/га, посевы картофеля, моркови и свеклы обрабатываются прометрином в дозе 4 кг/га. Под все выращиваемые культуры вносятся минеральные удобрения. Азотные – 180 кг/га, фосфорные – 120 кг/га, калийные – 180 кг/га действующего вещества.

1.3. Часть вносимых на поле ядохимикатов и минеральных удобрений с поверхностным стоком попадает в водоём, вызывая его загрязнения. Коэффициент потерь (Π), отражающих долю средств химизации, попадающих в водоём от внесённого количества, для ядохимикатов равен 2%, азотных удобрений – 15%, фосфорных – 5%, калийных – 10%.

2. Задание

Следует определить:

2.1. величину годового экономического ущерба (u) от загрязнения водоёма средствами химизации;

2.2. размер платы за загрязнение водного объекта.

3. Методика расчёта, годового экономического ущерба

Годовой экономический ущерб (руб. /год), наносимый окружающей среде в результате загрязнения водоёма, равен:

$$u = \gamma \times \sigma \times M,$$

где γ – удельный ущерб, численное значение которого соответствует нормативу платы, ежегодно устанавливаемому правительством области (руб./год),

- δ – безмерная константа, учитывая экологическое состояние водного объекта, равная, для данного случая 1,2 ,
 M – приведенная масса средств химизации, попадающих в водоём (усл.т/год).

$$M = \sum_{i=1}^N m_i \times A_i ,$$

- где N – количество средств химизации, попадающих в водоёмы;
 i – номер средства химизации;
 m_i – общая масс средства химизации, попадающего в водоём, т.

$$m_i = \frac{D_i \times \Pi_i \times S_i}{100} ,$$

- где D – доза i -го средства химизации, попадающего в водоём, т/га;
 Π_i – коэффициент потерь для i -го средства химизации, %;
 S_i – площадь выращивания i -той культуры, га;
 A_i – показатель относительной опасности i -го средства химизации, попадающего в водоем.

$$A_i = \frac{1}{\text{ПДК}_{(P / \infty)}} ,$$

- где ПДК – предельно допустимая концентрация i -го средства химизации для рыбохозяйственных водоёмов (ПДК для атразина – 0,00024 мг/л, прометрина – 0,05 мг/л, фосфора 0,7 мг/л, калия – 0,8 мг/л, азот – 0,5 мг/л).

4. Методика определения размера платежей за загрязнение водного объекта

Общий размер платежей (Поб.) за загрязнение водного объекта определяется следующим образом:

$$\text{Поб.} = \text{П}_1 + \text{П}_2 + \text{П}_3 ,$$

- где П_1 – размер платы в пределах установленных предельно допустимых сбросов, руб. ;
 П_2 – размер платы в пределах установленных лимитов, руб. ;
 П_3 – размер платы за сбросы в объемах превышающих установленные лимиты, руб.

$$\text{П}_1 = m_1 \times i_1 ,$$

- где m_1 – масса средств химизации, попадающих в водоём в пределах установленных предельно допустимых сбросов (т);
 j_1 – размер платы за загрязнение водных объектов в пределах установленных предельно допустимых сбросов, руб.

$$\Pi_2 = m_2 \times i_2,$$

- где m_2 – масса средств химизации, попадающих в водоём в объемах установленных лимитов (т);
 j_2 – размер платы за загрязнение водных объектов в пределах установленных лимитов, руб.

$$\Pi_3 = m_3 \times i_3,$$

- где m_3 – масса средств химизации, попадающих в водоём в объемах превышающих установленные лимиты (т);
 j_3 – размер платы за загрязнение водных объектов в объемах превышающих установленные лимиты, руб.

5. Исходные данные

Площади выращиваемых культур

№ варианта	S_1	S_2	S_3
1	430	123	133
2	420	98	122
3	498	80	151
4	436	134	163
5	472	102	132
6	345	103	123
7	486	144	124
8	421	129	95
9	461	135	132
10	473	111	90
11	423	102	93
12	395	109	119
13	388	133	123
14	400	122	90
15	43	119	98
16	422	120	123
17	488	90	120
18	433	89	92
19	412	144	96
20	431	136	90
21	430	88	124
22	367	152	130
23	380	144	122
24	439	90	110
25	466	96	123

Данные по допустимому поступлению атразина в водный объект

Вариант	Предельно допустимый сброс, т	Лимит сброса от уровня предельно допустимого, т
1	0,06	0,062
2	0,04	0,041
3	0,03	0,032
4	0,02	0,021
5	0,04	0,042
6	0,09	0,1
7	0,02	0,021
8	0,03	0,031
9	0,02	0,021
10	0,01	0,011
11	0,00	0,001
12	0,05	0,052
13	0,04	0,041
14	0,03	0,031
15	0,03	0,032
16	0,04	0,042
17	0,07	0,073
18	0,06	0,062
19	0,04	0,042
20	0,04	0,041
21	0,01	0,011
22	0,02	0,021
23	0,04	0,042
24	0,01	0,011
25	0,02	0,021

Значения нормативов платы за сбросы ЗВ в водные объекты

Загрязняющее вещество	Плата в пределах установленных нормативов γ_1 , руб./т	Плата в пределах установленных лимитов γ_2 , руб./т	Плата за превышение установленных лимитов γ_3 , руб./т
Калий	6,82	34,1	170,5
Азот	757,9	3799	18947
Фосфор	3030,5	15152	75762
Прометрин	6061	30305	151525
Атразин	60605	303028	1515140

Считать, что по всем средствам химизации, кроме атразина, их поступление в водный объект не превышает установленных нормативов.

Задача 5

Определить величину экономического ущерба от загрязнения водного объекта биогенными веществами, источником которых являются минеральные удобрения

1. Исходные данные

1.1. Для выращивания сельскохозяйственных культур на полях, расположенных в водосборе реки, внедряются интенсивные технологии, что предполагает внесение минеральных удобрений, являющихся источником биогенной нагрузки, преимущественно азота N, фосфора P, калия K. Сельскохозяйственные угодья площадью F (га) расположены на известном удалении от уреза реки l (м), что в конечном итоге определяет фактическую величину биогенной нагрузки W' (т) на водный объект, а следовательно, и величину экономического ущерба U (руб.) загрязнений.

1.2. Во избежание выноса остатков удобрений в водный источник рекомендуется внедрить систему водоохраных мероприятий, что позволит снизить вынос биогенов до допустимого уровня.

1.3. Ожидаемый экономический результат P (руб.) водоохраных мероприятий следует определять величиной снижаемого (предотвращаемого) ущерба.

2. Задание

Определить:

2.1. Величину экономического ущерба (U) от загрязнения водного объекта биогенными веществами.

2.2. Годовой экономический эффект (Э) от проведения водоохраных мероприятий в зоне сельскохозяйственной деятельности.

3. Методика расчета

3.1. Для изучения влияния минеральных удобрений на загрязнение природных вод необходимо определить величину возможного и фактического (W и W') выноса биогенных веществ в водный объект.

По результатам литературных источников вынос биогенных веществ в водный объект для зоны Урала составляет:

Азота $\beta_N = 13,6$ кг/га,

Фосфора $\beta_P = 1,9$ кг/га,

Калия $\beta_K = 14,5$ кг/га.

Возможный вынос биогенных веществ определяется соответственно:

$$W_N = \beta_N F;$$

$$W_P = \beta_P F;$$

$$W_K = \beta_K F.$$

3.2. Биогенные вещества, вымываемые с сельскохозяйственных угодий, частично попадают в водный объект, значительная часть их аккумулируется естественными природными фильтрами (луга, болота, низины).

Количество биогенов, фактически поступивших в водный объект от данного источника загрязнения, в большей степени зависит от удаленности сельскохозяйственных угодий от уреза воды и учитывается при расчете коэффициентом редукиции α (табл.9).

Таблица 9

Коэффициенты выноса биогенных веществ в водотоки в зависимости от удаленности угодий от уреза воды

Коэффициент редукиции	Зоны удаленности с/х угодий относительно уреза воды, м					
	0-500	500-1000	1000-2000	2000-3000	3000-4000	Более 4000
α	1,0	0,9	0,8	0,6	0,5	

Следовательно, величина фактического выноса биогенных веществ будет определяться формулой:

$$W' = \alpha W.$$

Примечание: значения W' определяются отдельно для каждого биогенного вещества.

3.3. Расчет величины экономического ущерба от загрязнения водного объекта биогенными веществами предлагается определять по формуле:

$$U = j \times б \times M,$$

- где U – экономический ущерб, руб.;
- j – удельный ущерб (руб./усл.т);
- б – безразмерная величина, коэффициент экологической ситуации и экологической значимости состояния водных объектов;
- M – приведенная масса годового сброса загрязняющих веществ в данный источник, усл.т/год.

Величина M вычисляется по формуле:

$$M = \sum_{i=1}^N m^i A_i,$$

- где i – номер сбрасываемой примеси;
- N – общее количество примесей;
- A_i – показатель относительной опасности i-го вещества (усл.т/т);
- m – масса загрязняющих веществ (т).

$$A_i = \frac{1}{\text{ПДК}}^1,$$

$$A_N = \frac{1}{40,0},$$

$$A_p = \frac{1}{0,25},$$

$$A_k = \frac{1}{50,0}.$$

Величина M для данной задачи определяется соответственно:

$$M = \sum_{i=1}^3 W^i A_i.$$

3.4. Для предотвращения загрязнения водного объекта предлагается внедрить систему водоохранных мероприятий, позволяющих снизить биогенную нагрузку до допустимого уровня.

¹ ПДК загрязняющих веществ взяты для водоемов рыбохозяйственного значения.

Перечень и стоимость водоохранных мероприятий приведены в табл.10.

Величина затрат на водоохранные мероприятия определяется соответственно:

$$З = C F.$$

Таблица 10

Калькуляция стоимости водоохранных мероприятий
на сельхозугодиях

Состав агротехнических мероприятий		Единица измерения	Стоимость единицы работ,руб.
1.	Снегозадержание	га	900
2.	Обработка почвы поперек склона	га	9000
3.	Посев буферных полос	га	3300
4.	Щелевание многолетних трав	га	7200
<i>Итого:</i>			20400

3.5. В результате проведения агротехнических мероприятий удалось добиться прекращения попадания биогенов в водный объект, поэтому ожидаемый экономический эффект (Р) водоохранных мероприятий равен величине предотвращаемого экономического ущерба (U):

$$P = U$$

Годовой экономический эффект от проведения водоохранных мероприятий определяется соответственно:

$$\Xi = P - З$$

Выводы к задаче должны соответствовать всем вышеперечисленным пунктам.

4. Алгоритм решения задачи

4.1. Расчет возможного выноса биогенов с сельскохозяйственных угодий.

4.2. Расчет фактического выноса биогенных веществ в водный объект.

4.3. Расчет экономического ущерба от загрязнения водного объекта.

4.4. Определение стоимости водоохранных мероприятий.

5. Расчет годового экономического эффекта от проведения водоохраных мероприятий

Данные для решения задачи 4

№ варианта	F, га	l, м	№ варианта	F, га	l, м
1	1,20	2500	14	4,64	1025
2	1,35	490	15	5,01	720
3	1,50	575	16	5,23	1950
4	1,63	3750	17	5,68	2380
5	1,00	1565	18	5,91	1000
6	1,95	2005	19	6,15	1350
7	2,70	150	20	6,43	2250
8	3,05	3275	21	6,64	1004
9	3,48	1560	22	6,07	2505
10	3,70	4000	23	7,07	1307
11	3,94	3750	24	7,39	2999
12	4,08	1520	25	7,50	3404
13	4,25	1550			

Задача 6

Определение экономического ущерба от загрязнения водоема пестицидами

1. Исходные данные

1.1. Сельскохозяйственное предприятие на орошаемом участке, расположенном в пойме реки, выращивает картофель на площади 400 га (S_1), столовую свеклу 100 га (S_2) и морковь – 100 га (S_3).

1.2. Интенсивная технология выращивания этих культур предусматривает использование средств химизации – ядохимикатов и минеральных удобрений. Для борьбы с фитофторозом картофеля производится обработка его посадок поликарбопином в дозе (D) 2,4 кг/га, а для борьбы с сорняками посева картофеля, моркови и свеклы обрабатываются прометрином в дозе 4 кг/га. Под все выращиваемые культуры вносятся минеральные удобрения: азотные – 180 кг/га, фосфорные – 120 кг/га, калийные – 180 кг/га действующего вещества.

1.3. Часть вносимых на поле ядохимикатов и минеральных удобрений с поверхностным стоком попадает в водоем, вызывая его загрязнение. Коэффициент потерь (Π), отражающий долю средств химизации, попадающих в водоем, от внесенного количества, для ядохимикатов равен 2%, азотных удобрений – 15%, фосфорных – 5%, калийных – 10%.

2. Задание

Следует определить величину годового экономического ущерба (u) от загрязнения водоема пестицидами.

3. Порядок расчета

Годовой экономический ущерб (руб./год), наносимый окружающей среде в результате загрязнения водоема, равен:

$$u = j \cdot b \cdot M,$$

- где j – удельный ущерб, (руб./год);
 b – безразмерная константа, имеющая определенное значение для различных водохозяйственных участков;
 M – приведенная масса годового сброса (усл.т/год):

$$M = \sum_{i=1}^N m_i \times A_i,$$

где N – количество средств химизации, попадающих в водоем;
 i – номер пестицида;
 m_i – общая масса пестицида, попадающего в водоем, т:

$$m_i = \frac{D \times \Pi \times S}{100},$$

где D_i – доза i-го пестицида, попадающего в водоем, кг/га;
 Π_i – коэффициент потерь для i-го пестицида, %;
 S_i – площадь выращивания i-той культуры, га;
 A_i – показатель относительной опасности i-го пестицида, попадающего в водоем:

$$A_i = \frac{1}{\text{ПДК}}_{\text{p/x}},$$

где ПДК_{p/x} – предельно допустимая концентрация i-го пестицида для рыбохозяйственных водоемов (ПДК_{p/x} для поликарбацина – 0,00024 мг/л, прометрина – 0,05 мг/л, соединений азота – 0,5 мг/л, фосфора – 0,7 мг/л, калия – 0,8 мг/л).

Данные для задачи 5

№ варианта	S	S ₂	S ₃	№ варианта	S	S ₂	S ₃
1	400	100	100	14	490	110	135
2	430	150	130	15	480	130	144
3	480	110	120	16	450	140	155
4	280	80	111	17	380	144	107
5	500	120	134	18	430	135	112
6	390	90	151	19	440	111	114
7	410	150	100	20	470	151	101
8	450	110	109	21	490	130	90
9	460	115	110	22	410	125	122
10	470	127	112	23	450	100	132
11	410	110	113	24	460	109	110
12	480	100	115	25	420	115	151
13	400	121	140				

Задача 7

Обоснование эффективности экологического страхования исходя из размера экологического риска

1. Исходные данные

1.1. На территории крупного города расположено действующее (T лет), выпускающее оборудование для предприятий отрасли химического машиностроения и товары народного потребления на устаревшем оборудовании.

1.2. На территории предприятия находятся 4 источника выбросов ЗВ в атмосферу (ΣM), два из которых характеризуются сверхнормативными выбросами (ΔM) (основные характеристики загрязняющих веществ приведены в табл. 1).

1.3. Данное предприятие решает застраховать ущерб (U), наносимый окружающей среде загрязняющими веществами и связывается со страховой компанией, которая предлагает при вероятном наступлении страхового события (P), выплатить страховую сумму (S).

2. Задание

Для принятия окончательного решения обеими сторонами, необходимо определить целесообразность заключения страхового соглашения. Для этого следует найти страховой тариф T , убыточность страховой суммы Y , рентабельность страховой операции R , ущерб, наносимый окружающей среде загрязняющими веществами U , значение максимальной страховой суммы S_{\max} .

3. Методика расчетов

3.1. При определении вероятности наступления страхового случая P , которая вычисляется по формуле:

$$P = r \times \omega \times U,$$

Где необходимо вычислить величину частоты наступления страхового события r по формуле:

$$r = \frac{1}{T} \times \sum_{i=1}^T \frac{N_{\text{св.н.}}}{n},$$

и величину потенциальной опасности выброса w , которая рассчитывается по формуле:

$$\omega = \frac{1}{T} \times \sum_{t=1}^T \frac{\Delta M}{\sum M},$$

3.2. Далее рассчитывается величина потенциального ущерба по формуле U :

$$U = \frac{1}{T} \times \sum_{t=1}^T \frac{\Pi_{\text{Св.н.}}}{\sum \Pi},$$

3.3. Рассчитывается страховой тариф, ставка страхового взноса рассчитывается с единицы страховой суммы (обычно со 100 руб.) за годичный период страхования. Величина брутто-ставки может быть формально интерпретирована следующим образом:

$$T_b = S \times E a^{-jR},$$

- где
- S – величина страховой выплаты в руб.,
 - $E a^{-jR}$ – средняя величина страхового взноса в рублях, определяемая некоторыми случайными параметрами
 - j – текущий банковский процент,
 - R – время действия договора, нетто-ставка
 - T_n – состоит из основной части T_o и рискованной надбавки T_p

$$T_n = T_o + T_p.$$

Основная часть нетто-ставки со 100 руб. страховой суммы рассчитывается по формуле:

$$T_o = 100 \times \frac{S_o}{S} \times p,$$

- где
- p – вероятность наступления страхового случая, S_o/S – отношение страхового возмещения в средней страховой сумме, согласно рекомендации Росстрахнадзора для оценки среднего возмещения к страховой сумме рекомендуется величина 0,7.

Рискованная надбавка находится по формуле:

$$T_p = 1,2 \times \alpha(\gamma) \times T_o \times \sqrt{\frac{1-p}{n \times p}},$$

где n – предполагаемое число договоров,
 $a(\gamma)$ – коэффициент опр. по таблице

Таблица 1

Значение коэффициента $a(\gamma)$					
γ	0,84	0,90	0,95	0,98	0,986
a	1,0	1,3	1,645	2,0	3,0

Брутто-ставка определяется по формуле:

$$T_o = \frac{T_n}{100 - f} \times 100,$$

3.4. Определяется убыточность страховой суммы Y , которая отражает соотношение между страховой выплатой и страховой суммой S

$$Y = \frac{\sum_n S_o \times 100}{\sum_n S},$$

С понятием «убыточность страховой суммы» связано и определение финансовой устойчивости операций Ψ :

$$\Psi = \sqrt{\frac{1 - p}{n \times p}},$$

3.5. Рассчитывается показатель рентабельности R :

$$R = \frac{\sum_n S_o \times 100}{\sum_n T_n} \times \frac{Y \times 100}{T_n},$$

3.6. В зависимости от показателя финансовой устойчивости разовых операций находится и максимальная страховая сумма S_{\max} :

$$S_{\max} = 2\Psi^2 \times T_n.$$

Данные для решения задачи 6.

№	Фактическая масса выброса т./г.				Нормативная масса выбросов ЗВ т./г.				Плата за выбросы тыс. руб.				Страх сумма, у.е.	Страх взнос, %
	М фактическая				М нормативная				П					
	М ₁	М ₂	М ₃	М ₄	Мнорм ₁	Мнорм ₂	Мнорм ₃	Мнорм ₄	Псв.н.1	П	Псв.н.2	Псв.н.3		
1	10	2,0	1,0	15	8,0	2,0	0,5	10,0	15,0	10,0	0,7	8,0	100	0,7
2	9	1,8	1,1	16	8,2	1,85	0,55	14,0	14,0	10,0	0,7	6,0	100	0,7
3	11	2,2	0,9	14,5	8,05	3,0	0,65	12,5	16,5	10,0	0,7	6,0	100	0,7
4	9,1	2,15	0,91	14	7,8	2,85	0,75	12,0	14,3	10,0	0,7	5,0	100	0,7
5	9,5	2,12	1,12	15,5	7,88	2,9	0,45	14,5	15,0	10,0	0,7	4,0	100	0,7
6	1,4	1,90	1,03	15,9	8,04	1,95	0,86	11,9	15,0	10,0	0,7	7,0	100	0,7
7	8,7	1,85	0,50	14,8	7,2	2,05	0,47	12,8	14,8	10,0	0,7	5,0	100	0,7
8	11,5	2,05	0,99	15,1	7,55	2,15	0,79	12,1	17,1	10,0	0,7	6,0	100	0,7
9	9,3	2,1	0,98	15,2	7,25	2,2	0,78	11,2	14,5	10,0	0,7	7,0	100	0,7
10	10,4	1,9	0,97	13,9	8,75	2,16	0,64	10,9	14,9	10,0	0,7	6,0	100	0,7
11	10,1	1,95	1,09	16,5	8,8	1,95	0,51	14,5	15,0	10,0	0,7	6,0	100	0,7
12	9,8	1,02	1,08	13,5	8,15	1,86	0,61	12,5	13,5	10,0	0,7	5,0	100	0,7
13	9,7	1,87	1,02	15,6	8,1	1,87	0,49	11,6	13,6	10,0	0,7	4,0	100	0,7
14	10,2	1,96	0,95	16,2	8,25	1,97	0,44	14,2	15,2	10,0	0,7	7,0	100	0,7
15	10,3	2,0	0,93	16,9	7,3	2,07	0,71	12,1	16,1	10,0	0,7	4,0	100	0,7
16	9,9	1,81	1,07	15,9	7,35	2,06	0,72	11,9	14,9	10,0	0,7	6,0	100	0,7
17	9,6	1,72	1,11	13,7	7,65	1,88	0,41	11,7	15,7	10,0	0,7	5,0	100	0,7
18	8,8	1,64	1,06	13,6	8,65	1,98	0,52	12,6	9,6	10,0	0,7	4,0	100	0,7
19	11,2	2,0	0,92	14,9	8,55	2,09	0,53	10,9	13,9	10,0	0,7	7,0	100	0,7
20	9,2	2,03	1,04	15,7	7,31	2,19	0,62	15,3	14,3	10,0	0,7	4,0	100	0,7
21	10,8	1,88	1,07	13,9	8,41	1,99	0,77	12,9	14,9	10,0	0,7	4,0	100	0,7
22	8,4	1,9	0,96	14,7	8,09	1,91	0,76	11,7	9,7	10,0	0,7	8,0	100	0,7
23	10,5	1,08	1,01	15,4	7,22	1,82	0,64	12,4	15,4	10,0	0,7	6,0	100	0,7
24	8,1	1,86	0,94	14,1	8,33	2,02	0,69	11,1	14,1	10,0	0,7	6,0	100	0,7
25	8,6	2,06	1,02	13,4	8,61	2,12	0,88	10,4	9,4	10,0	0,7	6,0	100	0,7

МИНОБРНАУКИ РОССИИ

ФГБОУ ВО «Уральский государственный горный университет»

МЕТОДИЧЕСКИЕ МАТЕРИАЛЫ
ПО НАУЧНО-ИССЛЕДОВАТЕЛЬСКОЙ РАБОТЕ

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ВВЕДЕНИЕ

Научно-исследовательская работа (НИР) студентов является составной частью основной профессиональной образовательной программы высшего образования, одним из видов занятий, предусмотренных учебным планом, непосредственно ориентированных на профессионально-практическую подготовку. Система практического обучения способствует овладению предметными знаниями и умениями, развитию и повышению мотивации к профессиональной деятельности, осознанию себя как компетентного специалиста. Кроме того, она позволяет студенту попробовать свои силы в выбранной профессии, научиться применять теоретические знания, полученные в ходе теоретического обучения.

Научно-исследовательская работа позволяет заложить основы формирования у студентов навыков проектно-изыскательской и научно-исследовательской деятельности для решения следующих профессиональных задач:

проектно-изыскательская деятельность:

- руководство проектированием объектов природообустройства и водопользования, разработкой
- проектов восстановления природных объектов;
- контроль выполнения правил разработки проектной и рабочей технической документации,
- соответствия ее стандартам, техническим условиям и другим нормативным документам;
- разработка и руководство осуществлением инновационных проектов реконструкции объектов природообустройства и водопользования;
- руководство изысканиями по оценке состояния природных и природно-климатических условий;

научно-исследовательская деятельность:

- планирование и организация исследований антропогенного воздействия на компоненты природной среды;
- анализ опыта работ по природообустройству и водопользованию с целью использования результатов для совершенствования деятельности в этой области.
- результатов для совершенствования деятельности в этой области.

Основная цель НИР овладение на основе полученных теоретических знаний профессиональными навыками и умениями по производству основных видов работ по снижению последствия антропогенной деятельности объектов различного назначения.

Раздел 1. ТЕОРЕТИЧЕСКИЕ ИССЛЕДОВАНИЯ

1 Задачи теоретических исследований

Теория – это учение, система научных принципов, идей, обобщающих практический опыт и отражающих закономерности природы, общества, мышления. Это также совокупность обобщенных положений, образующих науку или раздел какой-либо науки.

Теория проходит в своем развитии различные стадии от качественного объяснения и количественного измерения процессов до их формализации и в зависимости от стадии может быть представлена как в виде качественных правил, так и в виде математических уравнений (соотношений). Однако формирование теории не всегда связано с построением ее математического аппарата.

Теоретическое исследование – это исследование без постановки эксперимента. Естественные явления и процессы описываются языком формул и чисел, и математически достигается цель исследования. Теоретические исследования являются функцией мышления и играют большую роль в процессе познания объективной действительности.

Целью теоретических исследований является выделение в процессе синтеза знаний существенных связей между исследуемым объектом и окружающей средой, объяснение и обобщение результатов эмпирического исследования, выявление общих закономерностей и их формализация.

Задачами теоретического исследования являются:

- обобщение результатов исследования, нахождение общих закономерностей путем обработки и интерпретации опытных данных;
- расширение результатов исследования на ряд подобных объектов без повторения всего объема исследований;
- изучение объекта, недоступного для непосредственного исследования,
- повышение надежности экспериментального исследования объекта (обоснования параметров и условий наблюдения, точности измерений).

2 Методы теоретических исследований

Метод исследования – это способ, который позволяет решить задачи и достичь цели исследования. С помощью методов исследователь получает информацию об изучаемом предмете. Каждая наука использует свои методы, которые отражают особенности изучаемых явлений.

Теоретические методы (анализ и синтез, обобщение, абстрагирование, конкретизация, моделирование и др.) связаны с мысленным проникновением в сущность изучаемого явления или процесса, построением моделей их идеальных состояний. Теоретические методы предполагают глубокий анализ фактов, раскрытие существенных закономерностей, образование мысленных моделей, использование гипотез и др.

Для решения конкретных задач применяется множество исследовательских методов.

Выбор методов выполнения теоретического исследования основывается на следующих принципах:

- совокупности (комплекса) методов исследования;
- их адекватности существу изучаемого явления, тем результатам, которые предполагается получить, возможностям исследователя;
- запрета экспериментов и использования исследовательских методов, противоречащих нравственным нормам, способных нанести вред испытуемым.

Выбранные адекватно задачам, методы и способы поисковой деятельности позволяют воплотить идею и замысел, проверить гипотезы, разрешить поставленные проблемы.

Критериями выбора исследовательского подхода могут служить принципы диалектической логики:

- объективность рассмотрения (при исследовании объекта следует исходить из него самого, а не из нашего мышления о нем);

- конкретность (при изучении объекта необходимо учитывать его особенности, специфические условия существования, а принципы и методы исследования объекта использовать лишь в качестве ориентиров);

- всесторонность рассмотрения (объект требуется рассматривать во всех его связях и отношениях);

- историзм (познавая объект, нельзя игнорировать его развитие, самовыдвижение, изменение).

При проведении теоретического исследования используются как общелогические методы познания, так и специальные.

Из общелогических можно выделить следующие (они относятся и к теоретическим и эмпирическим):

- анализ – мысленное или физическое расчленение целостного объекта на составляющие элементы (признаки, свойства, отношения) и исследование этих частей независимо от целого;

- синтез – мысленное или физическое соединение отдельных составляющих элементов (признаков, свойств, отношений) объекта в единое целое с учетом знания, полученного при независимом изучении составляющих элементов;

- абстрагирование – мысленное отвлечение от ряда признаков (свойств) объекта при одновременном выделении других признаков (свойств, предметов и проч.), представляющих интерес для исследователя при решении конкретной задачи;

- аналогия – предположение о сходстве объектов в каких-то свойствах на основании выявленного сходства в других свойствах;

- обобщение – установление признаков и свойств общих для некоей группы объектов;

- индукция – выработка общего вывода на основе частных посылок;

- дедукция – выведение заключений частного характера на основе общих посылок;

- моделирование – создание и изучение модели, замещающей исследуемый объект, с последующим переносом полученной информации на оригинал.

Из методов, имеющих распространение при теоретическом исследовании, являются методы:

- мысленный эксперимент – на комбинации образов, материальная реализация которых невозможна;

- идеализация – на формировании мысленного представления об объекте путем исключения условия, необходимого для его реального существования;

- формализация – на создании обобщенной знаковой модели, позволяющей путем операций со знаками представлять структуру объекта и закономерности протекающих процессов;

- аксиоматический метод – на принимаемых в качестве истинных принимаемых без доказательства положений, из которых на основании формально-логических доказательств выводятся все остальные;

- гипотетико-дедуктивный метод – на создании системы взаимосвязанных гипотез, из которых дедуктивным методом выводятся утверждения, непосредственно сопоставляемые с опытными данными;

□ математическая гипотеза – на экстраполяции определенной математической структуры с изученной области явлений на неизученную;

□ восхождение от абстрактного к конкретному – на выявлении исходной абстракции, воспроизводящей основное противоречие изучаемого объекта, в процессе теоретического разрешения которого выявляются более конкретные противоречия, вобравшие в себя более обширный эмпирический материал.

Большинство изучаемых явлений и процессов являются сложными объектами исследований. Для таких объектов наиболее часто сегодня применяют в теоретических исследованиях системный подход, который также относится к общенаучным методам.

При проведении теоретических исследований, основанных на общенаучных методах анализа и синтеза, широко используются расчленение и объединение элементов исследуемой системы (объекта, явления).

2.1 Методы расчленения и объединения элементов исследуемой системы (объекта, явления)

При проведении теоретических исследований, основанных на общенаучных методах анализа и синтеза, широко используются расчленение и объединение элементов исследуемой системы (объекта, явления).

Метод расчленения предложен французским философом и естествоиспытателем Р. Декартом. В своей работе «Правила для руководства ума» он пишет: «Освободите вопрос от всех излишних представлений и сведите его к простейшим элементам». Следует, однако, отметить, что каждый объект можно расчленить разными способами и это существенно влияет на проведение теоретических исследований, так как в зависимости от способа расчленения процесс изучения объекта может упроститься или при неправильном расчленении, наоборот, усложниться. После расчленения объекта изучается вид взаимосвязи элементов и осуществляется моделирование этих элементов. Наконец, элементы объединяются в сложную модель объекта.

На всех этапах построения модели объекта производится его упрощение, и вводятся определенные допущения. Последние должны быть осознанными и обоснованными. Неверные допущения могут приводить к серьезным ошибкам при формулировании теоретических выводов. При построении моделей объекта исследования должны использоваться наиболее общие принципы и закономерности. Это позволяет учесть все допущения, принятые при получении формализованных теорий, и точно определять область их применения.

Суть метода расчленения заключается в том, что система взаимосвязи объектов (параметров) расчленяется на простейшие составные части и выделяются значимые и незначимые параметры, а также связи между ними. Изучается вид взаимосвязи элементов и осуществляется моделирование. С учетом значимости параметров модель претерпевает упрощения и вводятся некоторые допущения.

Противоположным расчленению является метод объединения и связанный с ним комплексный подход к изучению объекта, которые чаще всего объединяются под названием «общая теория систем» или «системология».

Суть метода объединения заключается в том, что реализуется комплексный подход к изучению объекта. Осуществляется переход от дифференциации к интеграции. Система не дробится, а рассматривается как единое целое. Находят решение, удовлетворяющее условиям решения этой системы.

2.2 Методы творческого мышления при теоретических исследованиях

Из распространенных методов творческого мышления при теоретических исследованиях можно назвать:

- «мозговой штурм»;
- экспертный метод;
- метод «маленьких человечков»;
- теория решений изобретательских задач;
- морфологический анализ.

При «мозговом штурме» группа специалистов (до 10 человек) из различных областей знаний в течение 40 – 50 минут генерирует идеи для решения поставленной задачи теоретического исследования. Идеи фиксируются, анализируются учеными, которые будут решать поставленную задачу.

При экспертном методе используют знания и опыт экспертов в исследуемой области.

При методе «маленьких человечков» процессы, происходящие в системе, представляются для наглядности в виде рисунков (схем), что облегчает получение единой картины взаимодействий.

При использовании теории решений изобретательских задач реализуется алгоритм со следующими этапами: анализ исходной ситуации; анализ задачи; анализ модели задачи; разрешение противоречий; анализ возможности устранения противоречий; развитие полученного решения; анализ хода решения.

При морфологическом анализе из массива возможных решений выбирается лучшее, соответствующее требованиям технического задания. Решается оптимизационная задача.

2.3 Основные понятия общей теории систем

Общая теория систем (ОТС) – научная дисциплина, изучающая самые фундаментальные понятия и аспекты систем. Она изучает различные явления, отвлекаясь от их конкретной природы и основываясь лишь на формальных взаимосвязях между различными составляющими их факторами и на характере их изменения под влиянием внешних условий, при этом результаты всех наблюдений объясняются лишь взаимодействием их компонентов, например характером их организации и функционирования, а не с помощью непосредственного обращения к природе вовлечённых в явления механизмов (будь они физическими, биологическими, экологическими, социологическими или концептуальными).

ОТС возникла на основе изучения некоторых биологических объектов и явлений и впервые была сформулирована Л. Берталанфи.

Со временем в структуре общей теории систем выделились два направления.

Цель первого направления – развитие ОТС как некоторой философской концепции, включающей в себя такие понятия, как принцип системности, системный подход, системный анализ и т. д.

В другом направлении общая теория систем представляет собой некоторый математический аппарат, претендующий на строгое описание закономерностей формирования и развития любых систем.

ОТС базируется на трех постулатах:

- первый постулат утверждает, что функционирование систем любой природы может быть описано на основе рассмотрения формальных структурно-функциональных связей между отдельными элементами систем. Влияние материала, из которого состоят элементы

систем, проявляется в формальных характеристиках системы (ее структуре, динамике и т.д.).

- второй постулат состоит в том, что организация системы может быть определена на основе наблюдений, проведенных извне посредством фиксирования состояний только тех элементов системы, которые непосредственно взаимодействуют с ее окружением.

- третий постулат заключается в том, что организация системы полностью определяет ее функционирование и характер взаимодействия с окружающей средой.

Эти постулаты дают возможность определить организацию системы, исходя из характеристик взаимодействия с внешней средой, и характеристики взаимодействия, исходя из организации системы.

Диалектическое требование изучать объект во всех его связях получило в общей теории систем свое дальнейшее развитие в форме ряда принципов:

- системности (целостное представление объектов);

- релятивности системы (любое множество предметов можно рассматривать как систему и как не систему);

- универсальности системы. Этот принцип направлен против абсолютизации отдельных систем и способов их образования, т. е. любое множество можно рассматривать как систему и как не систему в определенных аспектах и фиксированных условиях.

2.3.1 Системный подход

Система – это множество объектов вместе с отношениями этих объектов. Термины «отношение» и «взаимодействие» используются в самом широком смысле, включая весь набор родственных понятий таких как ограничение, структура, организационная связь, соединение, зависимость и т.д. Таким образом, система S представляет собой упорядоченную пару:

$$S = (A, R), \quad (1)$$

где A — множество элементов;

R — множество отношений между A .

Другими словами: Система – это полный, целостный набор элементов (компонентов), взаимосвязанных и взаимодействующих между собой так, чтобы могла реализоваться функция системы.

Иерархическое представление системы основано на понятии подсистемы, получаемом при разложении (декомпозиции) системы, обладающей системными свойствами, которые следует отличать от её элемента – неделимого на более мелкие части (с точки зрения решаемой задачи). Система может быть представлена в виде совокупностей подсистем различных уровней, составляющую системную иерархию, которая замыкается снизу только элементами.

Объектом познания является часть реального мира, которая выделяется и воспринимается как единое целое в течение длительного времени. Объект может быть материальным и абстрактным, естественным и искусственным. Реально объект обладает бесконечным набором свойств различной природы. Практически в процессе познания взаимодействие осуществляется с ограниченным множеством свойств, лежащих в пределах возможности их восприятия и необходимости для цели познания. Поэтому система как образ объекта задаётся на конечном множестве отобранных для наблюдения свойств.

Внешняя среда. Понятие «система» возникает там и тогда, где и когда мы материально или умозрительно проводим замкнутую границу между неограниченным или некоторым ограниченным множеством элементов. Те элементы с их соответствующей взаимной обусловленностью, которые попадают внутрь, – образуют систему. Те элементы, которые остались за пределами границы, образуют множество, называемое в теории систем «системным окружением» или просто «окружением», или «внешней средой». Из этих рассуждений

вытекает, что немислимо рассматривать систему без ее внешней среды. Система формирует и проявляет свои свойства в процессе взаимодействия с окружением, являясь при этом ведущим компонентом этого воздействия. Всякая система может рассматриваться, с одной стороны, как подсистема более высокого порядка (надсистемы), а с другой, как надсистема системы более низкого порядка (подсистема). Например, система «производственный цех» входит как подсистема в систему более высокого ранга — «фирма». В свою очередь, надсистема «фирма» может являться подсистемой «корпорации». Обычно в качестве подсистем фигурирует более или менее самостоятельные части систем, выделяемые по определённым признакам, обладающие относительной самостоятельностью, определённой степенью свободы.

Компонент – любая часть системы, вступающая в определённые отношения с другими частями (подсистемами, элементами.)

Элементом системы является часть системы с однозначно определёнными свойствами, выполняющие определённые функции и не подлежащие дальнейшему разбиению в рамках решаемой задачи (с точки зрения исследователя). Понятие элемент, подсистема, система взаимопреобразуемы, система может рассматриваться как элемент системы более высокого порядка (метасистема), а элемент при углубленном анализе, как система. То обстоятельство, что любая подсистема является одновременно и относительно самостоятельной системой приводит к 2 аспектам изучения систем: на макро- и микроуровнях. При изучение на макроуровне, основное внимание уделяется взаимодействию системы с внешней средой. Причём системы более высокого уровня можно рассматривать как часть внешней среды. При таком подходе главными факторами являются целевая функция системы (цель), условия её функционирования. При этом элементы системы изучаются с точки зрения организации их в единое целое, влияние на функции системы в целом. На микроуровне основными становятся внутренние характеристики системы, характер взаимодействия элементов между собой, их свойства и условия функционирования. Для изучения системы сочетаются оба компонента.

Структура системы. Под структурой системы понимается устойчивое множество отношений, которое сохраняется длительное время неизменным, по крайней мере в течение интервала наблюдения. Структура системы опережает определенный уровень сложности по составу отношений на множестве элементов системы или что эквивалентно, уровень разнообразия проявлений объекта.

Связи – это элементы, осуществляющие непосредственное взаимодействие между элементами (или подсистемами) системы, а также с элементами и подсистемами окружения.

Связь – одно из фундаментальных понятий в системном подходе. Система как единое целое существует именно благодаря наличию связей между ее элементами, т.е., иными словами, связи выражают законы функционирования системы. Связи различают по характеру взаимосвязи как прямые и обратные, а по виду проявления (описания) как детерминированные и вероятностные.

Прямые связи предназначены для заданной функциональной передачи вещества, энергии, информации или их комбинаций – от одного элемента к другому в направлении основного процесса.

Обратные связи, в основном, выполняют осведомляющие функции, отражая изменение состояния системы в результате управляющего воздействия на нее. Открытие принципа обратной связи явилось выдающимся событием в развитии техники и имело исключительно важные последствия. Процессы управления, адаптации, саморегулирования, самоорганизации, развития невозможны без использования обратных связей.

Критерии – признаки, по которым производится оценка соответствия функционирования системы желаемому результату (цели) при заданных ограничениях.

Эффективность системы – соотношение между заданным (целевым) показателем результата функционирования системы и фактически реализованным.

Функционирование любой произвольно выбранной системы состоит в переработке входных (известных) параметров и известных параметров воздействия окружающей среды в значения выходных (неизвестных) параметров с учетом факторов обратной связи.

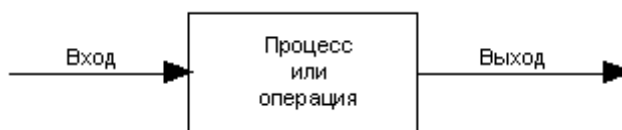


Рисунок 1. Функционирование системы

Вход – все, что изменяется при протекании процесса (функционирования) системы.
Выход – результат конечного состояния процесса.

Процессор – перевод входа в выход.

Обратная связь – предназначена для выполнения следующих операций:

- сравнение данных на входе с результатами на выходе с выявлением их качественно- количественного различия;
- оценка содержания и смысла различия;
- выработка решения, вытекающего из различия;
- воздействие на ввод.

Ограничение – обеспечивает соответствие между выходом системы и требованием к нему. Определение функционирования системы связано с понятием «проблемной ситуации», которая возникает, если имеется различие между необходимым (желаемым) выходом и существующим (реальным) входом.

Состоянием системы называется совокупность существенных свойств, которыми система обладает в каждый момент времени.

Системные исследования – термин, который предполагает более конструктивное использование теории систем: определяется класс систем, вводится понятие структуры и правила ее формирования и т.п. В системных исследованиях часто используется аппарат исследований операций. Развитие системных исследований привело к формированию системотехники, системологии, геосистемологии и др.

Большинство изучаемых явлений и процессов являются сложными объектами исследований. Для таких объектов наиболее часто сегодня применяют в теоретических исследованиях системный подход, который также относится к общенаучным методам.

Системный подход – термин, который предполагает использование общей теории систем для практических приложений и подчеркивает необходимость исследования объекта с различных сторон, комплексно, в отличие от ранее принятого разделения исследований на химические, физические и др. Системный подход позволяет с помощью многоаспектных исследований получить более правильное представление о реальных объектах, выявить новые свойства, лучше определить взаимоотношения с внешней средой, другими объектами. В первых работах, где использовался термин “системный подход”, часто подразумевалось – комплексный подход или комплексные исследования.

В процессе его применения исследователь проводит вначале декомпозицию сложного объекта или события на систему отдельных составляющих элементов, а затем, выявив реальные или виртуальные отношения (связи) между ними, осуществляет системный синтез объекта (структуризацию).

Степень декомпозиции ограничивается требованием рациональности и полноты детализации системы, исходя из условий максимального упрощения и достаточной полноты отражения свойств и целей исследования объекта исследований. Это может быть сделано только на основе логического анализа имеющихся сведений.

2.3.2 Системный анализ

Системный анализ – наиболее конструктивное направление. Этот термин применяется неоднозначно. В одних источниках он определяется как “приложение системных концепций к функциям управления, связанный с планированием”. В других – как синоним термина “анализ систем” (Э. Квейд) или термина “системные исследования” (С. Янг), в третьих, как методология исследований целенаправленных систем (Д. Килад, В. Кинг). В настоящее время системный анализ развивается применительно к проблемам планирования и управления и стал практически неотделим от терминов “целеобразование” и “программно-целевое планирование и управление”.

В процессе такого анализа может быть осуществлено расширение или, наоборот, сужение перечня элементов системы.

Структуризация начинается с выделения системы и внешней среды. Затем производится последовательное рассмотрение всех объектов и процессов, включенных в систему на стадии декомпозиции объекта, на возможность определения влияния внутренних и внешних факторов на процесс функционирования системы и достижения целей, стоящих перед исследователем объекта, как системы. В процессе перебора и анализа таких структурных составляющих системы осуществляется априорное, а затем и количественное ранжирование входных и выходных величин по степени их влияния на функционирование системы. Целью этого этапа является выделение наиболее значимых из них. Завершается структуризация выделением и описанием составных частей изучаемой системы, а также возможных внешних воздействий.

Под системой в этом случае понимают особую организацию специализированных элементов, объединенных в единое целое для решения конкретной задачи.

Основное достоинство организации такой системы состоит в несводимости ее свойств к свойствам образующих ее элементов. Система обычно функционирует в той или иной среде, взаимодействуя с другими системами. Свойства систем, их содержание и функции устанавливаются посредством выделения системообразующих элементов и связей между ними. Системы анализируются, как правило, с той или иной степенью детализации. Это означает, что системный анализ приводит к «огрублению» изучаемого объекта и переходу от реальных объектов к моделям.

2.3.3 Системная модель

Системная модель – это модель, построенная по методологии системного анализа, т.е. для которой установлена иерархия целей и ее структура, выполнена декомпозиция на отдельные подсистемы, определены критерии однофакторной и многофакторной оптимизации внутри подсистем и их взаимосвязь в системе в целом.

К достоинствам применения системного подхода к изучению сложных объектов относится возможность создания наиболее полного представления о самом объекте при всей его сложности.

Процедура исследования системы с применением методов идентификации, наиболее применяемых в настоящее время для решения подобных задач, предусматривает последовательное прохождение следующих этапов:

- содержательное описание объекта исследований (явления, процесса), как системы;
- обобщение априорной информации;
- анализ и формирование целей, постановку задач исследований;
- выбор критериев эффективности функционирования системы;
- декомпозицию системы;
- составление формализованной схемы объекта (проведение его структуризации);

- обоснование допустимой идеализации элементов системы и выбор показателей качества подсистем и отдельных элементов (параметров);
- построение математической модели (этап идентификации);
- преобразование математической модели в моделирующий алгоритм.

Исследование закономерностей функционирования системы как модели объекта исследований осуществляется с помощью современной компьютерной техники. С этой целью сегодня может быть использовано значительное число методов и программ. Соискатель должен (сам или же с помощью квалифицированных специалистов) оценить их применимость для своего направления исследований.

3 Проведение теоретических исследований

Теоретические исследования позволяют глубоко проникнуть в суть протекания тех или иных процессов и реализуются, опираясь на следующие этапы:

1. анализ физической сущности процесса;
2. формулирование гипотезы исследования;
3. разработка модели;
4. проведение исследования, опираясь на полученную модель, как правило, с привлечением ЭВМ, используя стандартное или оригинальное программное обеспечение;
5. анализ полученных решений;
6. теоретические умозаключения (выводы).

Стадии проведения теоретических исследований:

Первая стадия (оперативная) включает проверку возможности устранения технического противоречия, оценку возможных изменений в среде, окружающей объект, анализ возможности переноса решения задачи из других отраслей знания (ответить на вопрос: «Как решаются в других отраслях знаний задачи, подобные данной?»), применение «обратного» решения (ответить на вопрос: «Как решаются задачи, обратные данной, и нельзя ли использовать эти решения, взяв их со знаком минус?») или использования «прообразов» природы (ответить на вопрос: «Как решаются в природе более или менее сходные задачи?»).

Вторая стадия исследования является синтетической, в процессе которой определяется влияние изменения одной части объекта на построение других его частей, определяются необходимые изменения других объектов, работающих совместно с данным, оценивается возможность применения измененного объекта по-новому, и найденной технической идеи при решении других задач.

Третья стадия, называемая постановкой задачи, определяет цель решения задачи. На этой стадии проверяется возможность достижения той же цели решения задачи «обходными» (может быть, более простыми) средствами, выбирается наиболее эффективный путь решения задачи и определяются требуемые количественные показатели. В связи с этим, при необходимости, уточняются требования применительно к конкретным условиям практической реализации полученного решения задачи.

Четвертая стадия (аналитическая) включает определение идеального конечного результата (ответить на вопрос: «Что желательно получить в самом идеальном случае?»), выявляются помехи, мешающие получению идеального результата, и их причины, определяются условия, обеспечивающие получение идеального результата с целью найти, при каких условиях исчезнет «помеха».

Следует заметить, что постановка задачи является наиболее трудной частью исследования. Четкая формулировка основных целей задачи – важнейший этап ее решения. Следует при этом иметь в виду, что преобразование в начале расплывчатой формулировки задачи в четкую, определенную (переформулировку) часто облегчает решение задач.

Решение теоретических задач должно носить творческий характер. Творческие решения часто не укладываются в заранее намеченные планы. Иногда оригинальные решения появляются «внезапно», после, казалось бы, длительных и бесплодных попыток. Часто удачные решения возникают у специалистов смежных областей знания, на которых не давит груз известных решений. Творческие решения представляют, по существу, разрыв привычных представлений и взгляд на явления с другой точки зрения. Следует особо подчеркнуть, что собственные творческие мысли (оригинальные решения) возникают тем чаще, чем больше сил, труда, времени затрачивается на постоянное обдумывание путей решения теоретической задачи, чем глубже научный работник увлечен исследовательской работой.

3.1 Структурные компоненты решения задачи

Научная задача – представляет собой несогласованные, противоречивые информационные системы, соотношение между которыми вызывает потребность в их преобразовании. В процессе решения задачи несогласованность между информационными системами устраняется.

Любая задача включает исходные данные (условия) и исходную цель (требования). При недостатке исходных данных исследователь вынужден привлекать новые данные, называемые привлеченными. При невозможности достижения цели посредством использования имеющихся данных исследователь корректирует требования и цель. Исходные данные и цель находятся в противоречии. В процессе решения задачи они неоднократно дополняются, корректируются и сопоставляются между собой. Такое преобразование продолжается до тех пор, пока не будет решена сама задача (рисунок 2).

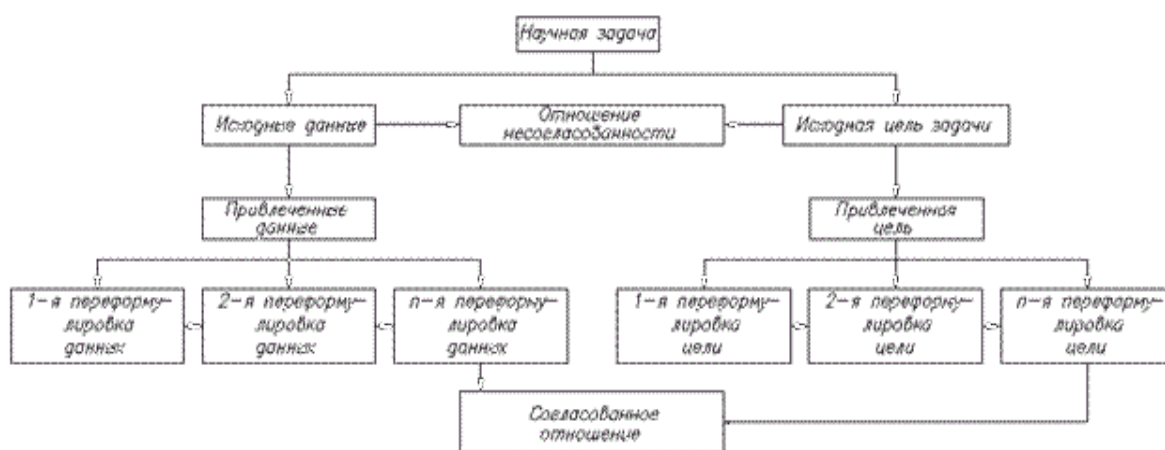


Рисунок 2. Научная задача

3.2 Использование математических методов в исследованиях

Применение математических методов в науке и технике за последнее время значительно расширилось, проникло в ранее недоступные сферы. Эффективность применения этих методов зависит как от специфики предмета данной науки, степени ее теоретической зрелости, так и от совершенствования самого математического аппарата, позволяющего отобразить все более сложные свойства и закономерности качественно многообразных явлений.

Использование математических методов в процессе проведения научного исследования позволяет достичь следующих целей.

Во-первых, применение математики побуждает исследователя четко сформулировать свои представления об изучаемом объекте.

Во-вторых, использование математических методов позволяет четко выдержать абстрагирование от неисчислимого количества реальных свойств изучаемых объектов, не дает уйти в сторону от принятого исследователем понимания изучаемого явления.

В-третьих, с помощью математики можно получить содержательные выводы, не лежащие "на поверхности", за счет расширения круга используемых логических умозаключений. Математика по существу и предоставляет человеку возможность пользоваться всеми теми интеллектуальными достижениями, которые накопило человечество при изучении именно таких-то объектов (т.е. объектов, удовлетворяющих рассматриваемым формальным свойствам) и именно при таком-то понимании интересующего нас явления (т.е. при адекватности заложенной в методе модели характеру этого явления).

В-четвертых, не лежащие на поверхности выводы могут быть получены за счет создания возможности анализа огромных массивов информации.

3.2.1 Математическая формулировка задачи (разработка математической модели)

Математическая модель – математическое представление реальности, один из вариантов модели, как системы, исследование которой позволяет получать информацию о некоторой другой системе.

Математические модели основываются на математическом описании объекта. В математическое описание, прежде всего, входят, и это естественно, взаимосвязи параметров объекта, что характеризует его особенности функционирования.

В качестве дополнения к классификации математические модели в зависимости от природы объекта, решаемых задач и применяемых методов, могут различаться следующими видами.

1) Детерминированные модели – это модели, в которых установлено взаимно-однозначное соответствие между переменными, описывающими объект или явления. Такой подход основан на знании механизма функционирования объектов. Часто моделируемый объект сложен, и расшифровка его механизма может оказаться очень трудоемкой и длинной во времени. В этом случае поступают следующим образом: на оригинале проводят эксперименты, обрабатывают полученные результаты и, не вникая в механизм и теорию моделируемого объекта с помощью методов математической статистики и теории вероятности, устанавливают связи между переменными, описывающими объект. В этом случае получают стохастическую модель.

2) В стохастической модели связь между переменными носит случайный характер, иногда это бывает принципиально. Воздействие огромного количества факторов, их сочетание приводит к случайному набору переменных описывающих объект или явление.

По характеру режимов модель бывают статистическими и динамическими.

Статистическая модель включает описание связей между основными переменными моделируемого объекта в установившемся режиме без учета изменения параметров во времени.

В динамической модели описываются связи между основными переменными моделируемого объекта при переходе от одного режима к другому.

Процесс построения и изучения математических моделей называется математическим моделированием.

Требования, предъявляемые к моделям:

– Универсальность (характеризует полноту отображения моделью изучаемых свойств реального объекта).

– Адекватность (характеризует способность отражать нужные свойства объекта с погрешностью, не выше заданной).

– Точность (оценивается степенью совпадения значений характеристик реального объекта и значения этих характеристик полученных с помощью моделей).

– Экономичность (определяется затратами ресурсов ЭВМ памяти и времени на ее реализацию и эксплуатацию).

3.2.2 Основные этапы моделирования

Основные этапы моделирования математического моделирования:

1) Постановка задачи.

Определение цели анализа и пути ее достижения и выработки общего подхода к исследуемой проблеме.

2) Изучение теоретических основ и сбор информации об объекте оригинала.

На этом этапе подбирается или разрабатывается подходящая теория. Если ее нет, устанавливаются причинно-следственные связи между переменными описывающими объект. Определяются входные и выходные данные, принимаются упрощающие предположения.

3) Формализация.

Заключается в выборе системы условных обозначений и с их помощью записывать отношения между составляющими объекта в виде математических выражений. Устанавливается класс задач, к которым может быть отнесена полученная математическая модель объекта. Значения некоторых параметров на этом этапе еще могут быть не конкретизированы.

4) Выбор метода решения.

На этом этапе устанавливаются окончательные параметры моделей с учетом условия функционирования объекта. Для полученной математической задачи выбирается какой-либо метод решения или разрабатывается специальный метод.

5) Реализация модели.

Разработав алгоритм, пишется программа, которая отлаживается, тестируется и получается решение нужной задачи.

6) Анализ полученной информации.

Сопоставляется полученное и предполагаемое решение, проводится контроль погрешности моделирования.

7) Проверка адекватности реальному объекту.

3.2.3 Анализ полученного математического результата

Результаты, полученные по модели, сопоставляются либо с имеющейся об объекте информацией, или проводится эксперимент, и его результаты сопоставляются с расчётными.

3.2.4 Математический аппарат для построения математических моделей исследуемых объектов

На этапе выбора типа математической модели при помощи анализа данных поискового эксперимента устанавливаются: линейность или нелинейность, динамичность или статичность, стационарность или нестационарность, а также степень детерминированности исследуемого объекта или процесса.

Линейность устанавливается по характеру статической характеристики исследуемого объекта. Под статической характеристикой объекта понимается связь между величиной внешнего воздействия на объект и максимальной величиной его реакции на внешнее воздействие. Под выходной характеристикой системы понимается изменение выходного сигнала системы во времени.

При выборе типа модели вероятностного объекта важно установление его стационарности. Обычно о стационарности или нестационарности вероятностных объектов судят по изменению во времени параметров законов распределения случайных величин. Чаще всего для этого используют среднее арифметическое случайной величины и среднее квадратическое отклонение случайных величин среднего арифметического и среднего квадратического отклонения во времени.

Как видно из схемы (рисунок 3), выбор математического аппарата не является однозначным и жестким.

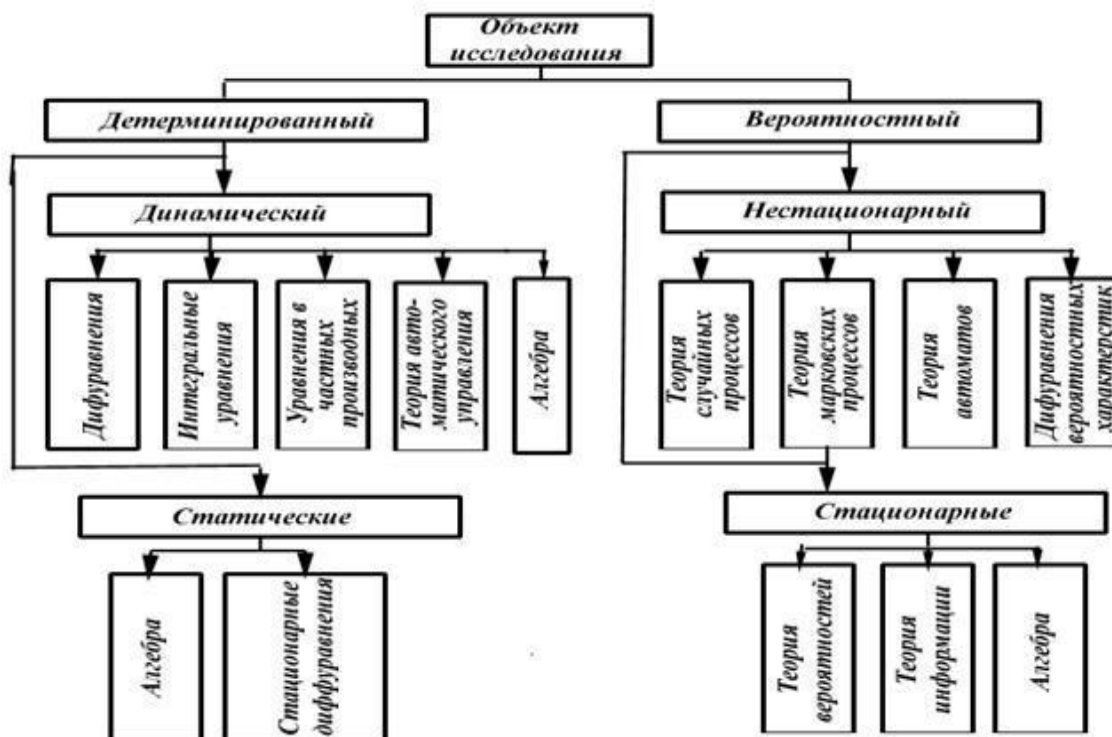


Рисунок 3. Математический аппарат для построения математической модели

В непрерывных объектах все сигналы представляют собой непрерывные функции времени. В дискретных объектах все сигналы квантуются по времени и амплитуде.

Установление непрерывности объекта позволяет использовать для его моделирования дифференциальные уравнения. В свою очередь, дискретность объекта предопределяет использование для математического моделирования аппарата теории автоматов.

Результаты поискового эксперимента и априорный информационный массив позволяют установить схему взаимодействия объекта с внешней средой по соотношению входных и выходных величин. В принципе возможно установление четырех схем взаимодействия:

1. одномерно-одномерная схема - на объект воздействует только один фактор, а его поведение рассматривается по одному показателю (один выходной сигнал);
2. одномерно-многомерная схема - на объект воздействует один фактор, а его поведение оценивается по нескольким показателям;
3. многомерно-одномерная схема - на объект воздействует несколько факторов, а его поведение оценивается по одному показателю;
4. многомерно-многомерная схема - на объект воздействует множество факторов и его поведение оценивается по множеству показателей.

Выбор вида модели динамического объекта сводится к составлению дифференциальных уравнений. Модель динамического объекта может быть построена и в классе алгебраических функций. Однако такой подход является ограниченным, так как не позволяет в математическом описании учесть влияния входных воздействий на динамику выхода без перестройки самих алгебраических функций.

Поэтому по полноте модели отдается предпочтение математическим моделям, построенным в классе дифференциальных уравнений.

Если интересующие исследователя переменные являются только функциями времени, то для моделирования используются обыкновенные дифференциальные уравнения. Если же эти переменные являются также функциями пространственных координат, то для описания таких объектов недостаточно обыкновенных и следует пользоваться более сложными дифференциальными уравнениями в частных производных.

3.2.5 Выбор математической модели объекта

Следующим этапом является выбор типа математической модели. Обычно строится несколько моделей, на основе сравнения результатов, исследования которых с реальностью устанавливается наилучшая. Если оказывается, что для формирования математической модели недостаточно исходных данных, то выполняется поисковый эксперимент, в ходе которого устанавливаются: линейность или нелинейность, динамичность или статичность, стационарность или нестационарность, а также степень детерминированности исследуемого объекта или процесса.

Линейность устанавливается по характеру статической характеристики исследуемого объекта. Под статической характеристикой объекта понимается связь между величиной внешнего воздействия на объект (значением входного сигнала) и его реакцией на внешнее воздействие (значением выходного сигнала). Под выходной характеристикой системы понимается изменение выходного сигнала системы во времени. Если значения выходного и входного сигналов прямо пропорциональны, то моделирование объекта осуществляется с использованием линейных функций. Нелинейность статической характеристики и наличие запаздывания в реагировании объекта на внешнее воздействие являются яркими признаками нелинейности. В этом случае для моделирования объекта должна быть принята нелинейная математическая модель.

Установление динамичности или статичности осуществляется по поведению исследуемых показателей объекта во времени. Применительно к детерминированной системе можно говорить о статичности или динамичности по характеру ее выходной характеристики. Если среднее арифметическое значение выходного сигнала по разным отрезкам времени не выходит за допустимые пределы, определяемые точностью методики измерения исследуемого показателя, то это свидетельствует о статичности объекта. Весьма важным является выбор отрезков времени, на которых устанавливается статичность или динамичность объекта. Если объект на малых отрезках времени оказался статичным, то при увеличении этих отрезков результат не изменится. Если же статичность установлена для крупных отрезков времени, то при их уменьшении результат может измениться и статичность объекта может перейти в динамичность.

Объект исследования можно считать стационарным, если в ходе ряда экспериментов установлено, что значение фиксируемого параметра в течение всего времени наблюдения не выходит за пределы отклонения, соответствующего ошибке измерения.

3.2.6. Предварительный контроль математической модели

Процесс выбора математической модели объекта заканчивается ее предварительным контролем, который также является первым шагом на пути к исследованию модели. При этом осуществляются следующие виды контроля (проверки): размерностей; порядков; характера зависимостей; экстремальных ситуаций; граничных условий; математической замкнутости; физического смысла; устойчивости модели.

Контроль размерностей сводится к проверке выполнения правила, согласно которому приравняться и складываться могут только величины одинаковой размерности.

Контроль порядков величин направлен на упрощение модели. При этом определяются порядки складываемых величин и явно малозначительные слагаемые отбрасываются.

Анализ характера зависимостей сводится к проверке направления и скорости изменения одних величин при изменении других. Направления и скорость, вытекающие из МатМодели, должны соответствовать физическому смыслу задачи.

Анализ экстремальных ситуаций сводится к проверке наглядного смысла решения при приближении параметров модели к нулю или бесконечности.

Контроль граничных условий состоит в том, что проверяется соответствие МатМодели граничным условиям, вытекающим из смысла задачи. При этом проверяется, действительно ли граничные условия поставлены и учтены при построении искомой функции и что эта функция на самом деле удовлетворяет таким условиям.

Анализ математической замкнутости сводится к проверке того, что МатМодель дает однозначное решение.

Анализ физического смысла сводится к проверке физического содержания промежуточных соотношений, используемых при построении МатМодели.

Проверка устойчивости модели состоит в проверке того, что варьирование исходных данных в рамках имеющихся данных о реальном объекте не приведет к существенному изменению решения.

3.2.7 Моделирование как метод практического или теоретического опосредованного оперирования объектом

Моделирование можно определить как метод практического или теоретического опосредованного оперирования объектом. При этом исследуется не сам объект, а промежуточный вспомогательный, находящийся в некотором объективном соответствии с самим

познаваемым объектом и способный на отдельных этапах познания представлять в определенных отношениях изучаемый объект, а также давать по исследованию модели информацию об объекте. При моделировании важна та помощь, которую оно оказывает при вскрытии качественных и количественных свойств явлений одинаковой физической природы и явлений, разнородных по своей физической сущности.

3.2.8 Подобие явлений как характеристика соответствия величин, участвующих в изучаемых явлениях, происходящих в оригиналах и моделях

Моделирование требует установление критериев подобия, т.е. словесной или математической формулировки тех условий, при которых модель может считаться закономерно отражающей оригинал.

Подобие явлений, характеризующееся соответствием (в частном случае пропорциональностью) величин, участвующих в изучаемых явлениях, происходящих в оригиналах и в моделях, по степени соответствия параметров модели и оригинала может быть трех видов.

Абсолютное подобие, требующее полного тождества состояний или явлений в пространстве и времени, представляет собой абстрактное понятие, реализуемое только умозрительно.

Полное подобие – подобие тех процессов, протекающих во времени и пространстве, которые достаточно полно для целей данного исследования определяют изучаемое явление. Например, можно считать, что синхронный генератор имеет полное электромеханическое подобие другому генератору, если все процессы изменений токов, напряжений, вращающих моментов на валу, изменение во времени и пространстве распределения магнитных и электрических полей отличаются в этих генераторах только масштабами.

Неполное подобие связано с изучением процессов только во времени или только в пространстве.

Приближенное подобие реализуется при некоторых упрощающих допущениях, приводящих к искажениям, заранее оцениваемым количественно.

С точки зрения адекватности физической природы модели и оригинала моделирование может быть физическое, осуществляемое при одинаковой физической природе изучаемых явлений; аналоговое, требующее соответствия в том или ином смысле параметров сравниваемых процессов.

3.2.9 Виды моделей

Приведем наиболее важные типы моделей (моделирования) с краткими определениями, примерами.

- Модель называется статической, если среди параметров, участвующих в описании модели, нет временного параметра. Статическая модель в каждый момент времени дает лишь «фотографию» системы, ее срез.

Пример: Закон Ньютона $F = at$ - это статическая модель движущейся с ускорением a материальной точки массой t . Эта модель не учитывает изменение ускорения от одной точки к другой.

- Модель динамическая, если среди параметров модели есть временной параметр, т.е. она отображает систему (процессы в системе) во времени.

Пример: Модель $S = gt^2/2$ - динамическая модель пути при свободном падении тела. Динамическая модель типа закона Ньютона: $F(t) = a(t)m(t)$. Еще лучшей формой динамической модели Ньютона является: $F(t) = s''(t)m(t)$.

- Модель дискретная, если она описывает поведение системы только в дискретные моменты времени.

Пример: Если рассматривать только $t = 0, 1, 2, \dots, 10$ (с), то модель $S_t = gt^2/2$, или числовая последовательность $S_0 = 0, S_1 = g/2, S_2 = 2g, S_3 = 9g/2, \dots, S_{10} = 50g$, может служить дискретной моделью движения свободно падающего тела.

- Модель непрерывная, если она описывает поведение системы для всех моментов времени из некоторого промежутка.

Пример: Модель $S = gt^2/2, 0 < t < 100$ непрерывна на промежутке времени $(0; 100)$.

- Модель имитационная, если она предназначена для испытания или изучения, проигрывания возможных путей развития и поведения объекта путем варьирования некоторых или всех параметров модели.

Пример: Пусть модель экономической системы производства товаров двух видов 1 и 2, в количестве x_1 и x_2 единиц соответственно, со стоимостью единиц товара a_1 и a_2 описана в виде соотношения: $a_1x_1 + a_2x_2 = S$, где S - общая стоимость произведенной предприятием всей продукции (видов 1 и 2). Можно эту модель использовать в качестве имитационной модели, по которой определять (варьировать) общую стоимость S в зависимости от тех или иных значений объемов производимых товаров.

- Модель детерминированная, если каждому входному набору параметров соответствует вполне определенный и однозначно определяемый набор выходных параметров; в противном случае модель недетерминированная, стохастическая (вероятностная).

Пример: Приведенные выше физические модели - детерминированные. Если в модели $S(p) = g(p)t^2/2, 0 < t < 100$ мы учли бы случайный параметр - порыв ветра с силой p при падении тела, например, так: $S = gt^2/2, 0 < t < 100$, то мы получили бы стохастическую модель (уже не свободного) падения.

- Модель теоретико-множественная, если представима с помощью некоторых множеств и отношений принадлежности им и между ними.

Пример: Пусть заданы множество $X = \{\text{Николай, Петр, Николаев, Петров, Елена, Екатерина, Михаил, Татьяна}\}$ и отношения: Николай — супруг Елены, Екатерина - супруга Петра, Татьяна - дочь Николая и Елены, Михаил - сын Петра и Екатерины, семьи Николая и Петра дружат друг с другом. Тогда множество X и множество перечисленных отношений Y могут служить теоретико-множественной моделью двух дружественных семей.

- Модель логическая, если она представима предикатами, логическими функциями.

Пример: Совокупность двух логических функций вида: $z = \bar{x} \wedge y \vee \bar{x} \wedge \bar{y}, p = x \wedge y$ может служить математической моделью одноразрядного сумматора.

- Модель игровая, если она описывает, реализует некоторую игровую ситуацию между участниками игры (лицами, коалициями).

Пример: Пусть игрок 1 - добросовестный налоговый инспектор, а игрок 2 - недобросовестный налогоплательщик. Идет процесс (игра) по уклонению от налогов (с одной стороны) и по выявлению сокрытия налогов (с другой стороны). Игроки выбирают натуральные числа i и j , которые можно отождествить, соответственно, со штрафом, назначаемым игроку 2 за неуплату налогов при обнаружении факта неуплаты игроком 1, и с временной выгодой игрока 2 от сокрытия налогов (в средне- и долгосрочном плане штраф за сокрытие может оказаться намного более ощутимым). Рассмотрим матричную игру с матрицей выигрышей A порядка n . Каждый элемент этой матрицы определяется по правилу $a_{ij} = i - j$. Модель игры описывается этой матрицей и стратегией уклонения и поимки. Эта игра - антагонистическая, бескоалиционная (эти формализуемые в математической теории игр понятия мы пока будем понимать интуитивно).

- Модель алгоритмическая, если она описана некоторым алгоритмом или комплексом алгоритмов, определяющим ее функционирование, развитие. Введение такого на первый взгляд непривычного типа моделей кажется нам вполне обоснованным, так как не все модели могут быть исследованы или реализованы алгоритмически.

Пример: Моделью вычисления суммы бесконечного убывающего ряда чисел может служить алгоритм вычисления конечной суммы ряда с некоторой заданной степенью точности. Алгоритмической моделью квадратного корня из числа x может служить алгоритм вычисления его приближенного сколь угодно точного значения по известной рекуррентной формуле.

- Модель языковая, лингвистическая, если она представлена некоторым лингвистическим объектом, формализованной языковой системой или структурой. Иногда такие модели называют вербальными, синтаксическими и т. п.

Пример:

1. Правила дорожного движения - языковая, структурная модель движения транспорта и пешеходов на дорогах.

2. Пусть B - множество производящих основ существительных,

S - множество суффиксов,

P - множество прилагательных,

$+$ - операция конкатенации слов,

$:=$ - операция присваивания,

\Rightarrow - операция вывода,

Z - множество значений (смысловых) прилагательных.

Языковая модель M словообразования:

$\langle z_i \rangle \Leftarrow \langle p_i \rangle := \langle b_i \rangle + \langle S_i \rangle$.

При $b_i = \text{рыб}$, $S_i = \text{н}$ получаем по этой модели:

p_i - рыбный, z_i - приготовленный из рыбы.

- Модель визуальная, если она позволяет визуализировать отношения и связи моделируемой системы, особенно в динамике.

Пример: На экране компьютера часто пользуются визуальной моделью того или иного объекта, например клавиатуры в программе-тренажере по обучению работе на клавиатуре.

- Модель натурная, если она есть материальная копия объекта моделирования.

Пример: Глобус - натурная географическая модель земного шара.

- Модель геометрическая, графическая, если она представима геометрическими образами и объектами.

Пример:

1. Макет дома является натурной геометрической моделью строящегося дома.

2. Вписанный в окружность многоугольник дает модель окружности. Именно эта модель используется при изображении окружности на экране компьютера.

3. Прямая линия является моделью числовой оси.

4. Параллелограммом часто изображается плоскость.

Тип модели зависит от информационной сущности моделируемой системы, от связей и отношений ее подсистем и элементов, а не от ее физической природы.

4 Примеры

Пример 1. Целесообразность и эффективность системного подхода при решении задач производства торфяных композиционных материалов обусловлена возможностью статической и динамической оценки технического уровня, экологической безопасности, экономической эффективности всего процесса - от разведки сырьевых источников до получения конечного продукта и его использования потребителями. Системный анализ на основе модельных представлений системы позволяет взаимно увязать решение различных задач - технических, экологических, экономических. Система производства и потребления торфяных композиционных материалов может быть представлена в виде полного графа производства G , являющегося топологической моделью системы (рисунок 4). Граф G позволяет отобразить в сжатой и наглядной форме большое количество информации. Вершины графа соответствуют элементам, представляющим отдельные операции процесса, ребра - потокам между вершинами графа, благодаря чему уже заранее получается картина некоторых свойств и качественных отношений рассматриваемой системы.

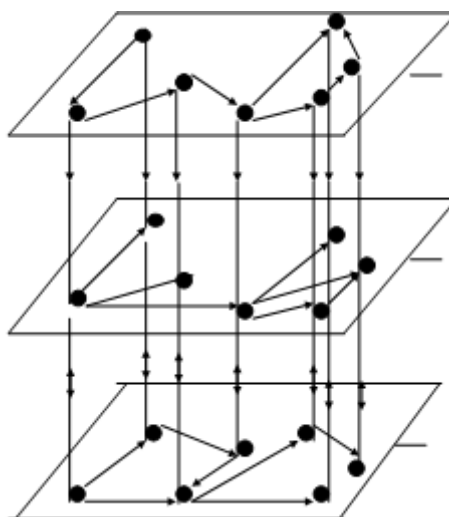


Рисунок 4. Топологическая модель системы

Граф отображает полное множество событий: транспортные процессы сырья, трансформационные процессы переработки, пространственное расположение процессов, потоки энергии, затрат, материалов, необходимые для процесса переработки, связи технологического оборудования, т.е. логику работы системы, транспортные процессы распределения продукции. Вершины графа G разбиты по уровням.

Вершины первого уровня образуют подграф G_1 , соответствующий подсистеме "сырьевые ресурсы". Вершины второго уровня образуют подграф G_2 , соответствующий подсистеме "добыча сырья и его переработка", и вершины третьего уровня - подграф G_3 , соответствующий подсистеме "потребление торфяных композиционных материалов и их маркетинг".

Выделенные подграфы G_1 , G_2 и G_3 соответствуют ключевым подсистемам модели. Элементы подсистем находятся во взаимосвязи, через которые осуществляется влияние одной подсистемы на другую и обратно. При создании системной модели производства и потребления торфяных композиционных материалов необходимо в комплексе решать ряд сложных задач, методы решения для многих, из которых известны и получены результаты для условий, весьма близких к рассматриваемым условиям (рисунок 5).

Решение некоторых задач осуществляется в рамках одной подсистемы. Для решения других необходимо использование элементов подсистем, расположенных на соседних

уровнях графа G. В общем случае каждая отдельная задача может быть представлена некоторым подграфом, вершины которого могут принадлежать как одной, так и нескольким подсистемам. Использование полного графа производства G позволяет применить системный подход для комплексной оценки эффективности производства и потребления торфяных композиционных материалов.

Отличительной особенностью системного подхода является взаимосвязь оптимизационных решений одной подсистемы с входными и выходными параметрами другой. При системном анализе есть единая идеология, модель, объединяющая решения разрозненных задач в единое целое и позволяющая, на основе комплексного подхода, решить вопросы технической возможности осуществления новой технологии, ее экологической безопасности и экономической эффективности. Выбор технологии производства торфяных композиционных материалов выполняется на базе системного обобщения основных физических, физико-химических и химических закономерностей, лежащих в основе трансформационных процессов переработки, с учетом технологических, экологических, экономических аспектов производства и потребления готовой продукции, которое представлено в виде математической модели, обеспечивающей выполнение многокритериальной оптимизации системы.

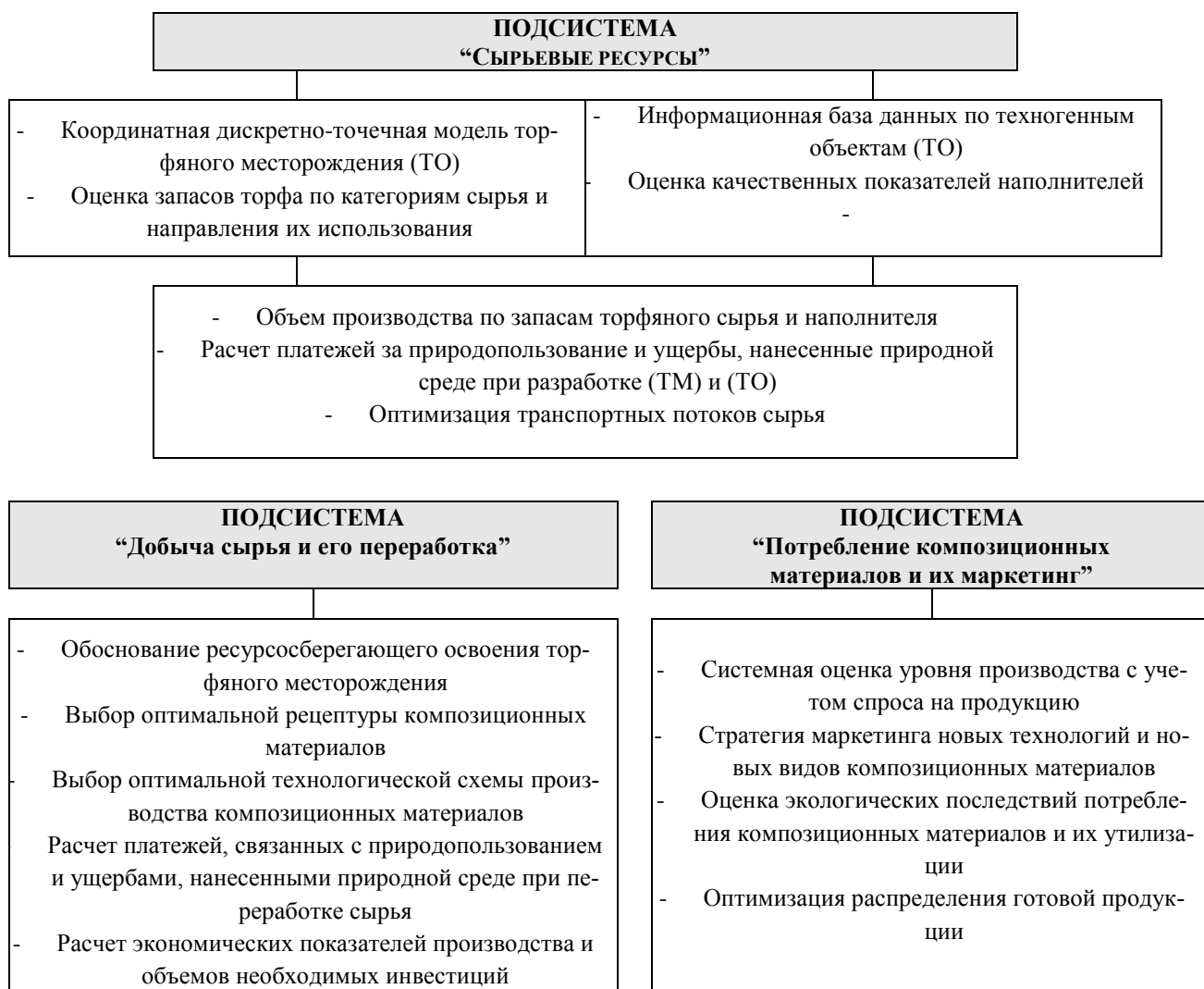


Рисунок 5. Структура системной модели

На основе обобщения результатов исследований в области физикохимии торфа, физико-химической механики, системного анализа предложен алгоритм выбора состава торфяных композиций и технологии их получения (рисунок 6).

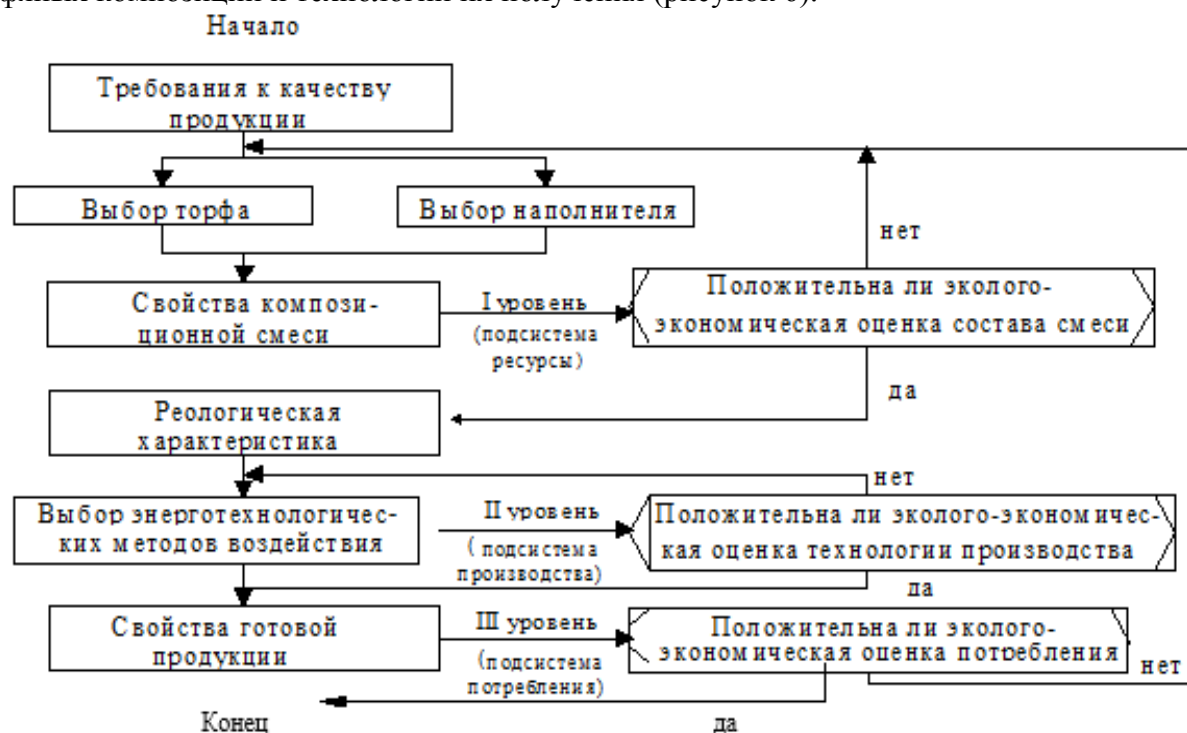


Рисунок 6. Алгоритм выбора состава композиционных материалов

Основной целью выбора состава и технологии производства торфяных композиций является обеспечение заданных свойств готовой продукции. При этом свойства композиционной продукции формируются свойствами отдельных компонентов, их количественным соотношением, а также содержанием влаги в смеси и характером операций, которым смесь подвергается в процессе дальнейшей переработки (прессование, формирование, сушка и др.). Между составом смеси и характером операций есть причинно-следственная связь, так смесь с определенной качественной характеристикой может быть переработана с использованием определенных энерготехнологических методов.

Пример 2. Сформулируем задачу теоретического исследования: «Установить функциональную взаимосвязь конструктивно-технологических факторов процесса электроэрозионного вырезания цилиндрических эвольвентных зубчатых изделий с одним из показателей точности взаимного расположения боковых поверхностей зубьев зубчатого изделия – отклонением шага зацепления f_{pbr} и определить условия обеспечения заданной точности по этому параметру». Реализуем решение задачи теоретического исследования (укрупненно). Установлено, что математическая модель, связывающая f_{pbr} с конструктивно-технологическими факторами, имеет следующий вид в кодированных показателях:

$$\hat{y} = F(X_1; X_2; X_3; X_4; X_5; X_6; X_7; X_8),$$

где \hat{y} – наибольшее отклонение шага зацепления ($f_{pbr(max)}$);

X_1 – модель зубчатого изделия m , мм;

X_2 – число зубьев зубчатого изделия z ;

X_3 – погрешность линейных перемещений инструмента (калиброванная проволока) по оси $X\Delta_{x(2)}$, мкм;

X_4 – погрешность линейных перемещений инструмента (калиброванная проволока) по оси $X\Delta_{y(2)}$, мкм;

X_5 – дискретность системы ЧПУ станка D , мм;

X6 – число формообразующих точек траектории торцового эвольвентного профиля зуба зубчатого изделия N1;

X7 – вариант задания координат точек траектории;

X8 – тип интерполятора системы ЧПУ станка.

Факторы X1, X2, X6 – варьируемые, X3, X4, X5 – принимаются по модели станка, X7, X8 – постоянные.

С учетом установленных ограничений и условий: $m = 1,25 \dots 10$ мм; $z = 20 \dots 80$; $N1 = 7 \dots 30$; координаты задают в абсолютных величинах; интерполятор – линейный. Реализовав методику проведения полнофакторного эксперимента, для условий обработки на вырезном станке СВЭИ-7, при $\Delta_{x(2)} = 5$ мкм, $\Delta_{y(2)} = 5$ мкм и $D = 1$ мкм, получили зависимость:

$$\begin{aligned} |f_{pbr}^{max}| = & -2,483 + 9,944 \cdot m + 4,509 \cdot 10^{-2} \cdot z + \\ & + 3,780 \cdot 10^{-2} \cdot N1 - 3,947 \cdot 10^{-2} \cdot m \cdot z - 0,324 \cdot m \cdot N1 - \\ & - 3,095 \cdot 10^{-4} \cdot z \cdot N1 + 1,850 \cdot 10^{-3} \cdot m \cdot z \cdot N1. \end{aligned} \quad (2)$$

По зависимости (модели) (2) можно рассчитать $|f_{pbr(max)}|$ при раз личных m , z и $N1$, учитывая заданную степень точности зубчатого изделия, и построить графики, опираясь на которые, определить условия обеспечения заданной точности по анализируемому параметру. Например, для зубчатого изделия восьмой степени точности при $z = 40$ и $m = 1,25 \dots 10$ мм получаем графики, показанные на рисунке 7.

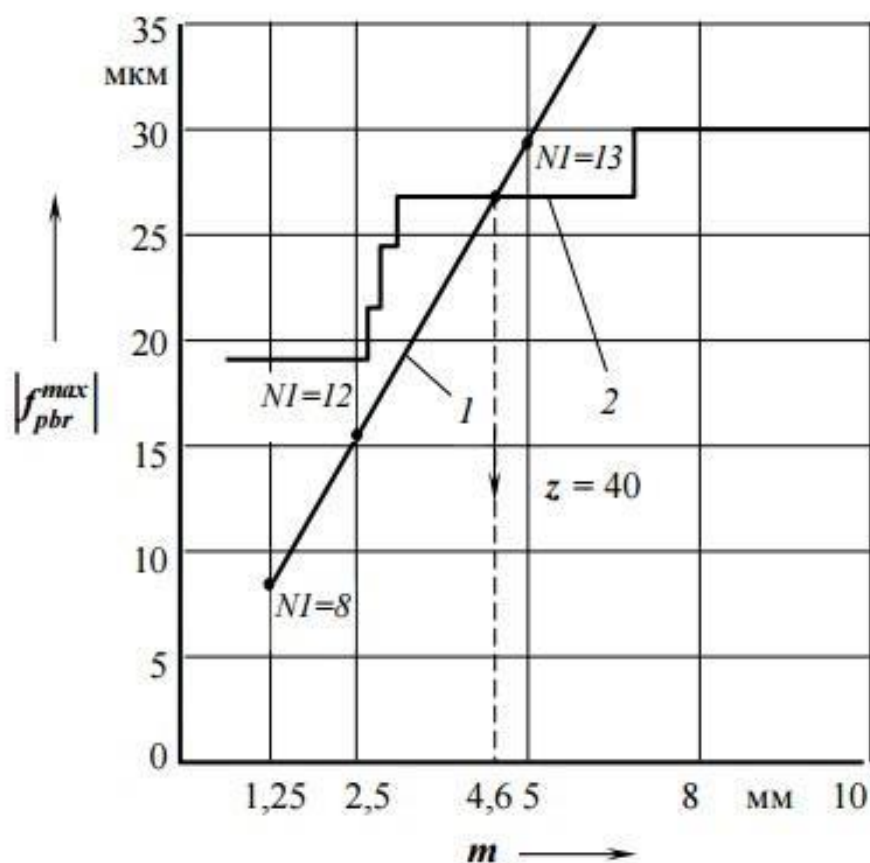


Рисунок 7. Зависимость отклонения шага зацепления $|f_{pbr(max)}|$ от модуля m :

1 – теоретическая кривая зависимости $|f_{pbr(max)}|$ от модуля m на станке СВЭИ-7 ($\Delta_{x(2)} = 5$ мкм, $\Delta_{y(2)} = 5$ мкм, $D = 1$ мкм);

2 – верхняя граница допустимых значений $|f_{pbr(max)}|$ в соответствии с ГОСТ 1643 для зубчатых изделий 8-й степени точности

Анализ графиков, показанных на рисунке 7, привел к выводу о том, что рекомендуемыми для обработки на станке СВЭИ-7, с учетом обеспечения восьмой степени точности, будут зубчатые изделия с числом зубьев $z = 40$ и модулем m от 1,25 до 4,6 мм. При дальнейшем увеличении m заданная точность параметра $|f_{\text{пр}(\text{max})}|$ обеспечиваться не будет (действительные значения отклонения шага зацепления выходят за границу допустимых).

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Раздел 2. ЭКСПЕРИМЕНТАЛЬНЫЕ ИССЛЕДОВАНИЯ

1 Классификация, типы и задачи эксперимента

Само слово **эксперимент** происходит от лат. *experimentum* – проба, опыт. В научном языке и исследовательской работе термин «эксперимент» обычно используется в значении, общем для целого ряда сопряженных понятий: опыт, целенаправленное наблюдение, воспроизведение объекта познания, организация особых условий его существования, проверка предсказания. В это понятие вкладываются научная постановка опытов и наблюдение исследуемого явления в точно учитываемых условиях, позволяющих следить за ходом явления и воссоздавать его каждый раз при повторении этих условий.

Само по себе понятие «эксперимент» означает действие, направленное на создание условий в целях осуществления того или иного явления и по возможности наиболее чистого, то есть не осложняемого другими явлениями. Основной целью эксперимента являются выявление свойств исследуемых объектов, проверка справедливости гипотез и на этой основе широкое и глубокое изучение темы научного исследования.

Таким образом, эксперимент представляет собой процесс изучения объекта (явления), основанный на целенаправленном воздействии на него искусственно созданных условий, позволяющий наблюдать, сравнивать и измерять его свойства, устанавливать их зависимость от внешних воздействий.

Постановка и организация эксперимента определяются его назначением. Эксперименты, которые проводятся в различных отраслях науки, являются химическими, биологическими, физическими, психологическими, социальными и т. п. Они различаются:

- по способу формирования условий (естественных и искусственных);
- по целям исследования (преобразующие, констатирующие, контролирующие, поисковые, решающие);
- по организации проведения (лабораторные, натурные, полевые, производственные и т. п.);
- по структуре изучаемых объектов и явлений (простые, сложные);
- по характеру внешних воздействий на объект исследования (вещественные, энергетические, информационные);
- по характеру взаимодействия средства экспериментального исследования с объектом исследования (обычный и модельный);
- по типу моделей, исследуемых в эксперименте (материальный и мысленный);
- по контролируемым величинам (пассивный и активный);
- по числу варьируемых факторов (однофакторный и многофакторный);
- по характеру изучаемых объектов или явлений (технологические, социометрические) и т. п.

Конечно, для классификации могут быть использованы и другие признаки. Из числа названных признаков естественный, натурный эксперимент предполагает проведение опытов в естественных условиях существования объекта исследования (чаще всего используется в биологических, социальных, педагогических и психологических науках).

Искусственный эксперимент предполагает формирование искусственных условий (широко применяется в естественных и технических науках).

Преобразующий (созидательный) эксперимент включает активное изменение структуры и функций объекта исследования в соответствии с выдвинутой гипотезой, формирование новых связей и отношений между компонентами объекта или между исследуемым объектом и другими объектами. Исследователь в соответствии со вскрытыми тенденциями развития объекта исследования преднамеренно создает условия, которые должны способствовать формированию новых свойств и качеств объекта.

Констатирующий эксперимент используется для проверки определенных предположений. В процессе этого эксперимента констатируется наличие определенной связи между воздействием на объект исследования и результатом, выявляется наличие определенных фактов.

Контролирующий эксперимент сводится к контролю за результатами внешних воздействий на объект исследования с учетом его состояния, характера воздействия и ожидаемого эффекта.

Поисковый эксперимент проводится в том случае, если затруднена классификация факторов, влияющих на изучаемое явление вследствие отсутствия достаточных предварительных (априорных) данных. По результатам поискового эксперимента устанавливается значимость факторов, осуществляется отсеивание незначимых.

Решающий эксперимент ставится для проверки справедливости основных положений фундаментальных теорий в том случае, когда две или несколько гипотез одинаково согласуются со многими явлениями. Это согласие приводит к затруднению, какую именно из гипотез считать правильной. Решающий эксперимент дает такие факты, которые согласуются с одной из гипотез и противоречат другой. Примером решающего эксперимента служат опыты по проверке справедливости Ньютоновской теории истечения света и волнообразной теории Гюйгенса. Эти опыты были поставлены французским ученым Фуко. Они касались вопроса о скорости распространения света внутри прозрачных тел. Согласно гипотезе истечения скорость света внутри таких тел должна быть больше, чем в пустоте. Но Фуко своими опытами доказал обратное, то есть что в менее плотной среде скорость света большая. Этот опыт Фуко и был тем решающим опытом, который решил спор между двумя гипотезами (в настоящее время гипотеза Гюйгенса заменена электромагнитной гипотезой Максвелла). Другим примером решающего эксперимента может служить спор между Птолемеем и Коперником о движении Земли. Решающий опыт Фуко с маятником окончательно решил спор в пользу теории Коперника.

Лабораторный эксперимент проводится в лабораторных условиях с применением типовых приборов, специальных моделирующих установок, стендов, оборудования и т. д. Чаще всего в лабораторном эксперименте изучается не сам объект, а его образец. Этот эксперимент позволяет доброкачественно, с требуемой повторяемостью изучить влияние одних характеристик при варьировании других, получить хорошую научную информацию с минимальными затратами времени и ресурсов. Однако такой эксперимент не всегда полностью моделирует реальный ход изучаемого процесса, поэтому возникает потребность в проведении натурного эксперимента.

Натурный эксперимент проводится в естественных условиях и на реальных объектах. Этот вид эксперимента часто используется в процессе натуральных испытаний изготовленных систем. В зависимости от места проведения испытаний натурные эксперименты подразделяются: на производственные, полевые, полигонные, полунатурные и т. п. Натурный эксперимент всегда требует тщательного продумывания и планирования, рационального подбора методов исследования. Практически во всех случаях основная научная проблема натурного эксперимента – обеспечить достаточное соответствие (адекватность) условий эксперимента реальной ситуации, в которой будет работать впоследствии создаваемый объект. Поэтому центральными задачами натурного эксперимента являются:

- изучение характеристик воздействия среды на испытуемый объект;
- идентификация статистических и динамических параметров объекта;
- оценка эффективности функционирования объекта и проверка его на соответствие заданным требованиям.

Эксперименты могут быть открытыми и закрытыми, они широко распространены в психологии, социологии, педагогике.

В открытом эксперименте его задачи открыто объясняются испытуемым, в **закрытом** – в целях получения объективных данных эти задачи скрываются от испытуемого. Любая форма открытого эксперимента влияет (часто активизирует) на субъективную сторону

поведения испытуемых. В этой связи открытый эксперимент целесообразен только тогда, когда имеются возможность и достаточная уверенность в том, что удастся вызвать у испытуемого живое участие и субъективную поддержку намечаемой работе.

Закрытый эксперимент характеризуется тем, что его тщательно маскируют; испытуемый не догадывается об эксперименте, и работа протекает внешне в естественных условиях. Такой эксперимент не вызывает у испытуемых повышенной настороженности и излишнего самоконтроля, стремления вести себя не так, как обычно.

Простой эксперимент используется для изучения объектов, не имеющих разветвленной структуры, с небольшим количеством взаимосвязанных и взаимодействующих элементов, выполняющих простейшие функции.

В **сложном эксперименте** изучаются явления или объекты с разветвленной структурой (можно выделить иерархические уровни) и большим количеством взаимосвязанных и взаимодействующих элементов, выполняющих сложные функции. Высокая степень связности элементов приводит к тому, что изменение состояния какого-либо элемента или связи влечет за собой изменение состояния многих других элементов системы. В сложных объектах исследования возможно наличие нескольких разных структур, нескольких разных целей. Но все же конкретное состояние сложного объекта может быть описано. В очень сложном эксперименте изучается объект, состояние которого по тем или иным причинам до сих пор не удается подробно и точно описать. Например, для описания требуется больше времени, чем то, которым располагает исследователь между сменами состояний объекта или когда современный уровень знаний недостаточен для проникновения в существо связей объекта (либо они непонятны).

Информационный эксперимент используется для изучения воздействия определенной (различной по форме и содержанию) информации на объект исследования (чаще всего информационный эксперимент используется в биологии, психологии, социологии, кибернетике и т. п.). С помощью этого эксперимента изучается изменение состояния объекта исследования под влиянием сообщаемой ему информации.

Вещественный эксперимент предполагает изучение влияния различных вещественных факторов на состояние объекта исследования. Например, влияние различных добавок на качество стали и т. п.

Энергетический эксперимент используется для изучения воздействия различных видов энергии (электромагнитной, механической, тепловой и т. д.) на объект исследования. Этот тип эксперимента широко распространен в естественных науках.

Обычный (или классический) эксперимент включает экспериментатора как познающего субъекта и объект или предмет экспериментального исследования, а также средства (инструменты, приборы, экспериментальные установки), при помощи которых осуществляется эксперимент.

В обычном эксперименте экспериментальные средства непосредственно взаимодействуют с объектом исследования. Они являются посредниками между экспериментатором и объектом исследования.

Модельный эксперимент в отличие от обычного имеет дело с моделью исследуемого объекта. Модель входит в состав экспериментальной установки, замещая не только объект исследования, но часто и условия, в которых изучается некоторый объект. Модельный эксперимент при расширении возможностей экспериментального исследования одновременно имеет и ряд недостатков, связанных с тем, что различие между моделью и реальным объектом может стать источником ошибок и, кроме того, экстраполяция результатов изучения поведения модели на моделируемый объект требует дополнительных затрат времени и теоретического обоснования правомочности такой экстраполяции.

Различие между средствами эксперимента при моделировании позволяет выделить мысленный и материальный эксперименты. Средствами мысленного (умственного) экспе-

римента являются мысленные модели исследуемых объектов или явлений (чувственные образы, образнознаковые модели, знаковые модели). Для обозначения мысленного эксперимента иногда пользуются термином: идеализированный, или воображаемый, эксперимент.

Мысленный эксперимент является одной из форм умственной деятельности познающего субъекта, в процессе которой воспроизводится в воображении структура реального эксперимента. Структура мысленного эксперимента включает: построение мысленной модели объекта исследования, идеализированных условий эксперимента и воздействий на объект; сознательное и планомерное изменение, комбинирование условий эксперимента и воздействий на объект; сознательное и точное применение на всех стадиях эксперимента объективных законов науки, благодаря чему исключается абсолютный произвол. В результате такого эксперимента формируются выводы.

Материальный эксперимент имеет аналогичную структуру. Однако в материальном эксперименте используются материальные, а не идеальные объекты исследования. Основное отличие материального эксперимента от мысленного в том, что реальный эксперимент представляет собой форму объективной материальной связи сознания с внешним миром, между тем как мысленный эксперимент является специфической формой теоретической деятельности субъекта.

Сходство мысленного эксперимента с реальным в значительной мере определяется тем, что всякий реальный эксперимент, прежде чем быть осуществленным на практике, сначала проводится человеком мысленно в процессе обдумывания и планирования. Поэтому мысленный эксперимент нередко выступает в роли идеального плана реального эксперимента, в известном смысле предворяя его.

Мысленный эксперимент имеет более широкую сферу применения, чем реальный эксперимент, так как применяется не только при подготовке и планировании последнего, но и в тех случаях, когда проведение реальных опытов представляется невозможным. Так, Галилей в мысленном эксперименте пришел к выводу о существовании движения по инерции, опрокинувшему аристотелевскую точку зрения, согласно которой движущееся тело останавливается, если сила, его толкающая, прекращает свое действие. Этот вывод мог быть получен только с помощью мысленного эксперимента. По этому поводу А. Эйнштейн говорил следующее: «Мы видели, что закон инерции нельзя вывести непосредственно из эксперимента, его можно вывести лишь умозрительно – мышлением, связанным с наблюдением. Этот эксперимент никогда нельзя выполнить в действительности, хотя он ведет к глубокому пониманию действительных экспериментов».

Мысленный эксперимент, заменяя собой реальный, расширяет границы познания, ибо обеспечивает получение такой информации, которую иными средствами добыть невозможно. Мысленный эксперимент позволяет преодолеть неизбежную ограниченность реального опыта путем абстрагирования от действия нежелательных, затемняющих причин, полное устранение которых в реальном эксперименте практически недостижимо.

Мысленный эксперимент является существенным моментом всякой творческой деятельности. А. Эйнштейн в автобиографических воспоминаниях в связи с разработкой специальной теории относительности писал: «В этом году у меня возник вопрос: если бы можно было погнаться за световой волной со скоростью света, то мы имели бы перед собой не зависящее от времени волновое поле. Но все-таки это кажется невозможным! Это было первым детским мысленным экспериментом, который относится к специальной теории относительности. Открытие не является делом логического мышления, даже если конечный продукт связан с логической формой».

Мысленный эксперимент используется не только учеными, но и писателями, художниками, педагогами, врачами. Мысленное экспериментирование ярко проявляется в мышлении шахматистов. Огромна роль мысленного эксперимента в техническом конструировании и изобретательстве. Результаты мысленного эксперимента находят отражение в формулах, чертежах, графиках, набросках, эскизных проектах и т. п.

Пассивный эксперимент предусматривает измерение только выбранных показателей (параметров, переменных) в результате наблюдения за объектом без искусственного вмешательства в его функционирование. Примерами пассивного эксперимента являются наблюдения за интенсивностью, составом, скоростями движения транспортных потоков; за числом заболеваний вообще или какой-либо определенной болезнью; за работоспособностью определенной группы лиц; за показателями, изменяющимися с возрастом; за числом дорожно-транспортных происшествий и т. п.

Пассивный эксперимент, по существу, является наблюдением, которое сопровождается инструментальным измерением выбранных показателей состояния объекта исследования.

Активный эксперимент связан с выбором специальных входных сигналов (факторов) и контролирует вход и выход исследуемой системы. Однофакторный эксперимент предполагает:

- выделение нужных факторов;
- стабилизацию мешающих факторов;
- поочередное варьирование интересующих исследователя факторов. Стратегия многофакторного эксперимента состоит в том, что варьируются все переменные сразу и каждый эффект оценивается по результатам всех опытов, проведенных в данной серии экспериментов.

Технологический эксперимент направлен на изучение элементов технологического процесса (производства, оборудования, деятельности работников и т. п.) или процесса в целом.

Социометрический эксперимент используется для измерения существующих межличностных социально-психологических отношений в малых группах с целью их последующего изменения. Как уже отмечалось, приведенная классификация экспериментальных исследований не может быть признана полной, поскольку с расширением научного знания расширяется и область применения экспериментального метода. Кроме того, в зависимости от задач эксперимента различные его типы могут объединяться, образуя комплексный, или комбинированный, эксперимент. Для проведения эксперимента любого типа необходимо: разработать гипотезу, подлежащую проверке; создать программы экспериментальных работ; определить способы и приемы вмешательства в объект исследования; обеспечить условия для осуществления процедуры экспериментальных работ; разработать пути и приемы фиксирования хода и результатов эксперимента; подготовить средства эксперимента (приборы, установки, модели и т. п.); обеспечить эксперимент необходимым обслуживающим персоналом.

2. Методика проведения эксперимента

Особое значение имеет правильная разработка методик эксперимента. *Методика* – это совокупность мыслительных и физических операций, размещенных в определенной последовательности, в соответствии с которой достигается цель исследования. При разработке методик проведения эксперимента необходимо предусматривать: проведение предварительного целенаправленного наблюдения над изучаемым объектом или явлением с целью определения исходных данных (гипотез, выбора варьирующих факторов); создание условий, в которых возможно экспериментирование (подбор объектов для экспериментального воздействия, устранение влияния случайных факторов); определение пределов измерений; систематическое наблюдение за ходом развития изучаемого явления и точные описания фактов; проведение систематической регистрации измерений и оценок фактов различными средствами и способами; создание повторяющихся ситуаций, изменение характера условий и перекрестные воздействия, создание усложненных ситуаций с целью подтверждения или опровержения ранее полученных данных; переход от эмпирического изучения к логическим обобщениям, к анализу и теоретической обработке полученного фактического материала.

Правильно разработанная методика экспериментального исследования предопределяет его ценность. Поэтому разработка, выбор, определение методики, должны проводиться особенно тщательно. При определении методики необходимо использовать не только личный опыт, но и опыт товарищей и других коллективов. Необходимо убедиться в том, что она соответствует современному уровню науки, условиям, в которых выполняется исследование. Целесообразно проверить возможность использования методик, применяемых в смежных проблемах и науках.

Выбрав методику эксперимента, исследователь должен удостовериться в ее практической применимости. Это необходимо сделать даже в том случае, если методика давно апробирована практикой других лабораторий, так как она может оказаться неприемлемой или сложной в силу специфических особенностей климата, помещения, лабораторного оборудования, персонала, объекта исследований и т. п.

Перед каждым экспериментом составляется его план (программа), который включает: цель и задачи эксперимента; выбор варьирующих факторов; обоснование объема эксперимента, числа опытов; порядок реализации опытов, определение последовательности изменения факторов; выбор шага изменения факторов, задание интервалов между будущими экспериментальными точками; обоснование средств измерений; описание проведения эксперимента; обоснование способов обработки и анализа результатов эксперимента. Применение математической теории эксперимента позволяет уже при планировании определенным образом оптимизировать объем экспериментальных исследований и повысить их точность.

Важным этапом подготовки к эксперименту является определение его целей и задач. Количество задач для конкретного эксперимента не должно быть слишком большим (лучше 3...4, максимально 8... 10).

Перед экспериментом надо выбрать варьируемые факторы, то есть установить основные и второстепенные характеристики, влияющие на исследуемый процесс, проанализировать расчетные (теоретические) схемы процесса. На основе этого анализа все факторы классифицируются, и составляется из них убывающий по важности для данного эксперимента ряд. Правильный выбор основных и второстепенных факторов играет важную роль в эффективности эксперимента, поскольку эксперимент и сводится к нахождению зависимостей между этими факторами. Иногда бывает трудно сразу выявить роль основных и второстепенных факторов. В таких случаях необходимо выполнять небольшой по объему предварительный поисковый опыт.

Основным принципом установления степени важности характеристики является ее роль в исследуемом процессе. Для этого процесс изучается в зависимости от какой-то одной переменной при остальных постоянных. Такой принцип проведения эксперимента оправдывает себя лишь в тех случаях, когда подобных характеристик мало – 1...3. Если же переменных величин много, целесообразен принцип многофакторного анализа, рассматриваемый ниже.

Необходимо также обосновать набор средств измерений (приборов) оборудования, машин и аппаратов, необходимых для проведения экспериментов. В связи с этим экспериментатор должен быть хорошо знаком с используемой в исследуемой области измерительной аппаратурой (при помощи ежегодно издающихся каталогов, по которым можно заказать те или иные средства измерений). Естественно, что в первую очередь следует использовать стандартные, серийно выпускаемые машины и приборы, работа на которых регламентируется инструкциями и другими официальными документами.

В отдельных случаях возникает потребность в создании уникальных приборов, установок, стендов, машин для разработки темы. При этом разработка и конструирование приборов и других средств должны быть тщательно обоснованы теоретическими расчетами и практическими соображениями о возможности изготовления оборудования. При создании новых приборов желательно использовать готовые узлы выпускаемых приборов или

реконструировать существующие приборы. Ответственный момент – установление точности измерений и погрешностей.

Методы измерений должны базироваться на законах специальной науки – метрологии, изучающей средства и методы измерений.

При экспериментальном исследовании одного и того же процесса (наблюдения и измерения) повторные отсчеты на приборах, как правило, неодинаковы. Отклонения объясняются различными причинами – неоднородностью свойств изучаемого тела (материал, конструкция и т. д.), несовершенностью приборов и классов их точности, субъективными особенностями экспериментатора и др. Чем больше случайных факторов, влияющих на опыт, тем больше расхождения цифр, получаемых при измерениях, то есть тем больше отклонения отдельных измерений от среднего значения. Это требует повторных измерений, а следовательно, необходимо знать их минимальное количество. Под потребным минимальным количеством измерений понимают такое количество измерений, которое в данном опыте обеспечивает устойчивое среднее значение измеряемой величины, удовлетворяющее заданной степени точности. Установление потребного минимального количества измерений имеет большое значение, поскольку обеспечивает получение наиболее объективных результатов при минимальных затратах времени и средств.

В методике подробно разрабатывается процесс проведения эксперимента, составляется последовательность (очередность) проведения операций измерений и наблюдений, детально описывается каждая операция в отдельности с учетом выбранных средств для проведения эксперимента, обосновываются методы контроля качества операций, обеспечивающие при минимальном (ранее установленном) количестве измерений высокую надежность и заданную точность. Разрабатываются формы журналов для записи результатов наблюдений и измерений. После разработки и утверждения методики устанавливаются объем и трудоемкость экспериментальных исследований, которые зависят от глубины теоретических разработок, степени точности принятых средств измерений (чем четче сформулирована теоретическая часть исследования, тем меньше объем эксперимента). В зависимости от предварительной теоретической подготовки возможны три случая проведения эксперимента:

f если теоретически получена аналитическая зависимость, которая однозначно определяет исследуемый процесс, то объем эксперимента для подтверждения данной зависимости оказывается минимальным, поскольку функция однозначно определяется экспериментальными данными;

f если теоретическим путем установлен лишь характер функциональной зависимости, то есть задано семейство кривых, то экспериментальным путем необходимо определять многие неизвестные параметры и, следовательно, объем эксперимента возрастает;

f если теоретически не удалось получить каких-либо зависимостей и разработаны лишь предположения о качественных закономерностях процесса, то целесообразен поисковый эксперимент, при котором объем экспериментальных работ резко возрастает.

В таких случаях уместно применять **метод математического планирования эксперимента**.

На объем и трудоемкость проведения экспериментальных работ существенно влияет вид эксперимента. Например, полевые эксперименты, как правило, всегда имеют большую трудоемкость, что следует учитывать при планировании. После установления объема экспериментальных работ составляются перечень необходимых средств измерений, объем материалов, список исполнителей, календарный план и смета расходов.

План-программу рассматривает научный руководитель, обсуждают в научном коллективе и утверждают в установленном порядке.

При разработке плана-программы эксперимента всегда необходимо стремиться к его упрощению, наглядности без потери точности и достоверности. Это достигается предварительным анализом и сопоставлением результатов измерений одного и того же пара-

метра различными техническими средствами, а также методов обработки полученных результатов. В условиях интенсификации проведения научных исследований важнейшее место в процессе подготовки эксперимента должно отводиться его автоматизации, то есть использованию автоматизированных систем научных исследований (АСНИ) с вводом экспериментальных данных непосредственно в ЭВМ, с расчетом результирующих показателей, с автоматическим управлением хода эксперимента (последовательности и повторяемости замеров, определение средних значений, построение и т. д.).

3 Основы планирования эксперимента

Эксперимент занимает центральное место в науке, однако возникает вопрос – насколько эффективно он используется? В некоторых работах отмечается, что большинство научных исследований организуются и проводятся настолько хаотично, что коэффициент их полезного действия может быть оценен величиной порядка 2%. Одним из возможных путей повышения эффективности исследований является применение математических методов, построение математической теории планирования эксперимента.

Планирование эксперимента – это процедура выбора числа и условий проведения опытов, необходимых и достаточных для решения поставленной задачи с требуемой точностью. При этом существенно следующее:

- стремление к минимизации числа опытов;
- одновременное варьирование всеми переменными, определяющими процесс;
- использование математического аппарата, формализующего многие действия экспериментатора.

Для определения объекта исследования используется кибернетический принцип ”черного ящика”, схема которого представлена на рисунке 5.1.

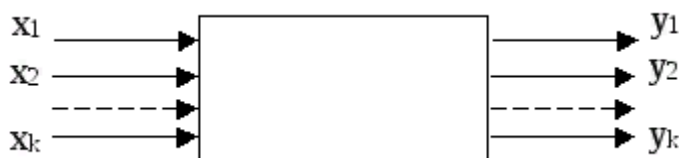


Рис. 5.1. Схема ”черного ящика”.

Стрелки y_1, y_2, y_k изображают характеристики целей исследования, которые называют **параметры оптимизации**. Для проведения эксперимента необходимо иметь возможность воздействовать на поведение ”черного ящика”. Способы воздействия, обозначенные стрелками x_1, x_2, x_k называются **факторами**. Уравнение, связывающее параметр оптимизации с факторами, называется **функцией отклика**.

Каждый фактор в опыте может принимать одно или несколько значений, которые называются **уровнями**. Фиксированный набор уровней факторов определяет одно из возможных состояний ”черного ящика”. Одновременно это есть условия проведения одного из возможных опытов. Если перебрать все возможные наборы состояний данной системы, получим число возможных различных опытов. Чтобы узнать число различных состояний, достаточно число уровней факторов P возвести в степень числа факторов k . Выбор минимального числа опытов осуществляется методами планирования эксперимента, основными этапами которого являются следующие:

1. Определяется параметр, который нужно оптимизировать. Параметр оптимизации должен быть:
 - эффективным с точки зрения достижения цели;

- универсальным, то есть всесторонне характеризовать объект;
- количественным и выражаться одним числом;
- имеющим физический смысл, простым и легко вычисляемым;
- существующим, для всех различных состояний.

Если один параметр оптимизации определить затруднительно, строят так называемый обобщенный параметр оптимизации.

2. После того как выбран объект исследований и параметр оптимизации, нужно включить в рассмотрение все существующие факторы, влияющие на процесс. Основные требования, предъявляемые к факторам – это управляемость и однозначность.

Управлять фактором – это значит установить нужное значение и поддерживать его постоянным в течение опыта или менять по заданной программе.

Факторы должны непосредственно воздействовать на объект исследования. Основные требования к совокупности факторов – совместимость и отсутствие линейной корреляции.

3. Следующим этапом является выбор модели, то есть. определение вида функции отклика:

$$Y = f(X_1, X_2, \dots, X_k).$$

Обычно функция отклика представляется в виде полинома некоторой степени. На первом этапе планирования эксперимента ограничиваются полиномом первой степени:

$$Y = b_0 + b_1 X_1 + b_2 X_2 + \dots + b_k X_k \tag{5.1}$$

Основными требованиями, предъявляемыми к модели, является адекватность и простота.

Под адекватностью понимают способность модели предсказывать результаты в некоторой области с заданной точностью. Адекватность определяется после проведения опытов.

Кроме того, функции отклика должна быть присуща аналитичность, то есть ее можно было бы разложить в степенной ряд в окрестностях любой точки из области определения.

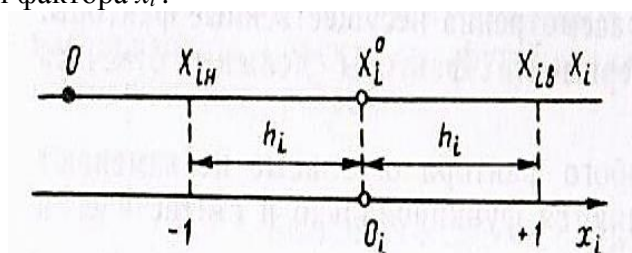
4. При выборе области проведения эксперимента, прежде всего надо оценить границы области определения факторов. При этом должны учитываться различные ограничения, связанные с принципиальными ограничениями на значения некоторых факторов (абсолютный нуль для температуры), технико-экономическими соображениями и конкретными условиями проведения эксперимента.

5. Для каждого фактора должен быть выбран основной уровень и интервал варьирования. При выборе основного уровня используются сведения о приблизительных координатах "наилучшей" точки, либо о границах определения факторов.

Для каждого фактора определяется значение двух уровней, на которых он будет варьироваться в эксперименте. Значения уровней устанавливаются путем прибавления (вычитания) некоторого числа, называемого интервалом варьирования, к основному уровню. Таким образом, задача выбора уровней сводится к более простой задаче выбора интервалов варьирования.

На выбор интервала варьирования накладываются естественные ограничения сверху и снизу. Интервал варьирования не может быть меньше той ошибки, с которой экспериментатор фиксирует уровень фактора, иначе верхний и нижний уровни окажутся неразличимыми. С другой стороны, интервал не может быть настолько большим, чтобы верхний или нижний уровни оказались за пределами области определения. Внутри этих ограничений

обычно еще остается значительная неопределенность выбора, которая устраняется за счет индивидуальных решений. Для упрощения записи условий эксперимента и обработки экспериментальных данных, масштабы по осям изменения факторов выбираются так, чтобы верхний уровень соответствовал +1, нижний -1, а основной 0. На рис. 1 показана интерпретация кодирования фактора x_i .



Для факторов с непрерывной областью определения это можно сделать с помощью нормирования:

$$\bar{X}_j = \frac{X_j - X_{j0}}{I_j},$$

где \bar{X}_j – кодированное значение фактора,
 X_j – натуральное значение фактора на данном уровне,
 X_{j0} – натуральное значение основного уровня,
 I_j – интервал варьирования,
 j – номер фактора.

4 Обработка результатов эксперимента

Обработка данных сводится к систематизации всех цифр, классификации, анализу. Результаты экспериментов должны быть сведены в удобочитаемые формы записи – таблицы, графики, формулы, номограммы, позволяющие быстро и доброкачественно сопоставлять полученное и проанализировать результаты. Все переменные должны быть оценены в единой системе единиц физических величин.

Особое внимание в методике должно быть уделено математическим методам обработки и анализу опытных данных, например установлению эмпирических зависимостей, аппроксимации связей между варьирующими характеристиками, установлению критериев и доверительных интервалов и др. Диапазон чувствительности (нечувствительности) критериев должен быть стабилизирован (эксплицирован). Результаты экспериментов должны отвечать трем статистическим требованиям:

- эффективности оценок, то есть минимальность дисперсии отклонения относительно неизвестного параметра;
- состоятельности оценок, то есть при увеличении числа наблюдений оценка параметра должна стремиться к его истинному значению;
- несмещенности оценок, то есть отсутствию систематических ошибок в процессе вычисления параметров.

Важнейшей проблемой при проведении и обработке эксперимента является совместимость этих трех требований. При обработке полученных экспериментальным путем данных можно выделить два этапа. На первом этапе главным является наглядность представления полученных данных с целью облегчения работы по последующей их обработке. Второй этап обработки результатов эксперимента является наиболее важным. На этом этапе результаты эксперимента обобщаются и представляются в виде аналитических зависимостей.

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Раздел 3. ПРОИЗВОДСТВЕННЫЙ ЭКСПЕРИМЕНТ

1 Понятие, цели и задачи производственного эксперимента

Эксперимент – это метод исследования, состоящий в целенаправленном воздействии на объект в заданных контролируемых условиях, позволяющих следить за ходом его проведения с точным фиксированием значений заранее намеченных параметров исследуемого объекта с требуемой надежностью и точностью и воссоздавать его каждый раз по мере необходимости при повторении тех же условий его проведения. При этом как условия, так и параметры исследуемого объекта (параметры рабочих органов машин и оборудования, отдельных операций технологических процессов, характеристики явлений т.д.) могут меняться в заранее заданных интервалах варьирования.

Обязательным свойством научного эксперимента является его повторяемость (воспроизводимость). Эксперимент позволяет изучить объект исследования в «чистом виде» как единое целое без воздействия каких-то неблагоприятных факторов, если при этом условия реализации эксперимента не вызывают разрушения этого объекта. В науке часто решается задача исследования объектов в экстремальных условиях, чтобы знать пределы возможного существования объекта и особенности его поведения в необычных ситуациях.[1]

Эксперимент, проведенный в условиях производства на реальном объекте с целью изучения взаимосвязей входных и выходных параметров технологического процесса, является производственным. На основе данных, полученных в ходе такого эксперимента, можно создать модель изучаемого объекта и проверить ее адекватность.

Целью эксперимента является получение новых знаний. Экспериментальные исследования дают критерии оценки обоснованности и приемлемости на практике любых теорий и теоретических предположений.

Основной задачей любого эксперимента является не только получение неизвестных ранее сведений об объекте исследования, но и достоверное установление закономерностей его поведения в изменяющихся условиях, совпадающих с условиями его функционирования в природе, технике, общественной жизни и т.д. С помощью эксперимента могут быть получены данные, обработка которых позволит получить математические модели, достоверно описывающие изучаемый объект, вскрыть закономерности его поведения с изменяющихся условиях, т.е. решить задачу идентификации.

Иногда, при обработке данных эксперимента ставится задача оптимизации параметров объекта по каким-то количественным или качественным критериям. С этой целью применяются известные методики, соответствующая программа и технические средства обработки данных. Достоверность того, что параметры оптимизации действительно позволяют оптимизировать свойства объекта, должна быть подтверждена прямым экспериментом, условия проведения которого соответствуют оптимизированным параметрам. Лишь в этом случае можно говорить о достоверности полученных практических выводов и рекомендаций.

Для получения надежных и достоверных результатов экспериментальных исследований необходимо осуществить:

- анализ характеристик исследуемого объекта во всем многообразии свойств, предусмотренных целью проведения диссертационного исследования, на основе имеющихся сведений, полученных другими исследованиями и опубликованных в литературе;
- разработку программы экспериментальных исследований;
- обоснование выбора количественных параметров (критериев или измеряемых величин) оценки свойств объекта, выбрать их размерности и способы измерения в ходе эксперимента;

- определение всех факторов, влияющих на выбранные на основе поисковых исследований (если в этом есть необходимость) для наблюдения параметры рассматриваемого объекта в условиях протекания изучаемых явлений и процессов;
- рассмотрение причинно-следственных связей между параметрами оценки свойств объекта и выявленными факторами;
- ранжирование факторов по степени их влияния на параметры (критерии) оценки свойств объекта и выделение из них основных;
- определение рациональных интервалов варьирования выделенных факторов для установления соответствующих закономерностей, предусмотренных программой исследований по диссертации;
- фиксирование остальных факторов на определенных (возможно лучших) уровнях варьирования;
- разработку конструктивно-технологических схем опытно-экспериментальных установок или стендов, обеспечивающих реализацию намеченной программы исследований;
- изучение возможностей моделирования объекта;
- подбор соответствующей существующей или разработка новой измерительной аппаратуры, фиксирующей во время проведения экспериментов измеряемые величины через исполнительные органы (датчики, усилители т.п.);
- разработку методики тарирования выбранных средств измерения, их установки для надежного измерения или регистрации контролируемых величин;
- разработку методики обработки первичной документации, в том числе журналов наблюдений, протоколов и актов исследований, с обеспечением требований надежности, точности и достоверности результатов эксперимента.

В зависимости от особенностей объекта и поставленных целей экспериментальные исследования могут проводиться в различных условиях. При этом различают лабораторные эксперименты, лабораторно-полевые, промышленные и т.д.

В прикладных диссертационных работах, особенно технического профиля, заключительным этапом обычно является проведение испытаний исследуемого объекта в условиях производства.

Испытание – это разновидность научных экспериментальных исследований, при которых исследуемый объект подвергается оценке в производственных условиях. При испытаниях не изменяют параметров его эксплуатации, кроме тех, которые предусмотрены соответствующими требованиями инструкций по эксплуатации и техническому обслуживанию в виде отдельных регулировок механизмов. Цель таких испытаний состоит в определении соответствия данного объекта диссертационного исследования тем производственным требованиям, которые были первоначально поставлены перед исследователями (работчиками).

Государственными нормативными документами сегодня предусматривается проведение почти 40 различных видов испытаний, из которых можно выделить следующие:

- предварительные заводские или полевые испытания опытного образца;
- приемочные испытания доработанных образцов или опытных партий (установочной серии);
- контрольные испытания при массовом производстве машин;
- испытания образцов после капитального ремонта.

Первые два вида испытаний применяются на стадии проектирования, научных исследований и доработки новых конструкций машин и оборудования до их работоспособного состояния. С их помощью оценивается эффективность идей, технологических и технических решений, обоснованность выбора величины отдельных параметров, конструктивно-технологических и компоновочных схем, заложенных в такие машины и оборудование, степень обоснованности и оптимальности базовых (основных) величин параметров. При этом выявляются ошибки, допущенные при проектировании, уточняются параметры

основных элементов исследуемого объекта, возможные отклонения, надежность работы в производственных условиях и дается вывод о перспективности дальнейшего использования его по основному назначению. Наличие таких протоколов в приложении к диссертации является свидетельством высокой практической значимости проведенных диссертационных исследований, что упрощает проведение экспертизы диссертации.

Результаты экспериментальных наблюдений излагаются в виде отдельной главы (или нескольких глав, если в цели диссертации входила постановка и обобщение нескольких разрозненных групп экспериментов), которую обычно называют «Методика эксперимента».

Эта глава должна в полной мере раскрыть цель и задачи экспериментальных исследований, предусмотренные первоначальной программой. Результаты эксперимента и их анализ (обсуждение) описывают в отдельных главах. Состав, объем и содержание отдельных разделов и подразделов этих глав определяются самим соискателем.

2 Организация эксперимента

Перед началом эксперимента следует обсудить организацию его проведения с научным руководителем, со старшими коллегами (уже прошедшими этап защиты диссертации), а также предварительно хорошо продумать формы протоколов, в которые будут заноситься промежуточные результаты. К данным, получаемым в ходе исследования, следует относиться очень бережно. Результаты исследования следует хранить так, чтобы их можно было понять и спустя несколько лет, проверить их, обработать с помощью других методов. Не надейтесь на свою память, все нюансы фиксируйте на бумаге или компьютере (в лучшем случае - и там и там). Иначе говоря, запись должна быть понятна любому достаточно квалифицированному читателю, а не только ее автору.

Все записи, касающиеся выполнения эксперимента, ведутся в специальном рабочем журнале (тетради). Рабочий журнал – толстая тетрадь, где на первом месте указаны: автор, лаборатория, кафедра, университет, адрес и телефон (а вдруг...?). Страницы рабочего журнала рекомендуется заранее пронумеровать, во-первых, чтобы быть уверенным в сохранности всех записей, а во-вторых, чтобы облегчить ссылки на формулы, вычисления, данные и т.п. Все записи должны быть датированными.

В рабочий журнал вносится следующее:

- *Результат теоретической подготовки к работе.* Записываются задача работы, порядок измерений, все рабочие схемы, краткие описания приборов, рабочие формулы (с обязательной расшифровкой обозначений), вывод формул для вычисления погрешностей, рекомендованные значения и пределы измерения различных параметров. **Отдельно записываются все указания о предельных нагрузках и других возможных опасностях для приборов.** Запись должна быть конспективной, но достаточно полной, чтобы пользуясь ею можно было полностью провести эксперимент. Рекомендуется заносить также в рабочий журнал очень краткую конспективную запись проработки теории рассматриваемого вопроса.

- *Данные, полученные при ознакомлении с установкой.* Перед выполнением эксперимента, при знакомстве с установкой, на которой будут производиться измерения, уточняются и записываются в журнал все недостающие данные о приборах: для электрических приборов составляется подробная спецификация (приводится полная расшифровка всех обозначений, имеющих на шкале). Записываются все рекомендации и уточнения, которые возникли в результате предварительного ознакомления с работой установки. Для оптических приборов записываются результаты контроля юстировки.

• *Данные измерений при выполнении эксперимента. Все результаты прямых измерений записываются без какой-либо обработки* (даже такой элементарной, как умножение на переводные множители) с целью уменьшения вероятности появления ошибок при записи.

• *Предварительные вычисления и прикидки, которые делаются во время измерения, а также возникающие в процессе работы соображения относительно необходимого числа измерений, наличия и происхождения систематических ошибок, необходимости добавочных измерений и т.п.* Результаты, вызывающие сомнения, отмечаются вопросительными знаками и проверяются дополнительными измерениями.

• *Вычисления, проводимые во время обработки результатов.* Чтобы не путать записи результатов измерений, вычисления следует вести на отдельных страницах. Удобно вести записи на одной стороне листа, оставляя другую сторону для вычислений. А также оставлять несколько страниц между концом одной работы и началом другой. Только такие расчеты, как вычисление среднего и погрешности, пересчет от деления шкалы к единицам измеряемой величины, введение поправок, разумно вести рядом с записанными результатами, и для этого при записи надо оставлять достаточно места.

• *Рабочие и иллюстративные графики* (вклеиваются в журнал).

• *Окончательный результат*, а также заключение по работе: в какой мере полученный результат удовлетворяет поставленной цели, как его можно было бы улучшить и т.п.

В рабочем журнале существенные результаты будут перемежаться с промежуточными вычислениями и другой информацией, обращаться к которой придется только при поисках возможных ошибок. Следует четко выделять отдельные части записей (заголовками, рамками, подчеркиванием и т.п.) и вести все записи и вычисления достаточно аккуратно, что способствует уменьшению вероятности вычислительных ошибок.

Научиться правильно и грамотно вести записи в рабочем журнале – одна из важных задач начинающего экспериментатора.

Рабочий журнал хранится в лаборатории (на кафедре) и в любое время может быть проверен. Кроме него, в лаборатории хранят все образцы, негативы, рентгенограммы, осциллограммы, ленты с самописцев и цифропечатающих устройств, диаграммы с испытательных машин, протоколы анализов и сделанных «на стороне» испытаний.

Хранят так же все черновики вычислений, массивы данных и программы для компьютера, распечатки программ и выведенных массивов. Все эти материалы должны быть зарегистрированы и описаны в рабочем журнале (в день получения), на каждом из них поставлены дата и номер, отсылающие к соответствующей странице журнала.

Правила и сроки хранения в разных учреждениях различны, но общий принцип: материал следует сохранять, пока можно ожидать каких-либо возражений и сомнений в его надежности – после публикации, при использовании результатов в производстве, при выполнении следующих исследований в развитие этого. Чтобы спать спокойно, большинство экспериментаторов хранят свои рабочие журналы пожизненно, а образцы - по меньшей мере, несколько лет. (В сохранившихся поныне записных книжках Фарадея последний опыт имел номер – 16041).

Рабочий журнал должен полностью отражать всю проделанную работу (не только успехи, но и неудачи). Кроме протокола проведения эксперимента полезны соображения о причинах неудач, о том, что проверить, как переделать, что учесть при обработке. В рабочем журнале уместен и конкретный план действий на некоторый срок: перечень измерений и прочих дел (предвидимая цепь событий для контроля), текущие задания руководителя, результаты обсуждений и т.д.

Черновые записи в других тетрадях и на отдельных листах не допускаются, так как переписывание данных с черновиков вносит дополнительную возможность ошибок, а при уничтожении «ненужного» черновика может быть потеряна важная информация. Не должно быть никаких листочков-черновиков. Записи «по памяти» за прошлые дни недопустимы – это уже не протокол, а легенда. Науку нельзя строить на воспоминаниях отдельных

личностей. **Вымарывания, исправления, вырывания листов совершенно недопустимы.**

Все результаты измерений, а также вычисленный по ним окончательный результат обязательно приводятся вместе с погрешностью.

Абсолютную погрешность всегда указывают вместе с найденным значением измеряемой величины:

$$s = (3,74 \pm 0,02) \text{ мм.}$$

Для окончательного результата работы приводят также и относительную погрешность, которую записывают отдельно:

$$\Delta s/s = 0,5\%.$$

3 Элементы планирования эксперимента

Успех научного эксперимента в значительной мере определяется умением правильно спланировать опыт при предварительной подготовке и внести коррективы и уточнения в процессе самой работы, исходя из анализа полученных результатов. Для этого применяется математическая теория планирования эксперимента.

Большое значение имеет рациональный выбор оборудования, приборов, условия опыта, значения переменных, при которых проводятся измерения, число повторных измерений, порядок их проведения. Такой выбор должен обеспечить получение выводов об изучаемом явлении, т.е. о значении измеряемой величины или о форме зависимости между величинами, с требуемой степенью надежности при минимальной затрате труда и времени. Для облегчения этой задачи нужно стараться проводить хотя бы черновую обработку данных непосредственно в лаборатории, до разборки установки, когда еще есть возможность провести необходимые дополнительные измерения.

При окончательной обработке полученных результатов следует проанализировать, насколько разумно был проведен эксперимент и как следовало бы его спланировать, если бы нужно было повторить работу заново. Этот анализ должен включать также критические замечания по постановке работы, подбору оборудования, приборов и т.п.

Предварительный план проведения эксперимента. Физический эксперимент не может быть успешно проведен путем «слепого экспериментирования». Работа должна вестись сознательно на основе ясного понимания поставленной задачи. При подготовке к работе нужно четко усвоить, какие физические явления будут исследоваться; какие величины следует измерить (их определение); на какой теоретической основе базируется метод измерения данной величины; каков принцип действия установки в целом и каждого из применяемых приборов.

Понимание теории измерительного метода предполагает умение описать работу по следующей общей схеме: что делаю я; что происходит в приборе (установке); что показывают приборы; как показания приборов связаны с интересующей меня величиной (формула).

4 Первичная обработка результатов

То, что измерено, — это еще не то, что мы хотим знать. Все измерения обрабатывают. Первичная обработка – вычисление искомых функций от набора измеренных величин для

данного образца в данном состоянии, усреднение и описание рассеяния результатов повторных измерений «в одной точке».

Все расчеты должны быть доступны для перепроверки, все промежуточные результаты – в таблицах в журнале, без черновиков. Лучше вести все первичные записи чернилами, а обработку карандашом, чтобы не спутать измеренное (раз и навсегда) с расчетом, который еще не поздно перепроверить. Здесь уместно привести слова академика Л. А. Арцимовича: «Запомните, экспериментатор, в отличие от теоретика, ошибается только один раз, а потом ему уже не верят».

Соискатель должен сделать правилом анализ результатов своих наблюдений по мере их накопления, не дожидаясь завершения эксперимента. В ходе такого анализа может выясниться, что для получения желаемого результата нужно скорректировать условия эксперимента.

В ходе обработки результатов эксперимента устанавливаются закономерности исследуемых явлений и процессов, происходящих с участием изучаемого объекта, которые позволяют получить достоверный ответ на интересующие исследователя задачи и вопросы.

Получив некий массив экспериментальных данных, соискатель должен проанализировать, все ли они статистически достоверны, и отбросить те, которые лежат вне области достоверных измерений. В противном случае есть опасность получить ложные выводы.

Соблюдая обычные правила округления; недоразумения неизбежны, когда не пишут «для краткости» нули (21,0 и 21,00 – это совсем разные числа). В ряде случаев округление регламентирует ГОСТ: так, предел текучести, упругости округляют до 5 МПа при $100 < \sigma < 500$ МПа, до МПа – ниже и до 10 МПа – выше этого интервала σ . Округление среднего из измерений на нескольких образцах ГОСТ не регламентирует, но ясно, что гарантировать следующий знак могут не менее 10 образцов на точку.

Не слишком длинные вычисления (в несколько действий) делают, как обычно, с одним лишним знаком. Для большей точности нужен компьютер.

При сотне первичных измерений даже для простых вычислений полезно обзавестись графиком, например, диагональ отпечатка (в делениях именно этого окуляра) – число микротвёрдости. Если первичные вычисления сложны, стоит потратить время на специальную номограмму (например, толщина образца-прогиб-относительная деформация при сильном нелинейном изгибе ленты, где в расчет входят эллиптические интегралы). Даже на квадратном метре миллиметровки ошибка графика или номограммы будет не менее 0,1 % от диапазона изменения. Поэтому номограммы приемлемы там, где допустимо округление до 1 %. Графические методы быстрее численных, когда надо найти много корней трансцендентного уравнения (на плоскости), неявные, многозначные обратные функции. Точность графического метода определена ошибкой проведения кривой по точкам.

Только численное решение с оценкой дисперсий параметров напомнит, что информация исчерпана и пора остановиться – с учетом наследования ошибок все новые параметры значимо не отличаются от нуля. При графической обработке автор добивается цели, невзирая на подобные мелочи – наметанному глазу не трудно слегка повернуть прямую, куда следует, или дорисовать пик, там, где он явно должен быть. Когда нет никаких вычислительных средств графическая обработка проще, но это, видимо, тот самый случай, когда «простота хуже воровства». Графическая обработка полезна лишь для предварительных прикидок, а «чистовая» обработка – почти всегда численная. При комбинированной обра-

ботке (например, графическое отделение фона «на глаз» с последующим вычислением параметров линии на компьютере) чаще всего тоже получается недопустимая диспропорция точности (произвол в выборе фона делает бессмысленным дальнейший точный счет).

5 Статистическая обработка результатов

Одним из основных этапов любого эксперимента является статическая обработка экспериментальных данных. Она направлена, как правило, на построение математической модели исследуемого объекта или явления, а также на получение ответа на вопрос: «Достоверны ли полученные опытные данные в пределах требуемой точности или допусков?»

Конечной целью любой обработки экспериментальных данных является выдвигание гипотез о классе и структуре математической модели исследуемого явления, определения состава и объема дополнительных измерений, выбор возможных методов последующей статистической обработки и анализ выполнения основных предпосылок, лежащих в их основе. Для ее достижения необходимо решить некоторые частные задачи, среди которых можно выделить следующие:

1. *Анализ выбраковка и восстановление аномальных и пропущенных измерений, так как исходная экспериментальная информация обычно неоднородна по качеству.* В основной массе результатов прямых измерений, получаемых с возможно малыми погрешностями, в экспериментальных данных имеются грубые ошибки, вызванные разными причинами. К ним могут быть отнесены просчеты экспериментатора, сбои вычислительной техники, аномалии в работе измерительных приборов и т.д. Без глубокого анализа качества данных, устранения или, хотя бы существенного уменьшения влияния аномальных данных на результаты последующей обработки можно сделать ложные выводы об изучаемом объекте или явлении.

2. *Экспериментальная проверка законов распределения экспериментальных данных, оценка параметров и числовых характеристик наблюдаемых случайных величин или процессов.* Выбор методов последующей обработки, направленной на построение и проверку адекватности математической модели исследуемому явлению, существенно зависит от закона распределения наблюдаемых величин. При использовании для обработки процедур классического регрессивного анализа в первую очередь необходимо дать ответ на вопрос: «Является ли закон распределения наблюдаемых величин гауссовским и некоррелированным?» Получаемы при решении этой задачи выводы о природе экспериментальных данных могут быть как общими (независимость измерений, их равноточность, характер погрешностей и др.), так и содержать детальную информацию о статистических свойствах данных (вид закона распределения, его параметры). Решение центральной задачи предварительной обработки не является чисто математическим, а требует также и содержательного анализа изучаемого процесса, схемы и методики проведения эксперимента.

3. *Группировка исходной информации при большом объеме экспериментальных данных.* При этом должны быть учтены особенности их законов распределения, которые выявлены на предыдущем этапе обработки.

4. *Объединение нескольких групп измерений, полученных, возможно, в различное время или в различных условиях, для совместной обработки.*

5. *Выявление статистических связей и взаимовлияния различных измеряемых факторов и результирующих переменных, последовательных измерений одних и тех же величин.* Решение этой задачи позволяет отобрать те переменные, которые оказывают наиболее сильное влияние на результирующий признак. Выделенные факторы используются для дальнейшей обработки, в частности, методами регрессивного анализа.

Анализ корреляционных связей делает возможным выдвижение гипотез о структуре взаимосвязи переменных и, в конечном итоге, о структуре модели объекта исследований.

В ходе предварительной обработки кроме указанных выше задач часто решают и другие, имеющие частный характер: отображение, преобразование и унификацию типа наблюдений, визуализацию многомерных данных и др.

6 Ошибки и точность измерений

На уровень рассеивания оценок значительное влияние оказывают ошибки, имеющие место при эксперименте.

Как известно, при выборочном наблюдении встречаются ошибки трех видов: *грубые, систематические, случайные*. Грубые ошибки, отличающиеся большим отклонением от центра группирования выборки, отсеиваются на этапе первичного анализа материалов.

Точность измерения любой физической величины характеризуется, как известно, абсолютной ($\Delta x = x - \bar{x}$) и относительной $(\Delta x / \bar{x}) \cdot 100$ ошибками (здесь истинное значение), которые, в свою очередь, состоят их суммы систематических Δ и случайных ошибок.

Систематические ошибки постоянны при определении каждого члена выборки и зависят от технического уровня измерительной аппаратуры и техники эксперимента. Эти ошибки можно свести к минимуму периодической тарировкой приборов с помощью более совершенных и повышением точности метода определения исследуемых переменных.

Случайные ошибки обусловлены влиянием большого количества факторов. Их появление неодинаково и случайно от измерения к измерению и не может быть предварительно учтено из-за их зависимости от изменения условий измерений и изменчивости самих измеряемых величин. Однако при достаточно большом количестве экспериментов суммарное значение случайных ошибок, изменяющихся примерно одинаково в положительную и отрицательную сторону, приближается к нулю.

Случайные ошибки в подавляющем большинстве подчиняются нормальному закону распределения с математическим ожиданием, равным «0». В практике исследований горных машин систематические и случайные ошибки близки друг к другу и совместно определяют ошибку измерений.

При оценке точности измерений рекомендуется учитывать суммарную ошибку

$$\varepsilon_{\Sigma} = \delta + \zeta \frac{\sigma_{\zeta}}{\sqrt{n}} \quad (6.1)$$

где σ_{ζ} – среднеквадратическое отклонение случайной величины ε при числе измерений n .

Для величин, определяемых косвенно – методом расчета по другим измеренным случайным величинам, оценка погрешностей осуществляется вычислением статистических оценок по соответствующим функциональным зависимостям.

Выборочные характеристики M_i , σ_i и др. определяемые на основе ограниченного числа наблюдений, могут приближаться к истинным значениям характеристик генеральной совокупности M_x^0 , σ_x лишь с определенной точностью: ε :

$$M_x^0 = M_x + \varepsilon; \quad \sigma_x^0 = \sigma_x + \sigma_r \quad (6.2)$$

Точность выборочного наблюдения (эксперимента) может заканчиваться в единицах измерения исследуемой величины, в единицах выборочного значения σ_x и в процентах исследуемой величины или характеристики.

Систематическая ошибка, будучи постоянной, при этом может не учитываться.

Вероятность того, что истинное значение характеристик генеральной совокупности находится в отмеченных пределах, равна:

$$P(M_x - \varepsilon < M_x^0 < M_x + \varepsilon); P(\sigma_x - \sigma_r < \sigma^0 + \sigma_r) \quad (6.3)$$

и называется **надежностью** данной **оценки**.

Так как математическое ожидание любой выборки само является случайной величиной, то полезно установить такой интервал, в котором с заданной степенью достоверности будет заключено значение оцениваемого параметра.

Интервал, который в общем случае может быть произвольным $[a; b]$, называется **доверительными границами**, а соответствующая вероятность – **доверительной вероятностью**, или, как часто говорят, **надежностью**. Доверительную вероятность для удобства обозначают:

$$(1 - \alpha) = P(a_i < M_x < b_i). \quad (6.4)$$

Соответственно a есть вероятность ошибки, которая на кривой распределения изображается в виде двух половинок $a/2$.

Вероятность ошибки характеризует долю риска в оценке истинного значения оцениваемой величины и часто называется **уровнем значимости**. Для удобства величину достоверного интервала устанавливают в долях среднеквадратического отклонения. Тогда доверительную вероятность определяют как площадь, ограниченную кривой нормального распределения на интервале. Используя формулу стандартного нормального распределения.

$$z = \frac{x - M_x}{\sigma_x}, \text{ при } M_x = 0 \text{ и } \sigma_x = 1. \quad (6.5)$$

Доверительную вероятность, согласно выражению (4.8) записывают:

$$P\left(\bar{x} - z \frac{\sigma_x}{\sqrt{n}} \leq M_x \leq \bar{x} + \frac{\sigma_x}{\sqrt{n}}\right) \quad (6.6)$$

где \bar{x} – оценка среднего значения генеральной совокупности. Доверительный интервал для дисперсии:

$$\left[\frac{n\sigma_x^2}{x_{\alpha/2}^2} \leq D_x \leq \frac{n\sigma_x^2}{x_{\alpha/2}^2} \right]. \quad (6.7)$$

Определяют доверительный интервал в такой последовательности: вычисляют параметр выборки $\bar{x} \approx M_x$, выбирают доверительную вероятность, определяют соответствующее выбранному значению $(1 - \alpha)$ число из таблицы табулированных значений стандартного нормального распределения; вычисляют доверительный интервал $a \leq M_x < b$.

С увеличением количества замеров достоверность эксперимента возрастает, а доверительный интервал уменьшается. Таблица используется в том случае, когда о дисперсии исследуемой величины нельзя составить определенного мнения. Если же на основании априорных сведений или предварительных опытов известно σ_x , то по формуле случайной выборочной ошибки, равной половине длины доверительного интервала определяют необходимое:

$$\varepsilon_{0,5} = z \frac{\sigma_x}{\sqrt{n}} \quad (6.8)$$

число замеров, гарантирующее требуемую надежность:

$$n = \frac{z^2 \sigma_x^2}{\alpha^2}. \quad (6.9)$$

Точность и надежность оценки выборочных характеристик не следует смешивать с точностью исследования, которую часто вычисляют по формуле:

$$\Delta u = \frac{v}{\sqrt{n}} \delta, \quad (6.10)$$

где v – коэффициент вариации выборочного наблюдения, %.

Кроме установления доверительных интервалов задачи оценки случайных величин включают анализ законов распределения изучаемых величин, проверку принадлежности двух выборок к одной генеральной совокупности, сравнение средних дисперсий для различных выборок и др.

Рабочим инструментом статистического анализа при решении отмеченных задач оценки являются *статистические гипотезы*. Статистическими гипотезами именуется суждения, применяемые при различных видах анализа, касающегося, по существу, выяснения свойств некоторой генеральной совокупности случайных величин. Гипотеза в статистике трактуется как предположение о распределении случайных величин. Гипотеза, отклонения от которой приписываются данному случаю, называются *нулевой* и обозначаются H_0 . Альтернативная или противоположная гипотеза называется *конкурирующей* и обозначается H_1 .

Гипотезы проверяют при помощи специально подобранной случайной величины, распределение которой известно или может быть установлено при малом объеме выборки.

В качестве наиболее распространенных критериальных распределений применяются χ^2 -, t -, F - и нормальное распределение.

Критерий Пирсона (χ^2 – распределение) представляет собой распределение суммы нормально распространенных случайных величин:

$$\chi^2 = \sum_{i=1}^n x_i^2, \quad (6.11)$$

которое при $n > 30$ переходит в нормальное.

Критерий Стьюдента (t – распределение) описывает распределение случайной величины:

$$t = \frac{\bar{x}}{\frac{s}{\sqrt{n}}} \quad (6.12)$$

Критерий Фишера (F – распределение) представляет собой распределение случайной величины:

$$F = \frac{\frac{1}{n} \sum x^2}{\frac{1}{m} \sum y^2} \quad (6.13)$$

Функция того или иного критерия используется для установления доверительной границы для H_0 – гипотезы. Для проверки согласия данных с принятым законом распределения чаще используется критерий Пирсона. Однако показания по этому критерию рекомендуется дополнить другими критериями. Из них наиболее часто применяют критерии Романовского и Колмагорова-Смирнова. Критерий Романовского вычисляется по формуле:

$$K_j = \frac{\chi^2 - f}{\sqrt{2f}}. \quad (6.14)$$

где f – число степеней свободы.

Критерий Колмогорова-Смирнова устанавливает близость теоретических и экспериментальных распределений путем сравнения их интегральных распределений и определяется по формуле:

$$\lambda = \frac{D}{\sqrt{n}} \quad (6.15)$$

где D – максимальная защита разности накопленных теоретических m' и экспериментальных m частот.

В случае выборок одинакового объема для проверки гипотезы о равенстве дисперсий нескольких гауссовских случайных величин по независимым выборкам применяется критерий Кохрена, при наличии выборок различного объема – критерий Бартлетта. Методика их применения приведена в специальной литературе. Общим правилом применения этих критериев является то, что если расчетное значение каждого из них меньше табличных, то можно принять гипотезу о выбранном законе распределения.

7 Многофакторный эксперимент

Непосредственному проведению многофакторного эксперимента предшествует подготовительная работа – предпланирование или организация эксперимента, которая состоит из следующих этапов:

- 1) изучение объекта и формулировка цели экспериментального исследования;
- 2) выбор отклика или откликов (для многооткликовых моделей);
- 3) выбор факторов и их интервалов варьирования;
- 4) разработка экспериментальной установки и программного обеспечения;
- 5) составление таблицы условий и плана эксперимента.

Рассмотрим многооткликовый объект, т.е. объект, в котором исследователя интересует несколько выходных переменных. Например, для импульсных устройств откликами могут быть ширина и амплитуда импульса, временное запаздывание. Эти параметры-отклики зависят от ряда внутренних или первичных параметров устройства и различных внешних воздействий: напряжение питания, температуры окружающей среды, внешних электромагнитных полей.

На рис.7.1 показана схема объекта многофакторного эксперимента. Выходные переменные, определяющие состояние объекта обозначены буквами y_1, y_2, \dots, y_m . Отклики y_1, y_2, \dots, y_m зависят от трех типов воздействий, обозначенных векторами X, U, V .

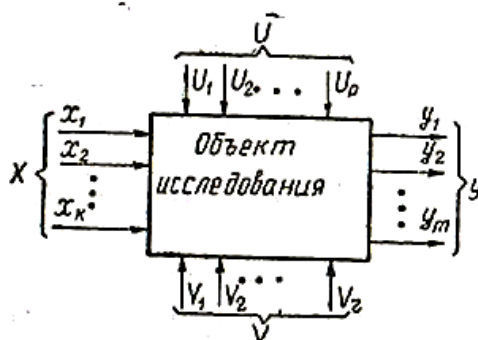


Рис. 7.1. Объект исследования многофакторного эксперимента

Первая группа воздействий X_1, X_2, \dots, X_n – это наблюдаемые и управляемые в процессе эксперимента, независимые между собой переменные, которые принято называть факторами. Вторая группа воздействий U_1, U_2, \dots, U_n – это наблюдаемые, но неуправляемые в процессе эксперимента переменные.

Третья группа воздействий V_1, V_2, \dots, V_n – это ненаблюдаемые и неуправляемые переменные.

В общем случае вектор отклика Y зависит от всех групп переменных. Задача эксперимента состоит в том, чтобы раскрыть зависимость вектора отклика Y от воздействия факторов $X_i, i = 1, 2, \dots, k$:

$$Y = f(X_1, X_2, \dots, X_k). \quad (7.1)$$

Воздействия U, V являются шумом или возмущениями, которые могут исказить искомую зависимость (7.1). Чтобы получить приемлемое описание объекта, необходимо устранить или ослабить действие возмущений на вектор отклика Y . С этой целью используются обычные методы стабилизации условий эксперимента и защиты объекта от воздействия помех.

Рассмотрим сущность и основные понятия многофакторного эксперимента. Положим, что мы имеем однооткликовую модель и требуется найти зависимость:

$$y = f(X_1, X_2, \dots, X_k) \quad (7.2)$$

где y – единственная выходная величина-отклик; $X_i, i = 1, 2, \dots, k$ – факторы. Зависимость (7.2) заранее не известна, но предполагается, что в окрестности некоторой точки $X_1^0, X_2^0, \dots, X_k^0$, она может быть разложена в ряд Тейлора, т.е. поверхность отклика, описываемая этой зависимостью, является достаточно гладкой. В этом случае в окрестности точки разложения зависимость (7.2) можно представить в виде полинома первой, второй и, реже, более высокой степени. Пространство, образованное координатами X_1, X_2, \dots, X_k называется факторным. Каждому набору значений факторов в факторном пространстве соответствует вектор или точка X , а также некоторое значение отклика y .

На рис.7.2 изображено двухфакторное пространство X_1, X_2 , точками 1-4 отмечены четыре набора факторов, эти точки называются опытными. В каждой опытной точке производится одно или несколько независимых измерений откликов y . Измеренные значения отклика отложены по оси OY и отмечены незачерченными точками y_1, y_2, y_3, y_4 . Полученные значения отклика используются для построения поверхности $y(X_1, X_2)$, которую называют поверхностью отклика.

Наборы значений факторов (точки 1 – 4) образуют область эксперимента. Поверхность отклика $y(X_1, X_2)$ строится только в прямоугольной области эксперимента ω (рис. 7.2)

Многофакторный эксперимент состоит из ряда опытов. В каждом из них устанавливается заданный набор факторов и измеряется отклик. Один опыт дает одно значение отклика, соответствующее конкретной точке факторного пространства.

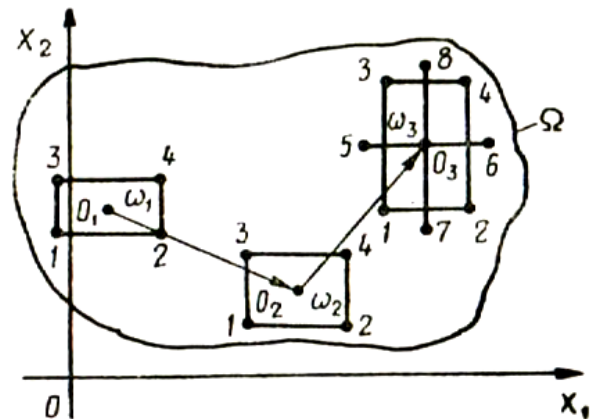
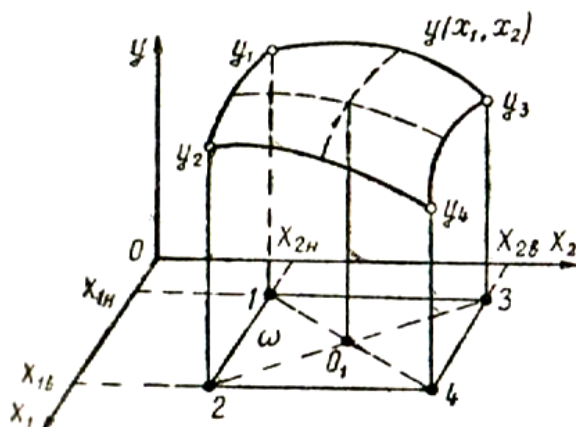


Рис. 7.2. Двухфакторное пространство и результаты эксперимента, состоящего из четырех опытов.

Рис. 7.3. Дискретный принцип «обзора» факторного пространства

Иногда, для повышения точности проводят несколько независимых опытов. Такие повторные опыты называются **параллельными**.

Точность аппроксимации экспериментальных точек y_1, y_2, y_3, y_4 поверхностью отклика $y(X_1, X_2)$ зависит от ряда условий, в том числе от размеров области эксперимента ω . При большой кривизне изучаемой поверхности с увеличением области ω степень полинома надо увеличивать, это усложняет эксперимент и обработку его результатов. Область не может быть и слишком малой. Во многих практических случаях она оказывается во много раз меньше той области, в которой могут измениться факторы и которая интересует исследователя. Такая область в дальнейшем обозначается буквой Ω и называется **областью исследований**. Если область исследований Ω больше области эксперимента ω , применяется принцип дискретного обзора факторного пространства (рис.7.3).

Сначала эксперимент ставится в некоторой области ω_1 с центром O_1 . Опыты проводятся в вершинах этой области. Затем, если цель эксперимента не достигнута, переходят в

область ω_2 и т.д. области каждого эксперимента должны находиться в области исследования Ω . В областях ω_1, ω_2 имеются четыре опытные точки, расположенные в их вершинах. В области ω_3 отклик измеряется в девяти опытных точках.

8 Формулирование цели эксперимента и выбор откликов

Экспериментальные исследования могут проводиться на различных стадиях разработки, производства, наладки и эксплуатации систем. В зависимости от условий эксперимент может ставиться для получения модели объекта в интересах определения количественного влияния факторов на выходные величины для набора оптимальных параметров и для решения других задач. Как правило, на практике встречаются многооткликовые объекты и целью эксперимента может быть оптимизация объекта или получение модели для нескольких откликов, то есть в общем случае задача является многокритериальной, в которой надо искать компромиссные решения. Принятие таких решений не может быть строго формализовано – последнее слово остается за человеком. Здесь широко применяется метод проб и ошибок, итеративные процедуры и др. В некоторых случаях несколько откликов (критериев) можно свести в один общий. [2]. Поэтому в дальнейшем будем рассматривать объект с одним откликом.

Отклик определяется объектом исследования и целью эксперимента. Его выбору предшествует изучение объекта и литературных источников по предмету исследования. Отклик должен удовлетворять следующим основным требованиям [2].

1. Быть количественной величиной, доступной непосредственному или косвенному измерению с необходимой точностью. Если его нельзя измерить, могут применяться ранговые подходы.
2. Иметь простой физический смысл.
3. Обладать однозначностью, т.е. данному набору факторов должно соответствовать одно значение отклика. Обратное вообще не верно – одному значению отклика могут соответствовать несколько различных наборов факторов.
4. Быть достаточно универсальным, т.е. наиболее полно характеризовать объект, его функциональное назначение, тактико-технические требования.

9 Выбор и кодирование факторов

Факторы – это независимые переменные, которые в процессе эксперимента могут измениться по воле экспериментатора. Факторы делятся на: количественные и качественные.

Количественные – факторы, которые являются физическими величинами и могут быть измерены.

Качественные – факторы, которые не могут быть выражены количественно (сорт или класс некоторого продукта, квалификация оператора, радиоэлементы различных партий заводов-изготовителей).

При постановке эксперимента учитываются все факторы, существенно влияющие на отклик. Одной из основных задач эксперимента является раскрытие или аппроксимация неизвестной, но реально существующей зависимости (7.2). Если не будет учтен какой-либо существенный фактор X_i , изменение этого фактора в процессе производства или эксплуатации может сильно исказить зависимость (7.2). Полученная модель не будет соответствовать объекту.

Включение в эксперимент факторов, слабо влияющих на отклик, ведет к излишним затратам, усложняет обработку и затрудняет интерпретацию результатов эксперимента. Таким образом, в эксперименте надо учитывать все существенные факторы и желательно исключить те из них, от которых отклик зависит слабо.

В сложных объектах, может быть, несколько десятков или даже сотен различных факторов, по-разному действующих на отклик. В теории эксперимента разработаны различные методы выделения различных факторов. При небольшом числе факторов (10 – 15) выделение существенных переменных обычно производится методами однофакторного эксперимента. В этом случае все переменные, влияющие на отклик, изменяются по одной на 10 – 20% от своего среднего или номинального значения и регистрируются соответствующие изменения отклика. К числу факторов относят те переменные, которые примерно одинаково существенно влияют на отклик.

Если один-два фактора влияют сильно на отклик (изменяют его на 50 – 100%), а подавляющее большинство факторов – слабо (изменяют отклик на 10-20%), необходимо уменьшить диапазон изменения этих одного или двух факторов настолько, чтобы отклик изменялся в том же диапазоне, т.е. на 10 – 20%.

Таким образом, предварительный однофакторный эксперимент позволяет исключить из рассмотрения несущественные факторы.

При проведении эксперимента факторы должны отвечать следующим требованиям.

5. При изменении любого фактора остальные не изменяют своего значения, т.е. являются функционально и статистически независимыми.

6. В процессе эксперимента каждый фактор принимает два или более дискретных значений, устанавливаемых оператором. Поэтому выбирают такие переменные, которые могут изменяться по воле оператора.

7. Количественные факторы при обработке результатов эксперимента принимаются неслучайными, точно известными величинами. Для выполнения этого допущения факторы должны быть доступны измерению с точностью, примерно на порядок большей точности измерения отклика.

8. В исследованиях устройств могут возникать наборы значений факторов, которые приводят к аварийным ситуациям. Поэтому факторы должны обладать свойством совместимости во всей области эксперимента.

Иногда параметры могут быть связаны функционально. Так сила тока, сопротивление, напряжение связаны законом Ома. Следовательно, можно независимо менять только две величины.

После выбора факторов можно приступить к разработке плана эксперимента.

Планирование и обработка данных эксперимента осуществляются не в физических, а в кодированных переменных. Кодированные переменные обозначаются малой буквой x с соответствующим индексом. Формула кодирования для i -ой переменной имеет вид:

$$x_i = \frac{x_i - X_i^0}{h_i}, i = 1, 2, \dots, k, \quad (9.1)$$

где X_i^0 - основной уровень i -ого фактора; h_i - интервал варьирования того же фактора.

Кодирование фактора означает переход от некоторой физической величины к ее изображению в относительных величинах.

На рис 9.1 показана интерпретация кодирования фактора X_i . Основным, или нулевым фактором называется то его значение, относительно которого фактор изменяется в процессе эксперимента.

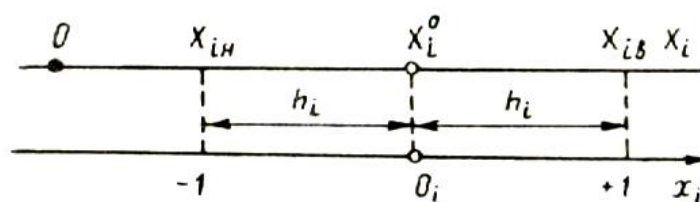


Рис. 9.1. Кодирование i -ого фактора

Интервалом варьирования называется половина диапазона, в котором изменяется фактор:

$$h_i = \frac{1}{2}(X_{is} - X_{in}), \quad (9.2)$$

где индексами «в» и «н» обозначены верхнее и нижнее значения факторов соответственно. Основной уровень лежит в середине диапазона

$$X_i^0 = \frac{1}{2}(X_{is} + X_{in}). \quad (9.3)$$

Смысл соотношений (9.1) – (9.3) ясен из рис. 9.1. В многофакторном эксперименте наиболее часто применяются двухуровневые полные и дробные факторные эксперименты. В таких экспериментах каждый фактор варьируется на двух уровнях, т.е. принимает только два (нижнее X_{in} и верхнее X_{is}) значения. В этом случае кодированные значения x_i будут иметь два значения: -1; +1. Это значит, что интервал варьирования всех кодированных факторов будет один и тот же и равен единице.

Для кодирования факторов и проведения эксперимента необходимо выбрать две величины – основной уровень X_i^0 и интервал варьирования h_i . Рассмотрим, как выбираются эти величины.

1. Основной уровень X_i^0 определяет центр или положение области эксперимента ω в факторном пространстве. Изменяя X_i^0 , $i = 1, 2, \dots, k$, можно исследовать интересующую часть факторного пространства. Обычно такой частью является область номинальных значений параметров электрорадиоэлементов, нагрузок, источников питания. В этом случае в качестве основных уровней выбираются номинальные или расчетные значения указанных величин.
2. Интервалы варьирования h_i определяют размер области эксперимента ω и влияют на достоверность или информативность экспериментальных данных, на адекватность модели.

С точки зрения информативности эксперимента интервал варьирования надо брать достаточно большим, т.е. примерно на порядок больше СКО измерения фактора. Если интервал варьирования соизмерим с СКО, нарушаются предпосылки регрессивного анализа. [2]

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Екатеринбург 2019


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Методические указания составлены в соответствии с требованиями ФГОС ВО магистров по направлению 20.04.01 «Техносферная безопасность», 20.04.02 «Природообустройство и водопользование» Екатеринбург. 2019. – 38 с.

В методических указаниях изложены цели и задачи, тематика содержание, объем и методические указания по выполнению выпускных квалификационных работ магистров – магистерских диссертаций. Рассмотрены вопросы, касающиеся руководства написания магистерских диссертаций, организации работы над диссертацией, рецензирования и ее защиты. Приведен график работы над магистерской диссертацией.

Методические указания предназначены для магистров и могут быть полезными для научных руководителей, студентов при оформлении выпускных квалификационных работ бакалавров и специалистов.

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Цейтлин Е.М.

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1. Общие положения

Методические указания разработаны в соответствии с Федеральным законом "Об образовании в Российской Федерации" от 29.12.2012 N 273-ФЗ, требованиями ФГОС ВО по направлению магистратуры 20.04.01 «Техносферная безопасность» и 20.04.02 «Природообустройство и водопользование»

Итоговая государственная аттестация направлена на установление соответствия уровня профессиональной подготовки выпускников требованиям ФГОС ВО.

Итоговая государственная аттестация включает защиту выпускной квалификационной работы, которая выполняется в виде магистерской диссертации в период прохождения практики и выполнения научно-исследовательской работы и представляет собой самостоятельную и логически завершенную выпускную квалификационную работу, связанную с решением задач того вида деятельности, к которым готовится магистр: *организационно-управленческой, научно-исследовательской или проектно-исследовательской*

Тематика выпускных квалификационных работ должна быть направлена на решение профессиональных задач:

анализ получаемой полевой и лабораторной информации с использованием современных компьютерных технологий;

проектирование и проведение специализированных производственных или научно-исследовательских работ;

обработка и анализ получаемой информации, обобщение и систематизация результатов работ с использованием современной техники и технологии;

разработка нормативных методических и производственных документов.

При выполнении выпускной квалификационной работы обучающиеся должны показать свою способность, опираясь на полученные углубленные знания, умения и сформированные общекультурные и профессиональные компетенции, самостоятельно решать на современном уровне задачи своей профессиональной деятельности, профессионально излагать специальную информацию, научно аргументировать и защищать свою точку зрения. Выпускник должен обладать сле-

дующими компетенциями в случае обучения по направлению 20.04.01 «Техносферная безопасность»:

Общекультурные компетенции (ОК):

способностью организовывать и возглавлять работу небольшого коллектива инженерно-технических работников, работу небольшого научного коллектива, готовность к лидерству (ОК-1);

способностью и готовностью к творческой адаптации к конкретным условиям выполняемых задач и их инновационным решениям (ОК-2);

способностью к профессиональному росту (ОК-3);

способностью самостоятельно получать знания, используя различные источники информации (ОК-4);

способностью к анализу и синтезу, критическому мышлению, обобщению, принятию и аргументированному отстаиванию решений (ОК-5);

способностью обобщать практические результаты работы и предлагать новые решения, к резюмированию и аргументированному отстаиванию своих решений (ОК-6);

способностью и готовностью использовать знание методов и теорий экономических наук при осуществлении экспертных и аналитических работ (ОК-7);

способностью принимать управленческие и технические решения (ОК-8);

способностью самостоятельно планировать, проводить, обрабатывать и оценивать эксперимент (ОК-9);

способностью к творческому осмыслению результатов эксперимента, разработке рекомендаций по их практическому применению, выдвижению научных идей (ОК-10);

способностью представлять итоги профессиональной деятельности в виде отчетов, рефератов, статей, оформленных в соответствии с предъявляемыми требованиями (ОК-11);

владением навыками публичных выступлений, дискуссий, проведения занятий (ОК-12).

Общепрофессиональные компетенции (ОПК):

способностью структурировать знания, готовностью к решению сложных и проблемных вопросов (ОПК-1);

способностью генерировать новые идеи, их отстаивать и целенаправленно реализовывать (ОПК-2);

способностью акцентированно формулировать мысль в устной и письменной форме на государственном языке Российской Федерации и иностранном языке (ОПК-3);

способностью организовывать работу творческого коллектива в обстановке коллективизма и взаимопомощи (ОПК-4);

способностью моделировать, упрощать, адекватно представлять, сравнивать, использовать известные решения в новом приложении, качественно оценивать количественные результаты, их математически формулировать (ОПК-5).

Профессиональные компетенции (ПК):

научно-исследовательская деятельность:

способностью ориентироваться в полном спектре научных проблем профессиональной области (ПК-8);

способностью создавать модели новых систем защиты человека и среды обитания (ПК-9);

способностью анализировать, оптимизировать и применять современные информационные технологии при решении научных задач (ПК-10);

способностью идентифицировать процессы и разрабатывать их рабочие модели, интерпретировать математические модели в нематематическое содержание, определять допущения и границы применимости модели, математически описывать экспериментальные данные и определять их физическую сущность, делать качественные выводы из количественных данных, осуществлять машинное моделирование изучаемых процессов (ПК-11);

способностью использовать современную измерительную технику, современные методы измерения (ПК-12);

способностью применять методы анализа и оценки надежности и техногенного риска (ПК-13);

организационно-управленческая деятельность:

способностью организовывать и руководить деятельностью подразделений по защите среды обитания на уровне предприятия, территориально-производственных комплексов и регионов, а также деятельность предприятия в режиме чрезвычайной ситуации (ПК-14);

способностью осуществлять взаимодействие с государственными службами в области экологической, производственной, пожарной безопасности, защиты в чрезвычайных ситуациях (ПК-15);

способностью участвовать в разработке нормативно-правовых актов по вопросам техносферной безопасности (ПК-16);

способностью к рациональному решению вопросов безопасного размещения и применения технических средств в регионах (ПК-17);

способностью применять на практике теории принятия управленческих решений и методы экспертных оценок (ПК-18);

В случае обучения по направлению 20.04.02 «Природообустройство и водопользование выпускник должен обладать следующими компетенциями:

Общекультурные компетенции (ОК):

способностью к абстрактному мышлению, анализу, синтезу (ОК-1);

готовностью действовать в нестандартных ситуациях, проявлять инициативу, нести социальную и этическую ответственность за принятые решения, в том числе в ситуациях риска (ОК-2);

готовностью к саморазвитию, самореализации, использованию творческого потенциала, способность совершенствовать и развивать свой интеллектуальный и общекультурный уровень (ОК-3);

способностью самостоятельно приобретать с помощью информационных технологий новые знания и умения, обучаться новым методам исследования и использовать их в практической деятельности, в том числе в новых областях знаний, непосредственно не связанных со сферой деятельности (ОК-4);

способностью оформлять, представлять, докладывать, обсуждать и распространять результаты профессиональной деятельности (ОК-5);

способностью к поддержанию конструктивного взаимодействия в процессе межличностного и делового общения, свободно пользоваться русским и иностранным языками как средством делового общения (ОК-6);

способностью анализировать и адекватно оценивать собственную и чужую деятельность, разбираться в социальных проблемах, связанных с профессией (ОК-7).

Общепрофессиональные компетенции (ОПК):

способностью и готовностью руководить коллективом в сфере своей профессиональной деятельности, толерантно воспринимая социальные, этнические, конфессиональные и культурные различия (ОПК-1);

способностью использовать на практике умения и навыки в организации исследовательских и проектных работ, находить и принимать управленческие решения, формировать цели команды, воздействовать на ее социально-психологический климат в нужном для достижения целей направлении, оценивать качество результатов деятельности (ОПК-2);

готовностью к изучению, анализу и сопоставлению отечественного и зарубежного опыта по разработке и реализации проектов природообустройства и водопользования (ОПК-3);

способностью использовать знания методов принятия решений при формировании структуры природно-техногенных комплексов, методов анализа эколого-экономической и технологической эффективности при проектировании и реализации проектов природообустройства и водопользования, проектов восстановления природного состояния водных и других природных объектов (ОПК-4);

способностью профессионально использовать современное научное и техническое оборудование и приборы, а также профессиональные компьютерные программные средства (ОПК-5);

способностью собирать, обобщать и анализировать экспериментальную и техническую информацию (ОПК-6);

способностью обеспечивать высокое качество работы при проектировании, строительстве и эксплуатации объектов природообустройства и водопользования, при проведении научно-исследовательских работ (ОПК-7).

Профессиональные компетенции (ПК):

проектно-изыскательская деятельность:

способностью определять исходные данные для проектирования объектов природообустройства и водопользования, руководить изысканиями по оценке состояния природных и природно-техногенных объектов (ПК-1);

способностью использовать знания методики проектирования инженерных сооружений, их конструктивных элементов, методики инженерных расчетов, необходимых для проектирования систем, объектов и сооружений для природообустройства и водопользования (ПК-2);

способностью обеспечивать соответствие качества проектов природообустройства и водопользования международным и государственным нормам и стандартам (ПК-3);

научно-исследовательская деятельность:

способностью формулировать цели и задачи исследований, применять знания о методах исследования при изучении природных процессов, при обследовании, экспертизе и мониторинге состояния природных объектов, объектов природообустройства и водопользования и влияния на окружающую среду антропогенной деятельности (ПК-6);

способностью разрабатывать и вести базы экспериментальных данных, производить поиск и выбор методов и моделей для решения научно-исследовательских задач, проводить сравнение и анализ полученных результатов исследований, выполнять математическое моделирование природных процессов (ПК-7);

способностью делать выводы, формулировать заключения и рекомендации, внедрять результаты исследований и разработок и организовывать защиту прав на объекты интеллектуальной собственности (ПК-8);

способностью проводить поиск, получение, обработку и анализ данных полевых и лабораторных исследований, обследований, экспертизы и мониторинга объектов природообустройства, водопользования (ПК-9).

Объем часов на подготовку магистерской диссертации устанавливается рабочим учебным планом. К итоговой аттестации допускаются студенты, успешно завершившие в полном объеме освоение основной образовательной программы подготовки магистра и выполнившие условия договора.

2. Цели и задачи магистерской диссертации

Магистерская диссертация является выпускной аттестационной работой, выполненной магистрантом на основе научных исследований, проектно-конструкторских, проектно-технологических работ, проведенных под руководством научного руководителя.

Целью написания магистерской работы является показать способность и профессиональную подготовленность магистранта к проведению научных исследований в соответствии с выбранной специальностью, что служит основанием для присвоения ему академической степени «магистр техники и технологии (по направлению)».

Для достижения цели написания магистерской диссертации магистрант должен:

- провести теоретическое исследование по обоснованию научной идеи и сущности изучаемого явления или процесса;
- обосновать методику, проанализировать изучаемое явление или процесс, выявить тенденции и закономерности его развития на основе конкретных данных;
- разработать конкретные предложения по совершенствованию и развитию исследуемого явления или процесса.

Тема магистерской диссертации должна быть актуальной, представлять научный и практический интерес и соответствовать выбранной магистрантом специальности.

Требования к новизне материала, методологии, выводов диссертации определяется степенью разработанности конкретной исследуемой области и специфи-

кой решаемых в ней задач. В отдельных случаях новизна может состоять в первичном описании мало изученных проблем, однако большей частью должна касаться практически значимых выводов, рекомендаций для отрасли или организации и т.д., сделанных на основе проведенного анализа.

Таким образом, магистерская диссертация имеет две основных взаимосвязанных цели:

- она должна обобщить и систематизировать знания, навыки и умения студента, полученные за время обучения в магистратуре, показать знание выбранной проблемной области, как в части направления подготовки, так и в части специализации, умение грамотно анализировать проблему, исследовательские и методологические навыки студента;
- на основе результатов проведенного исследования анализа, диссертация должна внести элементы практической, научной и методологической новизны и разработанность выбранной проблемной области.

Согласно федеральному государственному образовательному стандарту, магистерские программы вуза, являются авторскими: магистерские диссертации, выполненные под руководством профессорско-преподавательского состава выпускающих кафедр университета, должны представлять перспективные направления исследования кафедры.

3. Выбор темы магистерской диссертации

Выбор и разработка тем диссертаций, порядок и последовательность подготовки диссертаций, качество и компетентность научного руководства обеспечиваются организационной структурой университета. За целостность направления исследований, содержание и качество диссертаций несут ответственность заведующий выпускающей кафедрой, руководители магистерских программ и научные руководители магистрантов.

В течение последнего года обучения студента в магистратуре работа над диссертацией ведется согласно утвержденному деканом факультета индивидуаль-

ному плану, разработанному на основании графика учебного процесса, рабочего учебного плана и программы исследовательской работы в магистратуре с учетом пожелания студента и рекомендаций его научного руководителя и руководителя программы.

Не менее чем за 6 месяцев до защиты студенту назначается научный руководитель (утверждается руководитель первого года обучения или назначается новый) и утверждается тема магистерской диссертации.

Выбор темы для магистерской диссертации (МД) имеет исключительно большое значение. Практика показывает, что правильно выбрать тему - значит наполовину обеспечить успешное ее выполнение. Под темой магистерской диссертации принято понимать то главное, чему она посвящена.

При выборе темы магистрант с помощью научного руководителя должен уяснить, в чем заключаются содержание МД, сущность положенных в ее основу идей, их новизну, актуальность и практическую ценность, входящие в тему задачи и предполагаемые пути их решения, предполагаемые результаты и объем работы, оценить значимость темы для формирования магистранта как специалиста высокой квалификации. Магистерская диссертация может стать продолжением и развитием темы квалификационной работы бакалавра (специалиста). Именно развитием. В этом случае МД не должна повторять тему выпускной квалификационной работы бакалавра или специалиста.

Выбор темы магистрантом совместно с научным руководителем исходит из накопленных магистрантом знаний, опыта, практики прошлой работы, близких ему проблем, актуальных в избранной области исследования.

Тема магистерской диссертации должна быть актуальной, соответствовать современному состоянию и перспективам науки и техники, а также и вопросам производства и иметь реальную основу.

В магистерских диссертациях по направлению 20.04.01 «Техносферная безопасность» и 20.04.02 «Природообустройство и водопользование», как правило, обосновываются технологические или природоохранные разработки для предприятия с новыми или усовершенствованными технологиями производства мелиоративных работ, рекультивации нарушенных земель, переработки отходов, защиты территории от антропогенного шума, защиты территории от подтопления и затопления, утилизации отходов сточных вод, строительства полигонов ТБО, создания рекреационных зон и др.

При выборе тематики магистерских диссертаций рекомендуется учитывать реальные задачи народного хозяйства и науки.

Темы магистерских диссертаций определяются выпускающими кафедрами. Общий перечень тем ежегодно обновляется. В качестве самостоятельных тем магистерских диссертаций могут быть темы по осушению, орошению отдельных участков с сооружением гидромелиоративных систем, а также темы по рациональному использованию природных ресурсов, очистке сточных вод, использованию выработанных площадей, рекультивации выработанных торфяных залежей гидравлическим или экскаваторным способами. Особенно поощряется выдвижение тем самими студентами, разработка ими в магистерских диссертациях собственных предложений с необходимым обоснованием целесообразности их разработки. Магистерская диссертация может быть продолжением выполненных студентом курсовых проектов и работ. Возможны комплексные темы, разрабатываемые несколькими студентами, работающими на одной или разных кафедрах, на одном или разных факультетах. Часть тем обычно предлагается мелиоративными организациями, торфяными предприятиями, научно-исследовательскими и проектными институтами. Магистранты-заочники, как правило, представляют свои темы, согласованные с руководителями предприятий и организаций, на которых заочники работают. В этом случае кафедрой вносятся коррективы, обусловленные тем, чтобы содержание и объем проекта удовлетворяли требованиям учебного процесса.

Магистрантам предоставляется право выбора темы магистерской диссертации. Закрепление за магистрантом темы магистерской диссертации проводится по его личному письменному заявлению, по представлению кафедры, оформляется приказом ректора.

Научный руководитель направляет работу магистранта, помогая ему оценить возможные варианты решений. Но выбор решения - задача самого магистранта. Он как автор выполняемой работы отвечает за верный ее выбор, за правильность полученных результатов и их фактическую точность.

Научный руководитель студента назначается из числа профессорско-преподавательского состава кафедры, как правило, специалист в области исследований, наиболее близкой к выбранной магистрантом. Научный руководитель студента должен иметь ученую степень или ученое звание. В отдельных случаях допускается привлечение сторонних научных руководителей, в том числе имеющих опыт практической деятельности и не имеющих ученой степени, если этого требует тема диссертации, выбранная студентом. Если научный руководитель не имеет ученой степени или ученого звания, то студенту может быть назначен также консультант. Один научный руководитель может руководить выпускными работами не более чем 5 студентов с каждого курса магистратуры. Руководитель программы также может лично осуществлять руководство студентами своей программы и других программ.

4. Разработка плана и концепции исследования

Магистерская диссертация, выполняя квалификационные функции, является самостоятельной научно-исследовательской работой, а любая научная работа предполагает наличие плана ее осуществления. Планирование работы начинается с составления рабочего плана, представляющего собой своеобразную наглядную схему предпринимаемого исследования.

Не менее чем за полгода до защиты научный руководитель студента утверждает план и концепцию магистерской диссертации. Концепция и план диссертации

ции согласовываются с руководителем данной магистерской программы. В случае изменения темы работы или ее плана, студент повторно представляет научному руководителю программы и своему руководителю план и концепцию диссертации. В случае значительного изменения темы решение об изменении принимается деканом факультета и научным руководителем магистратуры.

Правильно составленный план позволяет продуктивно организовать исследовательскую работу по избранной теме и представить ее в установленные сроки. Рабочий план подготовки магистерской диссертации составляется параллельно с предварительным изучением и отбором литературы, согласовывается с научным руководителем. Рабочий план имеет произвольную форму и подвижный характер, позволяющий включать в него новые аспекты, появляющиеся в процессе разработки темы.

Примерный график работы над магистерской диссертацией строится следующим образом (таблица 1)

Таблица 1. График работы над магистерской диссертацией

СРОК	ЭТАП	ДОКУМЕНТЫ
6 месяцев до защиты	Выбор направления исследования, назначение научного руководителя, формулировка темы	Заявление о теме диссертации и научном руководителе
5 месяцев до защиты	Утверждение темы диссертации и руководителя Ученым советом	Протокол заседания Ученого совета, план и концепция диссертации
4 месяца до защиты	Защита предложения по исследованию (Research Proposal), анализ источников, подготовка к исследованию	Research Proposal, Анализ источников
3-2 месяца до защиты	Работа с текстом диссертации	Первая глава текста, отчет о проведении исследования (исследовательская практика)
1 месяц до	Подготовка к предзащите. Предзащита	Вторая и третья глава, полный

защиты		текст диссертации, решение о допуске к защите
1 месяц до защиты	Работа по высказанным на предзащите замечаниям к диссертации. Повторная предзащита (если необходимо). Подготовка рецензии, реферата, отзыва научного руководителя.	Отзыв, рецензия, реферат, презентация, текст диссертации.

В течение второго года обучения студенты магистратуры разрабатывают и представляют Research Proposal – предложение по исследованию, которое заложено в основу будущей диссертации.

При написании Research Proposal студенты в обязательном порядке отражают два блока подготовки диссертации:

- 1) теоретико-методологическая часть диссертации;
- 2) исследовательская часть диссертации.

В теоретико-методологической части описывается актуальность темы магистерского исследования, устанавливаются проблемная область, объект и предмет исследования, а также цель и задачи работы, связанные с гипотезой (гипотезами) исследования. В первую часть также включается анализ основных источников литературы - обзор основополагающих в данной области источников, а также предложение по работе с первоисточниками, в т.ч., периодикой, данными исследования и т.д. На основании плана и концепции диссертации дается краткая характеристика будущей работы, ее структуры.

В исследовательской части на основании выдвинутой гипотезы (гипотез) исследования прописывается методология будущего исследования, замысел, ожидаемые результаты, система применяемых методов, устанавливаются критерии исследования.

Научный руководитель окажет помощь в подборе необходимой литературы,

нормативных, справочных, статистических и архивных материалов и других источников по теме.

Знакомство с опубликованной по теме магистерской диссертации литературой начинается с разработки идеи, т.е. замысла предполагаемого научного исследования, который, как уже указывалось ранее, находит свое выражение в теме и рабочем плане выполняемой работы. Такая постановка дела позволяет более целеустремленно искать литературные источники по выбранной теме, глубже осмысливать тот материал, который содержится в опубликованных в печати работах других ученых, ибо основные вопросы проблемы почти всегда заложены в более ранних исследованиях.

Далее следует продумать порядок поиска и приступить к составлению списка литературных источников по теме. Хорошо составленный список даже при беглом обзоре заглавий источников позволяет охватить тему в целом. На ее основе возможно уже в начале исследования уточнить цели.

Целесообразно просмотреть все виды источников, содержание которых связано с темой исследования. К ним относятся материалы, опубликованные в различных отечественных и зарубежных изданиях, непубликуемые документы, официальные материалы.

Сбор литературы по теме исследования (нормативной, первоисточников, научной и учебной) начинается с подготовки библиографического списка, который должен всесторонне охватывать исследуемую тему.

Источниками для формирования библиографического списка могут быть:

- список обязательной и рекомендованной литературы по теме МД;
- Internet;
- библиографические списки и сноски в учебниках и научных изданиях (монографиях, научных статьях) последних лет или диссертациях по данной тематике;
- рекомендации научного руководителя в том числе через систему IP-хелпинг;

В первую очередь следует подбирать литературу за последние 3-5 лет, по-

сколькx в ней отражены наиболее актуальные научные достижения по данной проблеме, современное законодательство и практическая деятельность. Использование литературных и иных источников 10, 20 или даже 30 летней давности должно быть скорректировано применительно к современным концепциям ученых и специалистов.

Указание на литературные источники по исследуемой теме можно встретить в сносках и списке литературы уже изданных работ. Поиск статей в научных журналах следует начинать с последнего номера соответствующего издания за определенный год, так как в нем, как правило, помещается указатель всех статей, опубликованных за год.

Полезно просматривать профессиональные и специализированные периодические издания (журналы, газеты, сборники научных трудов).

Для подготовки МД каждый магистрант имеет возможность работать с литературой по теме, используя фонд научной библиотеки и различные электронные ресурсы.

Библиотека электронных диссертаций Российской государственной библиотеки (ЭБД РГБ).

- Электронно-библиотечной системы ["Университетская библиотека on-line"](#)
- [Сводный электронный каталог библиотек города и области](#)

В составе сводного электронного каталога объем каталога книг УГГУ в 2010 году составил 21 623 записи.

Каталог, представленный в локальной сети библиотеки УГГУ, пополняется ежемесячно.

- [Сводный каталог подписки на журналы по г. Екатеринбургy](#) В составе сводного каталога газеты и журналы на русском языке, выписанные библиотеками города (Архив с 2002 года, расположены в алфавитном порядке).
- **Электронный каталог статей**

Каталог представлен в локальной сети библиотеки УГГУ. Объем каталога статей из журналов, хранящихся в фонде, на 1 декабря 2010 года составляет

более 200 000 записей. Журналы расписываются с 1998 года.

Каталог пополняется ежемесячно.

- **Электронный каталог журналов УГГУ**

В каталоге отражен весь журнальный фонд библиотеки УГГУ, начиная с XIX века. На 1 декабря 2010 года объем каталога составляет 13 289 записей.

Каталог представлен в локальной сети библиотеки УГГУ и пополняется ежемесячно.

- **Сводный каталог иностранных журналов г. Екатеринбурга**

В составе Сводного каталога объем журналов УГГУ - 75 названий.

- **Электронная коллекция "Урал горный"**

Полнотекстовая база данных редкого фонда библиотеки УГГУ. Объем базы - 32 документа. База размещена в Интернет на сайте УГГУ.

- Автоматизированная картотека книгообеспеченности

В базе данных представлена учебная литература (3 419 записей) в соответствии с учебным планом УГГУ.

- Полнотекстовая база данных "Техэксперт: Нормы, правила, стандарты" - это крупнейшая библиотека нормативно-технических документов. Она содержит все технические регламенты, национальные стандарты (ГОСТы, ГОСТ Р), строительные нормы и правила (СНиПы, СП, СН, ВСН, РСН), территориальные строительные нормы (ТСН), санитарные нормы и правила (СанПиНы, СП), нормы и правила органов надзора (ПБ, РД, НПБ), документы сметной нормативной базы в строительстве (ГЭСН, ФЕР, ГСН, ЕРЕР) и другие документы.

- Научная электронная библиотека eLIBRARY.RU

- - Единое окно доступа к образовательным ресурсам;

- **Информационно-поисковая система** Федерального института промышленной собственности - **ФИПС**. В ИПС возможен поиск по изобретениям,

рефератам патентных документов на русском и английском языках, перспективным изобретениям, полезным моделям, товарным знакам, общеизвестным товарным знакам, наименованиям мест происхождения товаров, международным товарным знакам с указанием России, промышленным образцам, классификаторам и документам из последних бюллетеней. В БД возможен поиск по текстовым полям, по номерам и по датам с использованием масок, подстановок, интервалов, и т.д.

- База электронных диссертаций "Proquest digital dissertations";
- Коллекция электронных журналов «Sage journals online»;

В ходе анализа собранного по теме исследования материала выбирают наиболее обоснованные и аргументированные конспективные записи, выписки, цитаты и систематизируют их по ключевым вопросам исследования. На основе обобщенных данных уточняют структуру магистерского исследования, его содержание и объем.

Хотя структура работы первоначально определяется на стадии планирования, в ходе ее написания могут возникнуть новые идеи и соображения. Поэтому не рекомендуется окончательно структурировать работу сразу же после сбора и анализа материалов

5. Подготовка к защите и предзащита

Учебным планом отводится время для подготовки магистерской диссертации (порядка 10-12 недель). В это время студенты посещают консультации руководителя программы, и в постоянном контакте с научным руководителем работают над текстом диссертации.

Не менее чем за 1 месяц до итоговой (государственной) аттестации (защиты магистерской диссертации) кафедрой может быть установлена предзащита диссертации. Студенты обязаны представить к предзащите полный текст диссертации, при этом допускается иметь в тексте незначительные недоработки, но если

хотя бы один из разделов текста отсутствует – диссертация к предзащите не допускается. Студенты, чьи диссертации, не прошли предзащиту или не рекомендованы по итогам предзащиты к защите, не могут быть допущены к итоговой (государственной) аттестации. По итогу доклада и ознакомления с текстом диссертации комиссия может принять решение о рекомендации работы к защите без замечаний, рекомендации работы с замечаниями или не рекомендовать работу к защите, сформулировав для студента конкретные замечания и недостатки работы.

Если работа рекомендована к защите с замечаниями, то они отрабатываются студентом в рабочем порядке, о чем не менее чем за две недели до защиты должен быть проинформирован научный руководитель студента и руководитель магистерской программы.

После рекомендации работы к защите студент готовит реферат, который представляется на защите вместе с текстом диссертации. Вместе с тем оформляется процедура допуска студента к защите, проводится сверка индивидуального плана работы студента, проверяется наличие у него задолженностей и выполнение условий договора. Студенту назначается рецензент, который готовит официальный отзыв на диссертацию.

6. Защита магистерской диссертации

Защита магистерской диссертации проводится в установленный день согласно учебному плану и графику учебного процесса на официальном заседании ИАК (ГАК), к защите допускаются студенты, полностью выполнившие требования учебного плана и условия договора, успешно прошедшие предзащиту и отчитавшиеся руководителям программ об устранении высказанных на предзащите замечаний.

Студенты, не выполнившие требования учебного плана, не прошедшие предзащиту, не представившие на защиту все необходимые документы согласно

перечню, не допускаются до защиты и получают возможность пройти итоговую аттестацию не ранее чем через 1 год.

На защиту студенты магистратуры представляют:

- Переплетенный текст магистерской диссертации, подписанный научным руководителем.
- Автореферат.
- Подписанную рецензию на диссертацию.
- Подписанный отзыв научного руководителя.

На кафедру также представляются электронные версии всех этих документов.

Указанные документы находятся во время защиты на столе у комиссии. Кроме того, студенты готовят презентацию в Power Point с основным содержанием и выводами диссертации (доклад ~ 7 минут).

По итогам доклада студента, рассмотрения представленных документов, дискуссии по заданным вопросам аттестационная комиссия принимает решение об оценке за защиту диссертации и о возможности присвоении студенту степени магистра.

7. Критерии оценки магистерской диссертации

Таблица 2. Критерии оценки магистерской диссертации

Вопросы (критерии оценки)	Да/ Нет/ Не в полной мере
Тема диссертации одобрена руководителем программы и утверждена приказом ректора	
Тема соответствует выбранному направлению подготовки магистров	
Тема соответствует выбранной магистерской специализации	
Тема является актуальной, предметная область просматривается в теме ясно и однозначно, диссертация по охвату и проблематике соответствует требованиям к магистерскому исследованию	
Структура диссертации отвечает требованиям: содержит введение, две или	

более главы, одна из которых включает исследовательскую часть, заключение и перечень использованной литературы

Тема раскрыта в достаточной степени, главы и параграфы выстроены логически связанно

Работа содержит научную и практическую новизну в части выводов и рекомендаций

Выбранная и разработанная методология исследования является обоснованной и достаточной

Проведенное исследование соответствует заявленной теме

Результаты исследования апробированы

В ходе защиты студент раскрыл основное содержание диссертации, доложил выводы, ответил на замечания рецензента и вопросы аттестационной комиссии

Перечень использованной литературы содержит источники, на которые есть ссылки в тексте диссертации, включает издания на иностранных языках, является полным и достаточным относительно выбранной темы

В наличии реферат, отзыв научного руководителя (положительный), рецензия (положительная)

Диссертация отвечает всем требованиям к оформлению текста

Проанализировав работу по указанным критериям, комиссия после проведения всех защит подводит итоги, выставляет оценку за защиту магистерской диссертации («отлично», «хорошо», «удовлетворительно», «неудовлетворительно»), а также выносит рекомендации магистрантам, указывает на выявленные недостатки.

ГАК оценивает защищаемую магистерскую диссертацию с учетом следующих положений:

- актуальность темы исследований;
- четкость постановки задачи и цели исследований;
- качество и достоверность полученных результатов, их научная новизна и практическая ценность;
- соответствие темы направлению подготовки;
- качество представления материала и оформления диссертации;
- качество доклада и ответов на вопросы при защите;
- заключения и оценки научного руководителя и рецензента.

ГАК может рекомендовать результаты исследований к внедрению или публикации, а автора – к поступлению в аспирантуру.

Студенты, защитившие магистерские диссертации на положительные оценки, считаются успешно прошедшими образовательную программу магистратуры, и им в установленные сроки выдается диплом магистра по направлению установленного образца.

Студенты, получившие на защите неудовлетворительную оценку, считаются не выполнившими образовательную программу магистратуры и могут быть представлены к повторной аттестации не ранее, чем через 1 год.

8. Оформление и структура магистерской диссертации

Магистерская диссертация является документом, который оформляется в строгом соответствии установленным требованиям.

Рекомендуемый объем магистерской диссертации 90-100 страниц, выполненных через полуторный интервал, шрифт №12 Times New Roman (редактор Word). Допускается использование компьютерных программ для оформления таблиц, расчетов и презентации результатов исследования.

Текст диссертации печатается на одной стороне стандартного листа размером 297,5 мм. х 210 мм. (формат А4) и располагается таким образом, чтобы его ограничивали поля: с левой стороны текста шириной 2,5 см., от верхней кромки листа до первой строки текста 2,0 см., с правой не менее 1 см и внизу – 2,5 см. Обязательна единая нумерация всех страниц диссертации, исключая титульный лист. Страницы нумеруются в правом нижнем углу листа.

Диссертационная работа начинается с оформленного титульного листа. На титульном листе указывается название высшего учебного заведения, название (тема) диссертации, год и место защиты. Готовый переплетенный экземпляр работы студент подписывает на титульном листе синими чернилами под своей фами-

лией. После согласования с научным руководителем и утверждения руководителем программы на титульном листе также требуются их подписи синими чернилами. Скрепленный подписанный вариант работы не подлежит исправлениям. Второй страницей диссертации является ее содержание.

Содержание (оглавление) – перечень наименований разделов (глав) с указанием страниц в тексте и с использованием цифровой нумерации рубрик (частей текста). Заголовки подчиненных рубрик смещаются вправо.

Введение содержит общую характеристику работы, включающую в себя следующие элементы:

- актуальность темы – краткое (1-2 стр.) изложение сути проблемной ситуации, границы между знанием и незнанием о предмете исследования, необходимости и своевременности решения задачи в соответствии с требованиями практики;
- цель и задачи исследования – определение цели и конкретных задач, способствующих достижению цели;
- предмет исследования – определяется темой и заглавием диссертации;
- методы исследования – используемый инструмент и математический аппарат;
- научная новизна (2-3 и более пунктов) – те новые результаты теоретического характера, которые получены в процессе исследований (новый подход, способ, модель, методика и т.п.);
- практическая ценность (2-3 и более пунктов) – новые результаты прикладного характера, которые могут быть использованы на практике (методики, информационные технологии, программные средства и т.п.) и что это дает (экономический эффект, снижение затрат времени и материальных затрат, комплексное решение задач и т.п.);
- результаты (положения), выносимые на защиту, т.е. те новые и существенные результаты, обсуждение которых позволяет оценить значимость и качество выполненной научной работы;
- апробация результатов – отражает участие в семинарах и конференциях (перечислить), на которых обсуждались основные положения работы (целесообраз-

но указать также дипломы и грамоты, полученные по результатам участия в конференциях и конкурсах научных грантов);

- публикации – указать количество опубликованных работ;
- объем и структура диссертации – перечислить количество страниц, рисунков и таблиц, указать структуру работы – введение, количество разделов (глав), заключение, список литературы (количество источников) и количество приложений.

Основное содержание работы. В основной части (3-5 разделов) логично и аргументированно раскрывается тема диссертации, с достаточной степенью детализации рассматриваются методика и техника исследований, обсуждаются и обобщаются полученные результаты. В общем случае эта часть должна иметь следующие составляющие.

- Аналитический обзор – определение современного состояния и степени разработанности выбранной для исследования темы, критическая оценка существующих методов и средств решения. Обзор является базой для обоснования и изложения задачи как развития существующих подходов или в оригинальной постановке, а также обоснованием актуальности темы МД и необходимости решения задачи. В соответствии с целью исследования формулируются конкретные задачи.
- Научная (теоретическая) составляющая – включает в себя предлагаемые методы и подходы к решению задачи, выполненную последовательность действий и полученные теоретические результаты.
- Научно-практическая составляющая – включает в себя практическую реализацию результатов, разработку программного продукта, информационной системы (или оригинального фрагмента).
- Прикладная составляющая – должна подтверждать достоверность полученных результатов и эффективность их использования, практическую значимость.

Заключение - предполагает обобщенную итоговую оценку проделанной работы и включает в себя:

- общую характеристику круга решенных задач (кратко);

- основные результаты (выводы) – 3-5 пунктов, представленные в логической последовательности;
- возможные направления и перспективы продолжения работы по исследованной теме.

Литература – список использованной литературы (в том числе собственных публикаций); литературные источники оформляются в соответствии с требованиями ГОСТ [1-3,6,7]; ссылки на них в тексте обязательны!

Приложения – в них выносятся дополнительный или вспомогательный материал с тем, чтобы не перегружать основной текст.

Автореферат представляется отдельно от диссертации как приложение к ней – краткое изложение содержания МД; структурно включает в себя все, что входит во Введение (см. часть «Введение»), дополненное кратким содержанием разделов диссертации (в несколько предложений), выводами по работе, приведенными в Заключение и списком публикаций автора. В конце ставится подпись соискателя. Образец титульного листа автореферата приведен в Приложении.

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Приложение 1. Образец оформления титульного листа магистерской диссертации

Министерства науки и высшего образования Российской Федерации
Федеральное государственное бюджетное учреждение
высшего образования
«Уральский государственный горный университет»
Инженерно-экономический факультет
Кафедра «Инженерной экологии»

Фамилия, имя, отчество

Название магистерской диссертации

Шифр и наименование направления магистратуры

наименование магистерской программы

**Диссертация на соискание академической степени
магистра**

Магистрант

Научный руководитель

_____ (Фамилия, И.О.)

Научный консультант (при
необходимости)

_____ (Фамилия, И.О.)

Руководитель программы

_____ (Фамилия, И.О.)

Екатеринбург- 2019

Приложение 2. Образец оформления титульного лист автореферата
магистерской диссертации

На правах рукописи

Фамилия, имя, отчество

НАЗВАНИЕ МАГИСТЕРСКОЙ ДИССЕРТАЦИИ

Шифр и наименование направления магистратуры

наименование магистерской программы

**Автореферат диссертации
на соискание академической степени
магистра**

Екатеринбург- 2019

Приложение 3. Образец оформления библиографического списка

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Методические указания по выполнению выпускной
квалификационной работы магистров

Николай Васильевич Гревцев
Цейтлин Евгений Михайлович

Методические указания по выполнению выпускной
квалификационной работы магистров
по направлению 20.04.01 «Техносферная безопасность»,
20.04.02 «Природообустройство и водопользование»

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Н. В. Гревцев, Б. М., Александров, Е.М. Цейтлин

**МЕТОДИЧЕСКИЕ УКАЗАНИЯ ПО ВЫПОЛНЕНИЮ И ПРОВЕДЕНИЮ
НАУЧНО-ИССЛЕДОВАТЕЛЬСКОЙ РАБОТЫ МАГИСТРАНТОВ
ПО НАПРАВЛЕНИЮ
20.04.01 «ТЕХНОСФЕРНАЯ БЕЗОПАСНОСТЬ»
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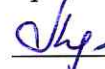
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МЕТОДИЧЕСКИЕ УКАЗАНИЯ ПО ВЫПОЛНЕНИЮ И ПРОВЕДЕНИЮ НАУЧНО-
ИССЛЕДОВАТЕЛЬСКОЙ РАБОТЫ МАГИСТРОВ ПО НАПРАВЛЕНИЮ

20.04.01 «ТЕХНОСФЕРНАЯ БЕЗОПАСНОСТЬ»

20.04.02 «ПРИРОДООБУСТРОЙСТВО И ВОДОПОЛЬЗОВАНИЕ»

Н. В. Гревцев, Б. М. Александров, Е.М. Цейтлин

Методические указания составлены в соответствии с требованиями ФГОС ВО магистров по направлению 20.04.01 «Техносферная безопасность», 20.04.02 «Природообустройство и водопользование» Н. В. Гревцев, Б. М. Александров, Е.М. Цейтлин. – Екатеринбург.2019. – 19 с.

Методические указания содержат общие требования к уровню подготовки и компетенции магистров, требования по организации, выполнения и оформления отчета о НИР, приведены особенности выполнения НИР магистрами, обучающихся по заочной форме.

Методические указания предназначены для магистров и могут быть полезными для руководителей и работников университета, обеспечивающих выполнение НИРМ.

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1 Общие положения

1.1 В соответствии с ФГОС ВО по направлению магистратуры 20.04.01 «Техносферная безопасность» и 20.04.02 «Природообустройство и водопользование» научно-исследовательская работа обучающихся является обязательным разделом основной образовательной программы магистратуры и направлена на формирование общекультурных и профессиональных компетенций с целью подготовки магистрантов к решению основных задач профессиональной деятельности.

Область профессиональной деятельности магистров включает:

- мелиорацию земель различного назначения: сельско-хозяйственных, лесного и водного фонда, поселений, индустриального, рекреационного;
- рекультивацию земель, нарушенных или загрязненных в процессе природопользования;
- охрану земель различного назначения;
- создание водохозяйственных систем комплексного назначения;
- охрану и восстановление водных объектов;
- водоснабжение сельских поселений, отвод и очистку сточных вод, обводнение территорий;
- природоохранное обустройство территорий, создание экологической инфраструктуры на землях различного назначения, борьбу с природными стихиями (наводнение, подтопление земель, размывом берегов, оползнями, селями, водной и ветровой эрозией).

Объектами профессиональной деятельности магистров являются:

- геосистемы различного ранга и их компоненты: почвы, грунты, поверхностные и подземные воды, воздушные массы тропосферы, растительный и животный мир;
- природно-техногенные комплексы: мелиоративные системы, инженерно-экологические системы, системы рекультивации земель, природоохранные комплексы, водохозяйственные системы и другие природно-техногенные комплексы, повышающие полезность компонентов природы.

Магистр по направлению подготовки 20.04.01 «Техносферная безопасность» готовится к следующим видам профессиональной деятельности:

- организационно-управленческое;
- научно-исследовательское.

Магистр по направлению подготовки 20.04.02 «Природообустройство и водопользование» готовится к следующим видам профессиональной деятельности:

- проектно-изыскательская;
- научно-исследовательское.

Конкретные виды профессиональной деятельности, к которым готовится магистр, определяется высшим учебным заведением совместно с обучающимися, научно-педагогическими работниками высшего учебного заведения.

А. Организационно-управленческая деятельность:

самостоятельное выполнение научных исследований в области безопасности, планирование экспериментов, обработка, анализ и обобщение их результатов, математическое и машинное моделирование, построение прогнозов;

формулирование целей и задач научных исследований, направленных на повышение безопасности, создание новых методов и систем защиты человека и окружающей среды, определение плана, основных этапов исследований;

анализ патентной информации, сбор и систематизация научной информации по теме научно-исследовательской работы;

выбор метода исследования, разработка нового метода исследования;

создание математической модели объекта, процесса исследования;

разработка и реализация программы научных исследований в области безопасности

жизнедеятельности;

планирование, реализация эксперимента, обработка полученных данных, формулировка выводов на основании полученных результатов, разработка рекомендаций по практическому применению результатов научного исследования;

составление отчетов, докладов, статей на основании проделанной научной работы в соответствии с принятыми требованиями;

оформление заявок на патенты;

разработка инновационных проектов в области безопасности, их реализация и внедрение;

Б. Научно-исследовательская деятельность:

организация деятельности по охране среды обитания на уровне предприятия, территориально-производственных комплексов и регионов, а также деятельности предприятий и региона в чрезвычайных условиях;

управление небольшими коллективами работников, выполняющих научные исследования;

участие в работе государственных органов исполнительной власти, занимающихся вопросами обеспечения безопасности;

обучение управленческого и руководящего состава предприятий и организаций требованиям безопасности;

участие в решении вопросов рационального размещения новых производств с учетом минимизации неблагоприятного воздействия на среду обитания;

расчет технико-экономической эффективности мероприятий, направленных на повышение безопасности и экологичности производства и затрат на ликвидацию последствий аварий и катастроф для принятия обоснованных экономических решений;

участие в разработке социально-экономических программ развития города, района, региона и их реализация;

Магистр по направлению подготовки 20.04.01 «Техносферная безопасность» и 20.04.02 «Природообустройство и водопользование» должен быть подготовлен к решению профессиональных задач в соответствии с профильной направленностью ООП магистратуры и видам профессиональной деятельности.

В. Проектно-изыскательская деятельность:

руководство проектированием объектов природообустройства и водопользования, разработкой проектов восстановления природных объектов;

контроль выполнения правил разработки проектной и рабочей технической документации, соответствия ее стандартам, техническим условиям и другим нормативным документам;

разработка и руководство осуществлением инновационных проектов реконструкции объектов природообустройства и водопользования;

руководство изысканиями по оценке состояния природных и природно-климатических условий;

Г. Научно-исследовательская деятельность:

планирование и организация исследований антропогенного воздействия на компоненты природной среды;

анализ опыта работ по природообустройству и водопользованию с целью использования результатов для совершенствования деятельности в этой области.

Минобрнауки РФ рассматривает овладение научно-исследовательскими компетенциями как одну из важных задач вузов, решение которой обеспечит подготовку выпускников к различным видам инновационной деятельности (приказ № 62 от 22.03.06).

1.2. Целью настоящих методических рекомендаций является повышение эффективности научно-исследовательской работы магистранта (НИРМ) на основе четкой организации выполнения исследований на всех стадиях – от формирования целей и задач до оформления и сдачи отчета.

1.3. Методические указания предназначены для магистрантов и могут быть полезны для научных руководителей магистрантов и работников университета, в обязанности которых входит организация НИРМ.

1.4. Значимость и актуальность данного нормативного документа определяется тем, что на долю практики НИРМ приходится 47,5% от общей трудоемкости. НИРМ играют существенную роль в формировании у магистранта исследовательских компетенций.

1.5. Выполнение НИРМ предусматривает решение следующих задач:

- выявление и формулирование актуальных научных проблем;
- разработка программ научных исследований и разработок, организация их выполнения;
- разработка методов и инструментов проведения исследований и анализа их результатов;
- разработка организационно-управленческих моделей процессов, явлений и объектов, оценка и интерпретация результатов;
- поиск, сбор, обработка, анализ и систематизация информации по теме исследования;
- подготовка обзоров, отчетов и научных публикаций.

2. Компетенции, формируемые в ходе выполнения НИРМ

2.1. В соответствии с ФГОС ВО научно-исследовательская работа магистрантов, являясь обязательным разделом магистерской программы, должна иметь четкую направленность на формирование у них общекультурных и профессиональных компетенций. Это означает, что:

- цели и задачи каждой НИРМ должны быть согласованы с целями и задачами магистерской диссертации;
- в соответствии с поставленными целями и задачами для каждой НИРМ должны быть сформированы компетенции и структура каждой из них, определяющая, что конкретно должен знать, уметь и чем овладеть студент-магистрант в результате выполнения данной НИРМ;
- содержание НИРМ должно быть построено таким образом, чтобы обеспечить овладение магистрантами компетенциями, формирование которых предусмотрено данной НИРМ;
- результаты овладения знаниями, умениями, навыками и компетенциями по завершении НИРМ должны быть оценены при проведении промежуточной аттестации.

2.2. Приступая к выполнению НИРМ, магистрант должен знать: какими конкретно знаниями, умениями, навыками и компетенциями он должен овладеть по ее завершению; каким образом, на основе каких технологий они будут формироваться и каким образом они будут оцениваться.

2.3. При формировании перечня компетенций, которыми должен овладеть магистрант по завершении НИРМ, за основу должны быть взяты компетенции из проекта ФГОС ВО по направлению подготовки магистров 20.04.01 «Техносферная безопасность».

Выпускник должен обладать следующими общекультурными компетенциями (ОК):

способностью организовывать и возглавлять работу небольшого коллектива инженерно-технических работников, работу небольшого научного коллектива, готовность к лидерству (ОК-1);

способностью и готовностью к творческой адаптации к конкретным условиям выполняемых задач и их инновационным решениям (ОК-2);

способностью к профессиональному росту (ОК-3);

способностью самостоятельно получать знания, используя различные источники информации (ОК-4);

способностью к анализу и синтезу, критическому мышлению, обобщению, принятию и

аргументированному отстаиванию решений (ОК-5);

способностью обобщать практические результаты работы и предлагать новые решения, к резюмированию и аргументированному отстаиванию своих решений (ОК-6);

способностью и готовностью использовать знание методов и теорий экономических наук при осуществлении экспертных и аналитических работ (ОК-7);

способностью принимать управленческие и технические решения (ОК-8);

способностью самостоятельно планировать, проводить, обрабатывать и оценивать эксперимент (ОК-9);

способностью к творческому осмыслению результатов эксперимента, разработке рекомендаций по их практическому применению, выдвижению научных идей (ОК-10);

способностью представлять итоги профессиональной деятельности в виде отчетов, рефератов, статей, оформленных в соответствии с предъявляемыми требованиями (ОК-11);

владением навыками публичных выступлений, дискуссий, проведения занятий (ОК-12).

Выпускник должен обладать следующими общепрофессиональными компетенциями (ОПК):

способностью структурировать знания, готовностью к решению сложных и проблемных вопросов (ОПК-1);

способностью генерировать новые идеи, их отстаивать и целенаправленно реализовывать (ОПК-2);

способностью акцентированно формулировать мысль в устной и письменной форме на государственном языке Российской Федерации и иностранном языке (ОПК-3);

способностью организовывать работу творческого коллектива в обстановке коллективизма и взаимопомощи (ОПК-4);

способностью моделировать, упрощать, адекватно представлять, сравнивать, использовать известные решения в новом приложении, качественно оценивать количественные результаты, их математически формулировать (ОПК-5).

Выпускник должен обладать следующими профессиональными компетенциями (ПК):

научно-исследовательская деятельность:

способностью ориентироваться в полном спектре научных проблем профессиональной области (ПК-8);

способностью создавать модели новых систем защиты человека и среды обитания (ПК-9);

способностью анализировать, оптимизировать и применять современные информационные технологии при решении научных задач (ПК-10);

способностью идентифицировать процессы и разрабатывать их рабочие модели, интерпретировать математические модели в нематематическое содержание, определять допущения и границы применимости модели, математически описывать экспериментальные данные и определять их физическую сущность, делать качественные выводы из количественных данных, осуществлять машинное моделирование изучаемых процессов (ПК-11);

способностью использовать современную измерительную технику, современные методы измерения (ПК-12);

способностью применять методы анализа и оценки надежности и техногенного риска (ПК-13);

организационно-управленческая деятельность:

способностью организовывать и руководить деятельностью подразделений по защите среды обитания на уровне предприятия, территориально-производственных комплексов и регионов, а также деятельность предприятия в режиме чрезвычайной ситуации (ПК-14);

способностью осуществлять взаимодействие с государственными службами в области экологической, производственной, пожарной безопасности, защиты в чрезвычайных ситуациях (ПК-15);

способностью участвовать в разработке нормативно-правовых актов по вопросам техносферной безопасности (ПК-16);

способностью к рациональному решению вопросов безопасного размещения и применения технических средств в регионах (ПК-17);

способностью применять на практике теории принятия управленческих решений и методы экспертных оценок (ПК-18);

При творческом подходе к планированию и организации выполнения НИРМ практически каждая из приведенных компетенций может быть развита у магистранта.

2.4. При формировании перечня компетенций, которыми должен овладеть магистрант по завершении НИРМ, за основу должны быть взяты компетенции из проекта ФГОС ВО по направлению подготовки магистров 20.04.02 «Природообустройство и водопользование».

Выпускник должен обладать следующими общекультурными компетенциями (ОК):

способностью к абстрактному мышлению, анализу, синтезу (ОК-1);

готовностью действовать в нестандартных ситуациях, проявлять инициативу, нести социальную и этическую ответственность за принятые решения, в том числе в ситуациях риска (ОК-2);

готовностью к саморазвитию, самореализации, использованию творческого потенциала, способность совершенствоваться и развивать свой интеллектуальный и общекультурный уровень (ОК-3);

способностью самостоятельно приобретать с помощью информационных технологий новые знания и умения, обучаться новым методам исследования и использовать их в практической деятельности, в том числе в новых областях знаний, непосредственно не связанных со сферой деятельности (ОК-4);

способностью оформлять, представлять, докладывать, обсуждать и распространять результаты профессиональной деятельности (ОК-5);

способностью к поддержанию конструктивного взаимодействия в процессе межличностного и делового общения, свободно пользоваться русским и иностранным языками как средством делового общения (ОК-6);

способностью анализировать и адекватно оценивать собственную и чужую деятельность, разбираться в социальных проблемах, связанных с профессией (ОК-7).

Выпускник должен обладать следующими общепрофессиональными компетенциями (ОПК):

способностью и готовностью руководить коллективом в сфере своей профессиональной деятельности, толерантно воспринимая социальные, этнические, конфессиональные и культурные различия (ОПК-1);

способностью использовать на практике умения и навыки в организации исследовательских и проектных работ, находить и принимать управленческие решения, формировать цели команды, воздействовать на ее социально-психологический климат в нужном для достижения целей направлении, оценивать качество результатов деятельности (ОПК-2);

готовностью к изучению, анализу и сопоставлению отечественного и зарубежного опыта по разработке и реализации проектов природообустройства и водопользования (ОПК-3);

способностью использовать знания методов принятия решений при формировании структуры природно-техногенных комплексов, методов анализа эколого-экономической и технологической эффективности при проектировании и реализации проектов природообустройства и водопользования, проектов восстановления природного состояния водных и других природных объектов (ОПК-4);

способностью профессионально использовать современное научное и техническое оборудование и приборы, а также профессиональные компьютерные программные средства (ОПК-5);

способностью собирать, обобщать и анализировать экспериментальную и техническую информацию (ОПК-6);

способностью обеспечивать высокое качество работы при проектировании, строительстве и

эксплуатации объектов природообустройства и водопользования, при проведении научно-исследовательских работ (ОПК-7).

Выпускник должен обладать следующими профессиональными компетенциями (ПК):

проектно-изыскательская деятельность:

способностью определять исходные данные для проектирования объектов природообустройства и водопользования, руководить изысканиями по оценке состояния природных и природно-техногенных объектов (ПК-1);

способностью использовать знания методики проектирования инженерных сооружений, их конструктивных элементов, методики инженерных расчетов, необходимых для проектирования систем, объектов и сооружений для природообустройства и водопользования (ПК-2);

способностью обеспечивать соответствие качества проектов природообустройства и водопользования международным и государственным нормам и стандартам (ПК-3);

научно-исследовательская деятельность:

способностью формулировать цели и задачи исследований, применять знания о методах исследования при изучении природных процессов, при обследовании, экспертизе и мониторинге состояния природных объектов, объектов природообустройства и водопользования и влияния на окружающую среду антропогенной деятельности (ПК-6);

способностью разрабатывать и вести базы экспериментальных данных, производить поиск и выбор методов и моделей для решения научно-исследовательских задач, проводить сравнение и анализ полученных результатов исследований, выполнять математическое моделирование природных процессов (ПК-7);

способностью делать выводы, формулировать заключения и рекомендации, внедрять результаты исследований и разработок и организовывать защиту прав на объекты интеллектуальной собственности (ПК-8);

способностью проводить поиск, получение, обработку и анализ данных полевых и лабораторных исследований, обследований, экспертизы и мониторинга объектов природообустройства, водопользования (ПК-9).

2.5. Таким образом, выполнение семестровых НИРМ предоставляет научным руководителям магистрантов широкие возможности для формирования у магистров как профессиональных, так и общекультурных компетенций. Эти возможности должны быть использованы руководителями магистрантов при планировании и организации выполнения НИРМ.

3. Организация выполнения НИРМ

3.1. План НИРМ является частью рабочего плана подготовки магистерской диссертации и включает два раздела:

- 1) компетенции, овладение которыми предусмотрено ФГОС ВО;
- 2) план выполнения НИРМ.

В первый раздел плана должны включаться *все* компетенции из ФГОС ВО по данному направлению подготовки, относящиеся к сфере научно-исследовательской деятельности; при включении других компетенций (общекультурных и профессиональных) следует руководствоваться рекомендациями, приведенными в разделе 2).

Второй раздел плана определяет содержание научно-исследовательской работы (виды и этапы работ), трудоемкость работ, сроки выполнения каждого из этапов научно-исследовательской работы.

3.2. План должен разрабатываться на весь период выполнения НИРМ (три первые семестра – при очной форме обучения, 2-й, 3-й и 4-й семестры – при заочной) после утверждения темы магистерской диссертации. Разработку плана НИРМ необходимо осуществить в течение первых двух месяцев первого семестра. В последующих семестрах он при необходимости может быть откорректирован.

3.3. План НИРМ должен разрабатываться магистрантом при консультативной помощи научного руководителя, окончательная редакция плана подлежит согласованию с руководителем магистранта. Самостоятельная работа магистранта по составлению плана НИРМ будет способствовать овладению им навыками планирования исследовательской работы.

3.4. Содержание НИРМ должно быть раскрыто и представлено в плане таким образом, чтобы:

- магистрант четко представлял характер, объем и виды исследовательской работы, которую ему предстоит выполнить в данном семестре (письменный отчет, творческая работа, подготовленная к публикации статья, выступление на семинаре или конференции и т.п.);
- научный руководитель имел возможность эффективно контролировать и направлять работу магистранта в режиме обратной связи.

3.5. Важная задача при планировании НИРМ – увязать (сбалансировать) результаты исследовательской работы магистранта в семестре с трудоемкостью работ, измеряемой кредитами. Общая трудоемкость НИРМ (в часах и кредитах) определяется учебным планом. Задача научного руководителя магистранта - распределить общий объем НИРМ между видами (этапами) таким образом, чтобы трудоемкость каждого из них по возможности отражала реальные способности магистранта по овладению знаниями, умениями, навыками и компетенциями в рамках данного вида (этапа) работ.

3.6. Важным инструментом формирования у магистрантов общекультурных компетенций (способен логически верно, аргументировано и ясно строить устную речь; умеет вести научную дискуссию; умеет научно аргументировать и защищать свою точку зрения и др.) является использование при проведении семестровых НИРМ таких форм научно-исследовательской работы, как публичное обсуждение результатов НИРМ на заседаниях кафедры, конференциях, научно-практических семинарах; участие магистрантов в открытых конкурсах на лучшую научную работу; выполнение творческих работ по теме научного исследования (научная статья, доклад или тезисы доклада, эссе и др.); и т.п. Участие магистранта в подобной работе следует рассматривать как обязательную часть научного исследования и отражать в планах НИРМ.

3.7. Контроль выполнения НИРМ по форме должен быть *формирующим*, т.е. основанным на обратной связи от научного руководителя к магистранту. При такой форме контроля руководитель магистранта, ознакомившись с результатом его работы по определенному виду (этапу), получает возможность в оперативном режиме корректировать работу магистранта. В результате основанная на обратной связи формирующая оценка превращается в эффективный инструмент обучения магистранта.

3.8. Результатом научно-исследовательской работы является отчет, который представляется магистрантом научному руководителю на рецензирование. Рецензии на НИРМ составляются по шаблону, приведенном в приложениях А. (Шаблоны взяты из «Методических рекомендаций по организации учебного процесса с магистрантами, обучающимися по заочной форме. Общие положения. Технология обучения». 2009» (Приложение Б) и дополнены пунктом «Компетенции, которыми овладел магистрант в результате выполнения НИРМ»). При положительном заключении научного руководителя отчет вместе с рецензией остается на кафедре.

4. Содержание НИРМ, требования к выполнению и оформлению отчета

4.1. Содержание НИРМ определяется темой магистерской диссертации, ее целями и задачами, ее научной новизной, а также компетенциями, которыми должен овладеть магистрант по завершении данной научно-исследовательской работы.

Научная новизна и практическая значимость диссертационного исследования формулируются в начале работы над диссертацией и носят предварительный характер. При этом новизна должна быть доказана, т. е. теоретически обоснована, а также подтверждена практически и экспериментально. Важную роль в этом подтверждении играет НИРМ в семестре. В этой связи крайне важно построить содержание НИРМ таким образом, чтобы в ходе ее выполнения были получены необходимые данные, подтверждающие научную новизну магистерской диссертации и ее практическую значимость.

4.2. По результатам выполнения НИРМ составляется заключительный отчет о работе в целом. Отчет по НИРМ должен составляться по единой структуре:

- титульный лист;
- содержание;
- обозначения и сокращения;
- введение;
- основная часть;
- заключение;
- список использованных источников;
- приложения.

Содержание отчета должно соответствовать плану НИРМ (виды и этапы работы). Рекомендуемый объем отчета – от 27 до 35 стр.

4.3. Отчет должен быть оформлен в соответствии с ГОСТ 7.32-2001. *Отчет о научно-исследовательской работе. Структура и правила оформления отчета.*

4.4. При составлении отчета следует придерживаться следующих общих требований:

- четкость и логическая последовательность изложения материала;
- убедительность аргументации;
- краткость и точность формулировок, исключающих возможность неоднозначного толкования;
- конкретность изложения результатов работы;
- обоснованность рекомендаций и предложений.

4.5. Качество содержания и изложения отчета о НИРМ оценивается научным руководителем магистранта по критериям, содержащимся в бланках рецензий (см. приложение 1). Таким образом, оценивание НИРМ основано на методе экспертной оценки. Задача научного руководителя как эксперта – ознакомить магистранта с бланком рецензии (т.е. с критериями) до начала выполнения научно-исследовательской работы и при необходимости дать пояснения по критериям (например, что понимается под актуальностью и новизной исследуемой темы, под адекватностью выбора метода решения и т.п.). В результате у магистранта сложится более четкое понимание качества результата, что позволит ему более эффективно организовать процесс выполнения НИРМ.

5. Порядок защиты результатов НИРМ

5.1. Для защиты результатов НИРМ необходимо предварительно получить рецензию на отчет, которую пишет один из магистрантов этого года обучения с заключением по содержанию отчета, дав ей оценку по позициям, которые отражены в приложении 1.

5.2. Руководитель магистранта дает оценку степени готовности защиты отчета НИРМ с допуском к защите.

5.3. Защита отчета осуществляется публично по утвержденному графику, который предварительно вывешивается на кафедре. На защите в обязательном порядке должен присутствовать магистранты и руководители магистров, а также студенты старших курсов, которые хотят иметь представление по их будущему обучению в магистратуре.

5.4. Для защиты отчета магистранту представляется 7-10 минут, в виде презентации, после чего ему задаются вопросы по сути магистерского отчета.

5.5. после ответов на вопросы рецензенты дают оценку содержанию отчета.

5.6. По результатам защиты отчета руководитель проводит анализ по защите и содержанию отчета и заносит общую оценку по отчету НИРМ в ведомость.

6. Особенности организации и выполнения НИРМ магистров обучающихся по заочной форме.

6.1. Согласно общим положениям отраженным в «Методических рекомендациях по организации учебного процесса с магистрантами, обучающихся по заочной форме», магистрант должен в отчете по НИРМ отразить умение использовать навыки проведения научно-исследовательской работы, а именно:

- умение показывать необходимую научную литературу по тематике НИРМ и работать с ней;

- умение вести поисковые исследования;

- умение структурировать научный материал;

- умение последовательно, логично излагать этапы научного исследования

6.2. Для проведения научно-исследовательской работы магистранту заочного обучения назначается научный руководитель.

6.3. По результатам выполненных научно-исследовательских работ магистрант представляет руководителю отчет о НИРМ. Научный руководитель оценивает работу магистранта, и допускает к защите.

6.4. После получения допуска от руководителя рецензий и магистров данного года обучения проводится публичная защита НИРМ, согласно утвержденного на кафедре графику. Результаты защиты заносятся руководителем магистранта в ведомость.

Министерства науки и высшего образования Российской Федерации
Федеральное государственное бюджетное учреждение
высшего образования
«Уральский государственный горный университет»

РЕЦЕНЗИЯ

на отчет по НИРМ

год набора _____

Магистрант _____
(Ф.И.О.)

Направление подготовки _____

Наименование магистерской программы _____

Тема _____

1. Степень новизны и значимости цели исследования _____

2. Стиль и грамотность изложения материала _____

3. Положительные стороны отчета _____

4. Недостатки _____

5. Общий вывод об отчете с заключением (положительным или отрицательным) о
проделанной работе и степени вклада в достижение целей МД

(Ф.И.О. научного руководителя, ученая степень, ученое звание)

« ____ » _____ 200 ____ г. _____

(подпись научного руководителя)

Извлечение из «Методических рекомендаций по организации учебного процесса с магистрантами, обучающимися по заочной форме. Общие положения. Технология обучения». 2009.

2.2. Научно-исследовательская часть

2.2.1. Общие положения

Научно-исследовательская составляющая образовательной программы предназначена для развития у магистранта следующих навыков научно-исследовательской работы (НИРМ):

- умение находить научную литературу и работать с ней;
- умение вырабатывать представление о последних научных достижениях в исследуемой области, нерешенных проблемных и направлений развития;
- освоение методологии научного творчества;
- приобретение опыта организации научной работы;
- умение вырабатывать целостный подход к объекту изучения;
- умение вести поисковые исследования;
- умение быть научно-объективными;
- умение ставить научные и практические задачи, находить и/или разрабатывать методы решения;
- умение применять экономико-математические методы и современные информационные технологии;
- умение обосновывать, делать выводы и оценивать полученные результаты;
- умение структурировать научный материал;
- умение последовательно, логично излагать этапы научного исследования;
- умение собирать, обобщать, анализировать числовую информацию;
- умение собирать, обобщать, анализировать нормативно-правовую информацию.

2.2.2. Обеспечение научного руководства

Для научно-исследовательской работы магистранту назначается научный руководитель.

Под руководством научного руководителя магистрант осуществляет вторую часть магистерской подготовки – научно-исследовательскую. В целом НИР предназначена для исследования по теме магистерской диссертации. В семестрах I, II, III магистрант проводит работу по обзору литературы, нормативно-законодательным актам, постановкам и решению задач исследования, обоснованию методов исследования, обоснованию научной новизны и практической значимости полученных результатов.

2.2.3. Отчетность по НИР

Результаты работы в семестре оформляются в виде отчета по НИРМ, и представляются научному руководителю. Научный руководитель оценивает работу магистранта и по результатам оценки заполняет бланк рецензии. В четвертом семестре магистрант на основе проделанной НИРМ оформляет и завершает работу над магистерской диссертацией.

3.6. Научно-исследовательская работа

Под руководством научного руководителя и в постоянном контакте с ним в течение всего времени обучения в магистратуре проходит научно-исследовательская работа магистранта.

В начале обучения совместно с научным руководителем магистрант формулирует тему магистерской диссертации (МД). В исключительных случаях с одобрения научного руководителя магистрант может предложить свою тему МД. В рамках выбранной

тематики магистрант совместно с руководителем формулирует свою (индивидуальную) тему МД, более частную, более конкретную. В формулировке темы должна просматриваться возможность получения элементов научной новизны и практической значимости. В соответствии с темой проводится НИРМ.

Научно-исследовательская работа заключается в подборе и изучении литературы, нормативно-правовых документов по теме магистерской диссертации, осмыслении места темы магистерской диссертации в общей системе научных знаний по выбранной теме, разработке предварительной постановки задачи.

В результате знакомства магистранта с литературой, с непосредственным участием научного руководителя уточняется предполагаемая тема научного исследования. В процессе определения темы магистерской диссертации происходит более целеустремленное и глубокое изучение литературных источников, осмысление изученного материала. Желательно ознакомиться со всеми видами источников, содержание которых связано с темой исследования. К ним относятся материалы, опубликованные в различных отечественных и зарубежных изданиях, официальные материалы.

Изучение темы целесообразно начать со знакомства с информационными изданиями, содержащими оперативную информацию о самих публикациях и о наиболее существенных сторонах их содержания.

Изучение литературы по выбранной теме следует начинать с общих работ, чтобы получить представление об основных вопросах, к которым примыкает избранная тема, а затем уже вести поиск нового материала.

ПРИМЕЧАНИЕ. Следует иметь в виду, что не все полученные данные будут использованы полностью в магистерской диссертации, часть из них может оказаться бесполезной. Эта специфика научной работы: научное творчество включает значительную долю черновой работы.

Далее реализуются конкретизация, окончательная постановка задачи исследования, включая описание исследуемого объекта, формирование целей и критериев, поиск методов решения, обоснование выбранного метода анализа, техники исследования. Поставленная задача должна быть такова, чтобы прогнозируемые результаты содержали новое, существенное. Поисковое исследование должно быть нацелено на научную новизну, теоретическую и практическую значимость. В процессе разработки методики анализа задачи магистерской диссертации рекомендуется использовать современные методы исследования в соответствующих отраслях знаний.

Из проделанной научно-исследовательской работы должны следовать правомерность использования предложенных методов, всестороннее обоснование в каждом конкретном случае их использования, уникальность и неповторимость полученных сведений, результатов, выводов.

Приложение 3

Министерства науки и высшего образования Российской Федерации
Федеральное государственное бюджетное учреждение
высшего образования
«Уральский государственный горный университет»
Инженерно-экономический факультет

Отчет по научно-исследовательской работе магистранта на тему:

«Тема научно-исследовательской работы»

Научный руководитель:

Ф.И.О

Магистрант:

Ф.И.О.

Екатеринбург, 2019

Методические указания по выполнению и проведения научно-исследовательской работы
магистров

Николай Васильевич Гревцев
Борис Михайлович Александров
Евгений Михайлович Цейтлин

Методические указания по выполнению и проведения научно-исследовательской работы
магистров по направлению 20.04.01 «Техносферная безопасность»,
20.04.02 «Природообустройство и водопользование»

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Федеральное государственное бюджетное образовательное учреждение высшего образования «Уральский государственный горный университет»

Е.Я. Власова, Я.Я. Яндыганов

Методические указания по проведению практических занятий (по решению типовых задач) по направлениям подготовки:

38.04.02 Менеджмент «Управление международными проектами природообустройства и водопользования»,
20.04.02 Природообустройство и водопользование «Урбоэкология и природоохранное обустройство территорий»

Екатеринбург 2019

Общие положения

С интенсивным распространением научно-технического прогресса и увеличением объемов производства человек оказывает на весь окружающий его мир мощное и растущее влияние. Это вызывает необходимость усиления охраны природы, земли и ее недр, атмосферного воздуха, водоемов, животного и растительного мира, их рационального использования во всех сферах деятельности человека и в первую очередь в экономической.

Настоящий сборник задач составлен с целью научить студентов определять степень влияния предприятий и других источников загрязнения на окружающую среду, производить расчеты платы за загрязнение и эффективности мероприятий по защите атмосферы, литосферы и других сред от загрязнений и т.д. Все это поможет будущим специалистам не только усвоить сумму знаний по читаемым на кафедре курсов лекций, но и воспользоваться данным материалом для решения производственных задач по рациональному использованию природных ресурсов и природоохранной деятельности на предприятиях, куда придут работать после окончания учебного заведения выпускники университета.

Наиболее часто встречаемые в сборнике задачи понятия:

Рациональное природопользование – система деятельности, обеспечивающая экономную эксплуатацию природных ресурсов и условий с учетом интересов народного хозяйства и сохранения здоровья людей.

Ущерб от загрязнения окружающей среды – фактические и возможные убытки народного хозяйства, связанные с загрязнением среды жизни.

Плата за загрязнение среды – денежное возмещение предприятиями социально-экономического ущерба, наносимого народному хозяйству и здоровью людей от загрязнения среды.

Эффективность природоохранных мероприятий – результат сопоставления суммарного эффекта от мероприятий, в том числе удовлетворения потребностей и получения продукции на основе ресурсосберегающей технологии с необходимыми затратами.

При составлении задач использованы материалы и официальные документы, содержащие утвержденные размеры платежей и другие нормативы.

Требования к решению задач

1. Студент решает индивидуальный вариант задачи, номер которого определяется порядковым номером зачетки. При числе студентов в группе более 25 вариант задачи соответствует последней цифре номера зачетки.

2. Условия задачи, пояснительный текст к ее решению, промежуточные математические действия и конечные результаты должны излагаться в объеме, позволяющем проверяющему понять смысл решенной задачи, характер допущенных ошибок, если таковые имеются, не обращаясь к тексту и справочным материалам задачника.

3. Задачи, решенные студентом по чужому варианту, не рассматриваются.

Условные обозначения, принятые в сборнике

u – суммарный ущерб, нанесенный природной среде и территории, руб.

γ – удельный ущерб, руб./усл. т;

b – показатель, имеющий разное значение для:

различных типов территорий (при определении ущерба от загрязнения воздуха);

различных водохозяйственных участков (при определении ущерба от загрязнения воды);

M – приведенная масса годового сброса (выброса) примесей данным источником; усл. т/год;

i – номер загрязняющего вещества (ЗВ);

N – общее число ЗВ;

m – общая масса годового сброса (выброса) i -го вещества, усл. т/т;

$S_{\text{зав}}$ – общая площадь зоны активного загрязнения (ЗАЗ), га, тыс.м²;

f – безразмерная величина, определяемая в зависимости от характера рассеивания примесей в атмосфере;

h – геометрическая высота устья источника по отношению к среднему уровню ЗАЗ, м;

φ – поправка на тепловой подъем факела выброса в атмосферу, безразмерная величина;

u – среднегодовое значение модуля скорости ветра на уровне флюгера, м/с;

ΔT – среднегодовое значение разности температур в устье источника (трубы) и в окружающей атмосфере, $^{\circ}\text{C}$;

$K_{\text{п}}$ – капитальные затраты на природоохранные мероприятия, тыс. руб.;

C – текущие затраты на содержание природоохранных объектов, тыс. руб.;

Π – плата за загрязнение, тыс. руб.;

P – норматив платы за загрязнение, руб./усл. т;

ε – экономический эффект от природоохранного мероприятия, тыс. руб.;

ε – коэффициент эффективности (сравнивается с нормативным).

ZB – загрязняющее вещество.

Задача 1

Расчет эффективности мероприятий по защите атмосферы от загрязнения

1. Исходные данные

1.1. В районе действует тепловая электростанция (ТЭС), работающая на кузнецком угле.

1.2. В процессе эксплуатации ТЭС в атмосферный воздух попадают примеси в виде аэрозолей и газообразных веществ. Массы годового поступления выбросов (m_j) по видам составляют:

а) группа аэрозолей: m_1 – зола угля, m_2 – пыль угля;

б) группа газообразных веществ: m_3 – сернистый ангидрид, m_4 – серный ангидрид, m_5 – оксиды азота (по NO_2), m_6 – оксид углерода.

1.3. Характер выбросов по скорости оседания частиц различен:

а) примеси из группы аэрозолей имеют скорость оседания частиц от 1 до 20 см/с;

б) примеси из группы газообразных веществ имеют скорость оседания менее 1 см/с.

1.4. Зона активного загрязнения (ЗАЗ) ТЭС неоднородна и состоит из разных типов территорий (таб.1).

Таблица 1

Структура ЗАЗ

№ типа территории	Тип территории	S_i	δ_i
1	Территория населенных мест с плотностью населения (β), равной 3 чел/га	S_1	$\beta \times 0.1$
2	Территория промышленных предприятий	S_2	4
3	Леса 2-ой группы	S_3	0.1
4	Пашни	S_4	0.25
5	Территории садовых и дачных участков	S_5	8

1.5. Среднегодовое значение разности температур в устье источника выброса (трубы) и в окружающей среде составляет величину ΔT . Среднегодовой модуль скорости ветра – u .

1.6. По всем загрязняющим веществам (ЗВ) объем выбросов в рассматриваемом году не превышал установленных лимитов. При этом 80% массы каждого из ЗВ находилось в пределах

установленного допустимого норматива выброса ($m_{\text{ПДВ}}$) и 20% массы – в пределах установленного лимита ($m_{\text{ВСВ}}$).

1.7. В планируемом году на ТЭС предполагается установка дополнительных газо- и пылеуловителей. Капитальные затраты (К) и годовые эксплуатационные затраты (С) данного мероприятия см. в таблице 4. расчетный период окупаемости капитальных затрат (t) – 4 года.

1.8. В результате проведения природоохранных мероприятий (в планируемом году) ожидается снижение ущерба от загрязнения атмосферного воздуха на 75%; при этом величина поступающих в атмосферный воздух всех видов ЗВ не будет превышать пределов установленных допустимых нормативов (ПДВ_j).

2. Задание

Определить:

Зону активного загрязнения ТЭС.

Величину ущерба от загрязнения атмосферы ТЭС до проведения природоохранного мероприятия.

Сумму платежей за загрязнения атмосферы в текущем году.

Суммарный эффект запланированных природоохранных мероприятий.

3. Методика расчетов

3.1. Определение ЗАЗ.

Источником загрязнения является труба ТЭС (согласно классификации – организованный источник). Для подобных источников ЗАЗ представляет собой кольцо, заключенное между окружностями с радиусами:

$$r^{\text{внутр}} = 2\phi h,$$

$$R^{\text{внеш}} = 20\phi h,$$

где h – высота источника, м (см. № варианта, табл.4);

ϕ – безразмерная поправка, вычисляемая по формуле

$$\phi = 1 + \frac{\Delta T}{75}$$

где ΔT – разность температур в устье трубы и в ОС, град. (см. табл. 4).

Вычислив радиусы, находим площадь ЗАЗ по формуле:

$$S = \pi \times (R_{\text{внеш}}^2 - r_{\text{внутр}}^2) \times (\text{м}^2)$$

Площадь ЗАЗ выразить в гектарах (1га = 10000 м²).

3.2. Определение ущерба от загрязнения атмосферы ($U = \gamma \delta f M$)

3.2.1. Показатель удельного ущерба атмосферному воздуху (γ), наносимого выбросом единицы массы ЗВ, для Уральского экономического района принимается равным 67,4 руб./усл. т (Методика определения предотвращенного экологического ущерба. М., 1999. – 71С.).

3.2.2. Показатель относительной опасности загрязнения атмосферного воздуха над ЗАЗ (δ) следует рассчитать, поскольку ЗАЗ неоднородна и состоит из 5 типов территорий (пункт 1.4.). Каждому типу территории (S_i) соответствует табличное значение константы δ_i . Усредненное значение δ для всей ЗАЗ определяют по формуле:

$$\delta = \frac{\sum_{i=1}^5 S_i \times \delta_i}{S}$$

- где δ – показатель относительной опасности загрязнения атмосферы над всей зоной активного загрязнения;
 i – номер части ЗАЗ, относящийся к одному из типов территорий (всего по задаче их 5);
 S_i – площадь одного из типов территорий (табл.4);
 $S_{\text{зав}}$ – общая площадь ЗАЗ (поскольку в условии задачи S_i выражается в %, $S_{\text{зав}} = 100\%$);
 δ_i – показатель относительной опасности загрязнения атмосферы над i -тым типом территории (см. пункт 1.4.).

3.2.3. Приведенная масса годового выброса ЗВ ($M = M_{\text{общ.}}$) рассчитывается как сумма газообразных и аэрозольных примесей:

$$M_{\text{газ.}} + M_{\text{аэр.}} (\text{усл. т/год})$$

а) значение приведенной массы годового выброса газообразных примесей определяется по формуле:

$$M_{\text{газ.}} = \sum_{j=3}^6 A_j \times m_j;$$

б) годовая масса аэрозольных примесей рассчитывается аналогично:

$$M_{\text{аэр.}} = \sum_{j=3}^3 A_j \times m_j;$$

где j – вид загрязняющего вещества (по условию задачи вещества j_1 и j_2 – аэрозольные, а j_3, j_4, j_5, j_6 – газообразные),
 A_j – показатель относительной агрессивности примеси j -ого вида (табл.2).

Таблица 2

Значение показателя относительной агрессивности вещества (A_j)

Загрязняющие вещества, выбрасываемые в атмосферу	Значение параметра A_j (усл. т\т)
1. Зола угля	84
2. Пыль угля (недожог)	48
3. Сернистый ангидрид (SO_2)	22
4. Серный ангидрид (SO_3)	49
5. Оксиды азота (по NO_2)	41.1
6. Оксид углерода (CO)	1

3.2.4. Значение множителя f – поправки, учитывающей характер рассеивания примесей в атмосфере, определяется следующим образом:

а) для газообразных примесей с очень малой скоростью оседания (менее 1 см/с) принимается, что

$$f_1 = f_{\text{газ.}} = \frac{100(\text{м})}{100(\text{м}) + \varphi h} \times \frac{4(\text{м/с})}{1(\text{м/с}) + y},$$

б) для частиц, оседающих со скоростью от 1 до 20 м/с (в данной задаче – группа аэрозольных примесей), принимается, что

$$f_2 = f_{\text{аэр.}} = \sqrt{\frac{1000(\text{м})}{60(\text{м}) + \varphi h}} \times \frac{4(\text{м/с})}{1(\text{м/с}) + y},$$

где u – среднегодовое значение модуля скорости ветра (табл.1);
 φ – безразмерная поправка (пункт 3.1);
 h – высота трубы (табл.4).

3.2.5. Определение ущерба от загрязнения атмосферы. Общий ущерб складывается из суммы ущербов от двух видов примесей – газообразных и аэрозольных, с двумя различными параметрами f (пункт 3.2.4.), поэтому

$$U_{\text{общ.}} = U_{\text{газ.}} + U_{\text{аэр.}} = (\gamma \times \delta \times f_{\text{газ.}} \times M_{\text{газ.}}) + (\gamma \times \delta \times f_{\text{аэр.}} \times M_{\text{аэр.}}) = \\ = \gamma \times \delta (f_{\text{газ.}} \times M_{\text{газ.}} + f_{\text{аэр.}} \times M_{\text{аэр.}}).$$

3.3. Расчет платежа за загрязнение атмосферы

Общая сумма платежа определяется по формуле:

$$П_{\text{общ.}} = П_1 + П_2 + П_3;$$

где $П_1$ – плата за допустимый выброс (в пределах ПДВ);
 $П_2$ – плата за выброс ЗВ сверх ПДВ, но в пределах установленного лимита (ВСВ);
 $П_3$ – плата за выброс ЗВ сверх лимита (сверх ВСВ).

По условию задачи (пункт 1.6.) объем выбросов по всем загрязняющим веществам не превышает установленных лимитов, значит

$$П_{\text{общ.}} = П_1 + П_2.$$

$$П_1 = \sum_{j=1}^6 m_{\text{ПДВ}j} \times R_{\text{ПДВ}j};$$

$$П_2 = \sum_{j=1}^6 m_{\text{ВСВ}j} \times R_{\text{ВСВ}j};$$

где $П_1$ и $П_2$ – плата за выбросы ЗВ в пределах установленных допустимых нормативов (ПДВ) и установленных лимитов (ВСВ), руб./год;
 $m_{\text{ПДВ}j}$ и $m_{\text{ВСВ}j}$ – массы j -ого вида ЗВ в пределах ПДВ и ВСВ, т;
 $R_{\text{ПДВ}j}$ и $R_{\text{ВСВ}j}$ – нормативы платы за выброс 1 тонны j -ого ЗВ в пределах ПДВ и ВСВ, руб./т.(табл.3).

Таблица 3

**Нормативы платы за выбросы в атмосферный воздух
загрязняющих веществ стационарными источниками
на территории Уральского экономического района (руб./т)**

№ п/п	Наименование ЗВ	Нормативы платы за выброс одной тонны ЗВ в атмосферный воздух (вне городов)	
		В пределах установленных допустимых нормативов выбросов (ПДВ)	В пределах установленных лимитов выбросов (ЛВВ)
1	Зола угля	14	70
2	Пыль угля	27,4	137
3	Сернистый ангидрид	80	400
4	Серный ангидрид	42	210
5	Оксиды азота	70	350
6	Оксид углерода	1,2	6

3.4. Определение суммарного годового эколого-экономического эффекта запланированного природоохранного мероприятия

Годовой суммарный эффект рассчитывается по формуле:

$$R=P-Z,$$

где R – годовой эколого-экономический эффект, руб;

P – положительный суммарный результат, полученный благодаря проведенным мероприятиям.

Положительными результатами по условию задачи являются:

а) предотвращенный ущерб и

б) снижение платежей за загрязнение в результате уменьшения массы выбросов (пункт 1.8); таким образом:

$$P=0,75U+П_2,$$

где Z – годовые суммарные затраты, вычисляются по формуле

$$Z=C+E_p \times K,$$

где C – эксплуатационные затраты (табл.4);

K – капитальные затраты (табл.4);

E_p – расчетный коэффициент окупаемости капитальных затрат.

$$E_p = \frac{1}{t};$$

где t – период окупаемости капитальных затрат (см. пункт 1.7.).

Таблица 4

Данные для решения задачи

Вариант	m ₁ (т./год)	m ₂ (т./год)	m ₃ (т./год)	m ₄ (т./год)	m ₅ (т./год)	m ₆ (т./год)	% от S _{3аз}					ΔT (°C)	y (м/с)	h (м)	С	К
							S ₁	S ₂	S ₃	S ₄	S ₅					
1	3000	100	1000	1000	3100	400	20	25	30	15	10	150	1	250	15	150
2	3050	105	9800	1010	3050	402	25	10	15	25	25	150	1	240	15	140
3	3100	100	9500	1005	3040	390	15	15	20	15	35	150	1	260	15	140
4	3150	95	9600	1000	3030	385	10	15	25	30	20	140	1,5	250	15,5	145
5	3200	102	9500	1006	3020	390	15	20	20	25	20	140	1,5	240	15,5	145
6	3250	104	9400	1007	3010	390	20	15	30	20	15	140	1,5	270	15,5	150
7	3300	100	9300	1004	3000	385	25	10	30	15	20	130	2	300	16	150
8	3350	89	9200	1003	2950	375	30	10	30	15	15	130	2	300	16	150
9	3400	101	9150	980	2940	375	25	10	15	25	25	130	2	280	16	150
10	3450	105	9100	985	2930	360	20	25	5	25	25	140	2,5	280	15,5	145
11	3500	100	9050	970	2940	360	15	20	20	25	20	140	2,5	300	15,5	145
12	3450	98	9000	980	2850	375	10	20	40	15	15	140	2,5	270	15,5	140
13	3400	97	9050	800	2800	375	5	25	20	30	20	150	3	300	15	145
14	3350	90	8950	850	2850	370	5	20	20	25	30	150	3	290	15	145
15	3300	102	9000	890	2900	370	5	15	35	15	30	150	3	290	15	150
16	3250	100	8900	880	2930	400	10	15	30	30	15	140	2,5	280	15	140
17	3200	98	8800	870	2940	390	10	20	30	25	15	140	2,5	280	16	135
18	3150	95	9100	860	2800	390	15	20	25	20	20	140	2,5	270	16	135
19	3100	97	9150	850	2750	395	10	25	5	40	20	130	3	280	16	135
20	3050	90	9000	850	2700	400	5	25	25	15	30	130	3	300	16	145
21	3000	92	7800	860	2650	402	5	20	25	30	20	130	3	300	15	145
22	2950	89	9200	870	2700	401	10	20	10	30	30	140	3	300	15	150
23	2900	100	8800	900	2650	402	5	25	25	15	30	140	2	280	15	150
24	2950	95	8900	950	2800	401	10	25	25	27	15	150	2	280	15	150
25	3000	93	9000	1000	2850	400	5	15	25	25	30	150	2	280	15	140

Задача 2

Расчет платы предприятия за загрязнение окружающей среды

1. Исходные данные

Промышленные предприятия, находящиеся на территории Свердловской области выбрасывают загрязняющие вещества в атмосферу и водные объекты. Также источником загрязнения окружающей среды являются образующиеся на предприятиях отходы. Согласно Федеральному закону «Об охране окружающей среды» от 26.12.2001 вводится плата за негативное воздействие на окружающую среду. К видам негативного воздействия относятся: выбросы в атмосферный воздух загрязняющих веществ; сбросы загрязняющих веществ, иных веществ и микроорганизмов в поверхностные водные объекты, подземные водные объекты и на водосборные площади; загрязнение недр, почв; размещение отходов производства и потребления; загрязнение окружающей среды шумом, теплом, электромагнитными, ионизирующими и другими видами физических воздействий; иные виды негативного воздействия на окружающую среду.

Порядок исчисления и взимания платы за негативное воздействие на окружающую среду устанавливается законодательством РФ.

2. Задание

Определить плату предприятия за загрязнение окружающей среды.

3. Методика расчета

Общая сумма платы складывается из платы за загрязнение атмосферы, водного объекта и размещения отходов:

$$P_{\text{общ}} = P^a + P^b + P^{\text{отх}}$$

в свою очередь плата за каждый вид вредного воздействия определяется следующим образом:

$$\Pi = \Pi_{\text{н}} + \Pi_{\text{л}} + \Pi_{\text{сл}},$$

- где $\Pi_{\text{н}}$ – плата за загрязнение в пределах предельно допустимого выброса, сброса (ПДВ, ПДС, норматива на размещение отходов), руб.;
- $\Pi_{\text{л}}$ – плата за загрязнение в пределах временно согласованного выброса, сброса (ВСВ, ВСС, лимита на размещение отходов), руб.;
- $\Pi_{\text{сл}}$ – плата за сверх лимитное загрязнение, руб.

Если фактическая масса загрязняющих веществ $M_{\text{ф}}$ не превышает нормативную $M_{\text{н}}$, то $\Pi = \Pi_{\text{н}}$.

$$\Pi_{\text{н}} = p_{\text{н}} + M_{\text{ф}},$$

- где $p_{\text{н}}$ – Норматив платы за загрязнение в пределах ПДВ (ПДС, норматива на размещение отходов), руб./т.;

Нормативы платы устанавливаются ежегодно постановлением правительства РФ (по типам загрязняющих веществ и в зависимости от класса токсичных отходов);

$M_{\text{н}}$ – ПДВ (ПДС, лимит на размещение отходов)

Если фактическая масса загрязняющих веществ превышает норматив, но меньше лимитной, тогда

$$\Pi = \Pi_{\text{н}} + \Pi_{\text{л}},$$

$$\Pi_{\text{н}} = p_{\text{н}} \times M_{\text{н}},$$

$$\Pi_{\text{л}} = p_{\text{л}} \times (M_{\text{ф}} - M_{\text{н}}),$$

- где $p_{\text{л}}$ – ставка платы за загрязнение в пределах ВСВ (ВСС, лимита на размещение отходов), руб./т.;

Если фактическая масса загрязняющих веществ превышает установленные лимиты $M_{\text{л}}$, то

$$\Pi = \Pi_{\text{н}} + \Pi_{\text{л}} + \Pi_{\text{сл}},$$

$$\Pi_{\text{н}} = p_{\text{н}} \times M_{\text{н}},$$

$$\Pi_{\text{л}} = p_{\text{л}} \times (M_{\text{л}} - M_{\text{н}})$$

$$\Pi_{\text{сл}} = 5p_{\text{л}} \times (M_{\text{ф}} - M_{\text{л}})$$

- где $M_{\text{л}}$ – ВСВ (ВСС), лимит на размещение отходов.

4. Данные для решения задачи

Таблица 1

Предприятие №1							
Вещество	ПДВ, ПДС, т/год	ВСВ, ВСС, т/год (лимит)	М факт, т/год	Размер платы, руб.			Всего
				за ПДВ, ПДС	за ВСВ, ВСС, (лимит)	за сверхлимит	
1. Ванадия пя- тиокись	2,202	2,703	3,206				
2. Азота диоксид	4392,1	5872,6	6021,5				
3. Кислота серная	0,004	0,005	0,006				
4. Фтористые	0,029	0,043	0,025				
Итого за выбро- сы							
1. Медь	0,019	0,023	0,025				
2. Железо	1,85	2,34	2,65				
3. Сульфаты	1948,54	2537,62	3261,5				
4. Фтор	12,341	13,875	12,632				
Итого за сбросы:							
1. Бытовые не- токсичные отхо- ды	–	1520,8 м ³	1745,6 м ³				
2. Промышлен- ные нетоксичные отходы	–	100,0	245,6				
Итого размер платы по пред- приятию							

Считать, что предприятие расположено в Свердловской области г. Н. Тагил, сбросы осуществляются в водоем, принадлежащий бассейну реки Обь.

Таблица 2

Предприятие №2							
Вещество	ПДВ, ПДС, т/год	ВСВ, ВСС, т/год (лимит)	М факт, т/год	Размер платы, руб.			Всего
				за ПДВ, ПДС	за ВСВ, ВСС, (лимит)	за сверхли- мит	
1. Углерода оксид	–	–	2,675				
2. Фурфурол	9,62	10,42	10,5				
3. Фенол	0,5	0,7	0,75				

Окончание

4. Формальдегид	0,607	0,703	0,805				
Итого за выбросы							
1. Азотаммония	0,75	1,25	6,25				
2. Азот нитритов	2,605	3,402	3,5				
3. Формальдегид	0,298	0,345	0,54				
4. Фосфаты	4,65	4,93	5,25				
Итого за сбросы:							
1. Шлам (II кл. токсичности)	–	35,0	67,0				
2. Активный ил (IV кл. токсичности)	–	1240,0	8500,0				
Итого размер платы по предприятию							

Считать, что предприятие находится в Свердловской области в г. Екатеринбурге; загрязняющие вещества сбрасываются в водоем, принадлежащий бассейну реки Обь

Таблица 3

Предприятие №3

Вещество	ПДВ, ПДС, т/год	ВСВ, ВСС, т/год (лимит)	М факт, т/год	Размер платы, руб.			Всего
				за ПДВ, ПДС	за ВСВ, ВСС, (лимит)	за сверхлимит	
1. Азота диоксид	–	–	81,65				
2. Аммиак	1,172	1,743	2,650				
3. Сажа	0,132	0,647	0,250				
4. Фурфурол	9,365		10,70				
Итого за выбросы							
1. Азот аммонийный	1,034	5,730	2,650				
2. СПАВ	0,345	0,764	0,850				
3. Фенолы	0,007	1,034	0,60				
4. Фосфаты	4,681	6,751	2,42				
Итого за сбросы:							
1. Шлам (IV класс токсичности)	–	1240,0	1350,0				
2. Активный ил (IV класс токсичности)	–	850,0	1250,0				
Итого размер платы по предприятию							

Считать, что предприятие расположено в Свердловской области г. Первоуральск, сбросы осуществляются в водоем, принадлежащий бассейну реки Волги.

Таблица 4

Предприятие №4

Вещество	ПДВ, ПДС, т/год	ВСВ, ВСС, т/год (лимит)	М _{факт} , т/год	Размер платы, руб.			Всего
				за ПДВ, ПДС	за ВСВ, ВСС, (лимит)	за сверхли- мит	
1. Аммиак	0,620	0,830	0,750				
2. Фтористые	0,03	0,072	0,240				
3.Фенол	1,508	2,405	5,602				
4. Ванадия пя- тиокись	10,75	12,34	18,64				
Итого за выбро- сы							
1. Нефтепродук- ты	176,0	245,0	742,0				
2. Цинк	0,07	0,078	0,085				
3. Хлориды	670,5	730,1	840,2				
4. СПАВ	54,7	81,5	92,3				
Итого за сбросы:							
1. Отходы древе- сины		842 м ²	850 м ³				
2. Активный ил (IV класс ток- сичности)	–	6845	8125 м ³				
Итого размер платы по пред- приятию							

Предприятие расположено в Свердловской области г. Новоуральск, сбросы осуществляются в водоем, принадлежащий бассейну реки Обь.

Таблица 5

Предприятие №5

Вещество	ПДВ, ПДС, т/год	ВСВ, ВСС, т/год (лимит)	М _{факт} , т/год	Размер платы, руб.			Всего
				за ПДВ, ПДС	за ВСВ, ВСС, (лимит)	за сверхлимит	
1. Кислота сер- ная	0,150	0,950	1,240				
2. Ванадия пя- тиокись	8,206	10,47	10,24				

Окончание

3. Углерода оксид	–	–	245,6				
4. Пыль неорганическая (доломит)	6351,0	8162,0	9024,0				
Итого за выбросы							
1. Азот аммонистый	–	–	10,148				
2. Медь	0,019	0,170	0,20				
3. Азот нитритов	0,507	0,803	0,602				
4. Фтор	0,014	0,640	0,250				
Итого за сбросы:							
1. Активный ил (IV класс токсичности)	–	1560,0	1820,0				
2. Шлам (I класс токсичности)	–	12,0	11,9				
Итого размер платы по предприятию							

Считать, что предприятие расположено в Свердловской области г. Ревда, сбросы осуществляются в водоем, принадлежащий бассейну реки Волги.

*) Значение нормативов платы приведены в таблицах 6, 7, 8 в соответствии с Постановлением Правительства Свердловской области от 28.11.2003г. № 738 – ПП «О взимании платы за негативное воздействие на окружающую среду на территории Свердловской области».

В текущем году при осуществлении расчетов платы за негативное воздействие на окружающую среду к указанным нормативам платы применяется коэффициент инфляции, определяемый законом о федеральном бюджете на текущий год. В 2004г. был принят коэффициент 1,1, в 2005г. 1,2.

Таблица 6

Значение нормативов платы за выбросы в атмосферный воздух загрязняющих веществ стационарными источниками, подлежащих применению при ее расчете с использованием коэффициента, учитывающего экологические факторы по территории Уральского экономического района

№ п/п	Наименование загрязняющего вещества	Нормативы платы за выброс одной тонны загрязняющих веществ в атмосферный воздух городов, руб.		
		В пределах ПДВ	В пределах ВСВ	Сверх установленных лимитов выбросов
1	Азота диоксид	124,8	624	3120
2	Аммиак	124,8	624	3120
3	Ванадий пятиоксид	2460	12300	61500
4	Кислота серная	50,4	252	1260
5	Сажа	98,4	492	2460
6	Углерода оксид	1,44	7,2	36
7	Фенол	1639,2	8196	40980
8	Формальдегид	1639,2	8196	40980
9	Фурфурол	984	4920	24600
10	Фторогазообразные соединения	98,4	492	2460
11	Пыль неорганическая, содержащая диоксид кремния ниже 20% (долоний, слюда, тальк и др.)	32,88	164,4	822

Примечание. При установлении нормативов платы за выбросы в атмосферный воздух загрязняющих веществ стационарными источниками в соответствии с постановлением Правительства Российской Федерации от 12.06.2003г. №344 «О нормативах платы за выбросы в атмосферный воздух загрязняющих веществ стационарными и передвижными источниками, сбросы сбросы загрязняющих веществ в поверхностные и подземные водные объекты, размещение отходов производства и потребления использованы»:

коэффициент, учитывающий состояние атмосферного воздуха по территории Уральского экономического района, равный 2;
дополнительный коэффициент 1,2 при выбросе загрязняющих веществ в атмосферный воздух городов.

Таблица 7.

Значение нормативов платы за сбросы загрязняющих веществ в поверхностные подземные водные объекты, подлежащих применению при ее расчете с использованием коэффициентов, учитывающих экологические факторы по бассейнам, рек и морей.

№ п/п	Наименование загрязняющего вещества	Нормативы платы за сброс одной тонны загрязняющих веществ по бассейну р. Волги, руб.			Нормативы платы за сброс одной тонны загрязняющих веществ по бассейну р. Оби, руб		
		В пределах ПДС	В пределах ВСС	Сверх установленных лимитов сбросов	В Пределах ПДС	В Пределах ВСС	Сверх установленных лимитов сбросов
1	Азот аммониевых соединений	757,9	3789,5	18947,5	813,02	4065,1	20325,5
2	Железо	60605,6	303028	1515140	65013,28	325066,4	1625332
3	Медь (Cu ²⁺)	303029,1	1515145,5	7575727,5	325067,58	1625337,9	8126689,5
4	Нефть и нефтепродукты	6061	3030,5	151525	6501,8	32509	162545
5	Нитрат-ион	34,1	170,5	852,5	36,58	182,9	914,5
6	СПАВ (алкилсульфанаты)	606,76	3033,8	15169	650,89	3254,44	16272,2
7	Сульфат-ион (сульфаты)	2,75	13,75	68,75	2,95	14,75	73,75
8	Фенол	303029,1	1515145,5	7575727,5	325067,58	1625337,9	8126689,5
9	Фосфаты (по Р)	1515,8	7579	37895	1626,04	8130,2	40651
10	Формальдегид	3030,5	15152,5	75762,5	3250,9	16254,5	81272,5
11	Фтор (F ⁻)	404,8	2024	10120	434,24	2171,2	10856
12	Хлориды (Cl ⁻)	0,99	4,95	24,75	1,06	5,30	26,5
13	Цинк(Zn ²⁺)	30302,8	151514	757570	32506,64	162533,2	812666

Примечание. При установлении нормативов платы за сбросы загрязняющих веществ в поверхностные и подземные водные объекты в соответствии с постановлением правительства Российской Федерации от 12.06.2003г. №344 использованы:

коэффициент, учитывающий состояние водных объектов по бассейну реки Волги для Свердловской области, равный 1,1;

коэффициент, учитывающий состояние водных объектов по бассейну реки Оби для Свердловской области, равный 1,18.

Таблица 8

Значение нормативов платы за размещение отходов производства и потребления, подлежащих применению при ее расчете с использованием коэффициента, учитывающего экологические факторы по территории Уральского экономического района.

№ п/п	Вид отходов (по классам опасности для окружающей среды)	Единица измерения	Норматив платы за размещение одной единицы измерения отходов	
			В пределах установленных лимитов размещения отходов	Сверх установленных лимитов размещения отходов
1	Отходы I класса опасности (чрезвычайно опасные)	тонн	2956,64	14783,2
2	Отходы II класса опасности (высокоопасные)	тонн	1267,18	6335,9
3	Отходы III класса опасности (умеренно опасные)	тонн	844,9	4224,5
4	Отходы IV класса опасности (малоопасные)	тонн	422,28	2111,4
5	Отходы V класса опасности (практически не опасные): добывающей промышленности перерабатывающей промышленности	тонн	0,68	3,4
		куб. метров	25,5	127,5

Примечание. При установлении нормативов платы за размещение отходов производства и потребления в соответствии с постановлением Правительства Российской Федерации от 12.06.2003г. №344 использован коэффициент, учитывающий состояние почв по территории Уральского экономического района, равный 1,7.

Задача 3

Оценка влияния автомобильного транспорта на окружающую среду

1. Исходные данные

1.1. Фирма, осуществляющая автотранспортные услуги, имеет на балансе 150 единиц грузовых автомобилей (N) и 130 единиц легковых (n). Грузовой автотранспорт оснащён двигателями дизельного типа (работает на дизтопливе), легковой – двигателями карбюраторного типа (работает на неэтилированном бензине).

1.2. В среднем за день каждый автомобиль расходует дизельного топлива 100 л, неэтилированного бензина – 50 л.

1.3. По территории городов совершается 80% всех поездок. Остальные 20% - вне городов.

1.4. Один легковой автомобиль за неделю постоянной эксплуатации выбрасывает в атмосферу в составе выхлопных газов следующее количество загрязняющих веществ (ЗВ) (Таблица 1):

Таблица 1

№ п/п	Наименование ЗВ	Масса ЗВ за неделю (m_i), кг	Показатель опасности вещества (A_i), усл.т./Т
1	Оксид углерода	14,5	1
2	Углеводородов	1,8	3,16
3	Окиси азота	3,6	41,1
4	Аммиак	0,008	10,4
5	Ацетальдегида	0,082	41,6
6	Сернистого ангидрида	0,077	22

Один грузовый автомобиль выбрасывает в 2 раза больше ЗВ, чем легковой.

1.5. Для уменьшения отрицательного воздействия на атмосферу города фирма может осуществить следующие мероприятия:

оснастить легковые автомобили устройствами снижения выбросов (каталитический нейтрализатор, автомат пуска и подогрева топлива (затраты на 1 автомобиль – 30 тыс. рублей; снижение расхода топлива – 20%);

своевременно проводить диагностику состояния двигателей на соблюдение нормативных требований (затраты на оборудование – 5 млн. рублей, снижение расхода топлива – 5%).

1.6. В городе всего зарегистрировано 1700 тыс. автомобилей (Z), из них 50% легковых.

2. Задание

2.1. Определить годовую плату за выбросы загрязняющих веществ в атмосферу передвижными источниками.

2.2. Оценить: выгодно ли фирме осуществлять атмосферно-охранные мероприятия.

2.3. Определить количество выбрасываемых автотранспортом загрязняющих веществ в городе.

2.4. Определить удельный выброс ЗВ на 1 жителя города, если в нем проживает 1,5 млн. человек (I).

3. Методика расчета

3.1. Плата за выбросы загрязняющих веществ в атмосферу рассчитывается по следующей формуле:

$$\Pi = p_1 \times T_1 + p_2 \times T_2 ,$$

где p_1, p_2 – нормативы платы за одну единицу измерения топлива соответственно вне городов и в городах (таблица 2).

T_1, T_2 – количество топлива определённого вида, израсходованного соответственно вне городов и в городах (по условию 1.3).

По условиям данной задачи (1.2 и 1.3)

$$T_1 = 0,2 (100N+50n)$$

$$T_2 = 0,8 (100N+50n)$$

Таблица 2

Значения нормативов платы за выбросы в атмосферный воздух загрязняющих веществ передвижными источниками, подлежащих применению при её расчете с использованием коэффициента, учитывающего экологические факторы по территории Уральского экономического района*.

№ п/п	Вид топлива	Единица измерения	Нормативы платы за одну единицу измерения вне городов (р ₁), руб.	Нормативы платы за одну единицу измерения в городах (р ₂), руб.
1	Бензин неэтилированный	тонн	2,6	3,12
2	Дизельное топливо	тонн	5	6
3	Керосин	тонн	5	6
4	Сжатый природный газ	тыс. куб. метров	2,4	2,88
5	Сжиженный газ	тонн	2,4	2,88

3.2. Оценка эффективности атмосфероохранных мероприятий производится путём, во-первых, сопоставления затрат на данные мероприятия с величиной возможного снижения платежей за выбросы, а, во-вторых, соотнесения полученной величины с нормативом.

$$а) \frac{0,2П}{30000 \times (N + n)} = E_1 ;$$

$$б) \frac{0,05П}{5000000} = E_2$$

где П – Плата за выбросы в атмосферный воздух ЗВ передвижными источниками

*Примечание. При установлении нормативов платы за выбросы в атмосферный воздух загрязняющих веществ передвижными источниками в соответствии с постановлением правительства Российской Федерации от 12.06.2003г. №344 «О нормативах платы за выбросы в атмосферный воздух загрязняющих веществ стационарными и передвижными источниками, сбросы загрязняющих веществ в поверхностные и подземные водные объекты, размещение отходов производства и потребления» использованы:

коэффициент, учитывающий состояние атмосферного воздуха по территории Уральского экономического района, равный 2;

дополнительный коэффициент 1,2 при выбросе загрязняющих веществ в атмосферный воздух городов.

0,2 – по условию 1.5 а.

0,05 – по условию 1.5 б.

Норматив эффективности затрат в природоохранные мероприятия $E_n=0,16$.

3.3. Количество выбрасываемых автотранспортом ЗВ в городе (М) рассчитывается по следующей формуле:

$$M = \sum_{i=1}^6 m_i \times 1,5Z \times 52,$$

где i – индекс ЗВ

m_i – масса ЗВ, выброшенных за неделю (таблица 1)

52 – количество недель в году

1,5Z – По условию данной задачи 1,4 и 1,6

3.4. Удельный выброс на 1 жителя города рассчитывается делением данных, полученных в п. 3.3 на численность населения города (Н).

Таблица 3

Данные для решения задачи

№ варианта	N, ед.	n, ед.	Z, тыс. ед.	H, тыс. чел.
1	150	130	1700	2500
2	1200	-	1000	1500
3	170	250	700	750
4	1000	200	500	800
5	100	500	450	900
6	900	150	750	2000
7	200	450	1500	1150
8	1150	300	1200	1200
9	300	250	650	950
10	850	-	1100	1400
11	110	400	1150	1300
12	900	130	600	1250
13	1200	150	1550	1900
14	140	700	1450	1800
15	900	-	1300	1500
16	250	300	700	700
17	1150	20	800	1250
18	400	150	900	1600
19	870	140	1120	1800
20	115	350	650	900
21	1100	-	2000	2500
22	300	250	800	1200
23	490	120	1600	1800
24	770	-	950	1000
25	888	50	762	950

Задача 4

Определение экономического ущерба от загрязнения водоёма средствами химизации, используемыми в сельском хозяйстве

1. Исходные данные

1.1. Сельскохозяйственное предприятие на орошаемом участке, расположенном в пойме реки, выращивает картофель на площади (S_1), столовую свёклу (S_2) и морковь (S_3).

1.2. Интенсивная технология выращивания этих культур предусматривает использование средств химизации – ядохимикатов и минеральных удобрений.

Посадки картофеля обрабатываются атразином в дозе (D) 2,4 кг/га, посевы картофеля, моркови и свеклы обрабатываются прометрином в дозе 4 кг/га. Под все выращиваемые культуры вносятся минеральные удобрения. Азотные – 180 кг/га, фосфорные – 120 кг/га, калийные – 180 кг/га действующего вещества.

1.3. Часть вносимых на поле ядохимикатов и минеральных удобрений с поверхностным стоком попадает в водоём, вызывая его загрязнения. Коэффициент потерь (Π), отражающих долю средств химизации, попадающих в водоём от внесённого количества, для ядохимикатов равен 2%, азотных удобрений – 15%, фосфорных – 5%, калийных – 10%.

2. Задание

Следует определить:

2.1. величину годового экономического ущерба (u) от загрязнения водоёма средствами химизации;

2.2. размер платы за загрязнение водного объекта.

3. Методика расчёта, годового экономического ущерба

Годовой экономический ущерб (руб. /год), наносимый окружающей среде в результате загрязнения водоёма, равен:

$$u = \gamma \times \sigma \times M,$$

где γ – удельный ущерб, численное значение которого соответствует нормативу платы, ежегодно устанавливаемому правительством области (руб./год),

- δ – безмерная константа, учитывая экологическое состояние водного объекта, равная, для данного случая 1,2 ,
 M – приведенная масса средств химизации, попадающих в водоём (усл.т/год).

$$M = \sum_{i=1}^N m_i \times A_i ,$$

- где N – количество средств химизации, попадающих в водоёмы;
 i – номер средства химизации;
 m_i – общая масс средства химизации, попадающего в водоём, т.

$$m_i = \frac{D_i \times \Pi_i \times S_i}{100} ,$$

- где D – доза i -го средства химизации, попадающего в водоём, т/га;
 Π_i – коэффициент потерь для i -го средства химизации, %;
 S_i – площадь выращивания i -той культуры, га;
 A_i – показатель относительной опасности i -го средства химизации, попадающего в водоем.

$$A_i = \frac{1}{\text{ПДК}_{(P / \infty)}} ,$$

- где ПДК – предельно допустимая концентрация i -го средства химизации для рыбохозяйственных водоёмов (ПДК для атразина – 0,00024 мг/л, прометрина – 0,05 мг/л, фосфора 0,7 мг/л, калия – 0,8 мг/л, азот – 0,5 мг/л).

4. Методика определения размера платежей за загрязнение водного объекта

Общий размер платежей (Поб.) за загрязнение водного объекта определяется следующим образом:

$$\text{Поб.} = \Pi_1 + \Pi_2 + \Pi_3 ,$$

- где Π_1 – размер платы в пределах установленных предельно допустимых сбросов, руб. ;
 Π_2 – размер платы в пределах установленных лимитов, руб. ;
 Π_3 – размер платы за сбросы в объемах превышающих установленные лимиты, руб.

$$\Pi_1 = m_1 \times i_1 ,$$

- где m_1 – масса средств химизации, попадающих в водоём в пределах установленных предельно допустимых сбросов (т);
 j_1 – размер платы за загрязнение водных объектов в пределах установленных предельно допустимых сбросов, руб.

$$\Pi_2 = m_2 \times i_2,$$

- где m_2 – масса средств химизации, попадающих в водоём в объемах установленных лимитов (т);
 j_2 – размер платы за загрязнение водных объектов в пределах установленных лимитов, руб.

$$\Pi_3 = m_3 \times i_3,$$

- где m_3 – масса средств химизации, попадающих в водоём в объемах превышающих установленные лимиты (т);
 j_3 – размер платы за загрязнение водных объектов в объемах превышающих установленные лимиты, руб.

5. Исходные данные

Площади выращиваемых культур

№ варианта	S_1	S_2	S_3
1	430	123	133
2	420	98	122
3	498	80	151
4	436	134	163
5	472	102	132
6	345	103	123
7	486	144	124
8	421	129	95
9	461	135	132
10	473	111	90
11	423	102	93
12	395	109	119
13	388	133	123
14	400	122	90
15	43	119	98
16	422	120	123
17	488	90	120
18	433	89	92
19	412	144	96
20	431	136	90
21	430	88	124
22	367	152	130
23	380	144	122
24	439	90	110
25	466	96	123

Данные по допустимому поступлению атразина в водный объект

Вариант	Предельно допустимый сброс, т	Лимит сброса от уровня предельно допустимого, т
1	0,06	0,062
2	0,04	0,041
3	0,03	0,032
4	0,02	0,021
5	0,04	0,042
6	0,09	0,1
7	0,02	0,021
8	0,03	0,031
9	0,02	0,021
10	0,01	0,011
11	0,00	0,001
12	0,05	0,052
13	0,04	0,041
14	0,03	0,031
15	0,03	0,032
16	0,04	0,042
17	0,07	0,073
18	0,06	0,062
19	0,04	0,042
20	0,04	0,041
21	0,01	0,011
22	0,02	0,021
23	0,04	0,042
24	0,01	0,011
25	0,02	0,021

Значения нормативов платы за сбросы ЗВ в водные объекты

Загрязняющее вещество	Плата в пределах установленных нормативов γ_1 , руб./т	Плата в пределах установленных лимитов γ_2 , руб./т	Плата за превышение установленных лимитов γ_3 , руб./т
Калий	6,82	34,1	170,5
Азот	757,9	3799	18947
Фосфор	3030,5	15152	75762
Прометрин	6061	30305	151525
Атразин	60605	303028	1515140

Считать, что по всем средствам химизации, кроме атразина, их поступление в водный объект не превышает установленных нормативов.

Задача 5

Определить величину экономического ущерба от загрязнения водного объекта биогенными веществами, источником которых являются минеральные удобрения

1. Исходные данные

1.1. Для выращивания сельскохозяйственных культур на полях, расположенных в водосборе реки, внедряются интенсивные технологии, что предполагает внесение минеральных удобрений, являющихся источником биогенной нагрузки, преимущественно азота N, фосфора P, калия K. Сельскохозяйственные угодья площадью F (га) расположены на известном удалении от уреза реки l (м), что в конечном итоге определяет фактическую величину биогенной нагрузки W' (т) на водный объект, а следовательно, и величину экономического ущерба U (руб.) загрязнений.

1.2. Во избежание выноса остатков удобрений в водный источник рекомендуется внедрить систему водоохраных мероприятий, что позволит снизить вынос биогенов до допустимого уровня.

1.3. Ожидаемый экономический результат P (руб.) водоохраных мероприятий следует определять величиной снижаемого (предотвращаемого) ущерба.

2. Задание

Определить:

2.1. Величину экономического ущерба (U) от загрязнения водного объекта биогенными веществами.

2.2. Годовой экономический эффект (Э) от проведения водоохраных мероприятий в зоне сельскохозяйственной деятельности.

3. Методика расчета

3.1. Для изучения влияния минеральных удобрений на загрязнение природных вод необходимо определить величину возможного и фактического (W и W') выноса биогенных веществ в водный объект.

По результатам литературных источников вынос биогенных веществ в водный объект для зоны Урала составляет:

Азота $\beta_N = 13,6$ кг/га,

Фосфора $\beta_P = 1,9$ кг/га,

Калия $\beta_K = 14,5$ кг/га.

Возможный вынос биогенных веществ определяется соответственно:

$$W_N = \beta_N F;$$

$$W_P = \beta_P F;$$

$$W_K = \beta_K F.$$

3.2. Биогенные вещества, вымываемые с сельскохозяйственных угодий, частично попадают в водный объект, значительная часть их аккумулируется естественными природными фильтрами (луга, болота, низины).

Количество биогенов, фактически поступивших в водный объект от данного источника загрязнения, в большей степени зависит от удаленности сельскохозяйственных угодий от уреза воды и учитывается при расчете коэффициентом редукиции α (табл.9).

Таблица 9

Коэффициенты выноса биогенных веществ в водотоки в зависимости от удаленности угодий от уреза воды

Коэффициент редукиции	Зоны удаленности с/х угодий относительно уреза воды, м					
	0-500	500-1000	1000-2000	2000-3000	3000-4000	Более 4000
α	1,0	0,9	0,8	0,6	0,5	

Следовательно, величина фактического выноса биогенных веществ будет определяться формулой:

$$W' = \alpha W.$$

Примечание: значения W' определяются отдельно для каждого биогенного вещества.

3.3. Расчет величины экономического ущерба от загрязнения водного объекта биогенными веществами предлагается определять по формуле:

$$U = j \times б \times M,$$

- где U – экономический ущерб, руб.;
- j – удельный ущерб (руб./усл.т);
- б – безразмерная величина, коэффициент экологической ситуации и экологической значимости состояния водных объектов;
- M – приведенная масса годового сброса загрязняющих веществ в данный источник, усл.т/год.

Величина M вычисляется по формуле:

$$M = \sum_{i=1}^N m^i A_i,$$

- где i – номер сбрасываемой примеси;
- N – общее количество примесей;
- A_i – показатель относительной опасности i-го вещества (усл.т/т);
- m – масса загрязняющих веществ (т).

$$A_i = \frac{1}{\text{ПДК}}^1,$$

$$A_N = \frac{1}{40,0},$$

$$A_p = \frac{1}{0,25},$$

$$A_k = \frac{1}{50,0}.$$

Величина M для данной задачи определяется соответственно:

$$M = \sum_{i=1}^3 W^i A_i.$$

3.4. Для предотвращения загрязнения водного объекта предлагается внедрить систему водоохранных мероприятий, позволяющих снизить биогенную нагрузку до допустимого уровня.

¹ ПДК загрязняющих веществ взяты для водоемов рыбохозяйственного значения.

Перечень и стоимость водоохранных мероприятий приведены в табл.10.

Величина затрат на водоохранные мероприятия определяется соответственно:

$$З = C F.$$

Таблица 10

Калькуляция стоимости водоохранных мероприятий
на сельхозугодиях

Состав агротехнических мероприятий		Единица измерения	Стоимость единицы работ,руб.
1.	Снегозадержание	га	900
2.	Обработка почвы поперек склона	га	9000
3.	Посев буферных полос	га	3300
4.	Щелевание многолетних трав	га	7200
<i>Итого:</i>			20400

3.5. В результате проведения агротехнических мероприятий удалось добиться прекращения попадания биогенов в водный объект, поэтому ожидаемый экономический эффект (Р) водоохранных мероприятий равен величине предотвращаемого экономического ущерба (U):

$$P = U$$

Годовой экономический эффект от проведения водоохранных мероприятий определяется соответственно:

$$\Xi = P - З$$

Выводы к задаче должны соответствовать всем вышеперечисленным пунктам.

4. Алгоритм решения задачи

4.1. Расчет возможного выноса биогенов с сельскохозяйственных угодий.

4.2. Расчет фактического выноса биогенных веществ в водный объект.

4.3. Расчет экономического ущерба от загрязнения водного объекта.

4.4. Определение стоимости водоохранных мероприятий.

5. Расчет годового экономического эффекта от проведения водоохраных мероприятий

Данные для решения задачи 4

№ варианта	F, га	l, м	№ варианта	F, га	l, м
1	1,20	2500	14	4,64	1025
2	1,35	490	15	5,01	720
3	1,50	575	16	5,23	1950
4	1,63	3750	17	5,68	2380
5	1,00	1565	18	5,91	1000
6	1,95	2005	19	6,15	1350
7	2,70	150	20	6,43	2250
8	3,05	3275	21	6,64	1004
9	3,48	1560	22	6,07	2505
10	3,70	4000	23	7,07	1307
11	3,94	3750	24	7,39	2999
12	4,08	1520	25	7,50	3404
13	4,25	1550			

Задача 6

Определение экономического ущерба от загрязнения водоема пестицидами

1. Исходные данные

1.1. Сельскохозяйственное предприятие на орошаемом участке, расположенном в пойме реки, выращивает картофель на площади 400 га (S_1), столовую свеклу 100 га (S_2) и морковь – 100 га (S_3).

1.2. Интенсивная технология выращивания этих культур предусматривает использование средств химизации – ядохимикатов и минеральных удобрений. Для борьбы с фитофторозом картофеля производится обработка его посадок поликарбопином в дозе (D) 2,4 кг/га, а для борьбы с сорняками посева картофеля, моркови и свеклы обрабатываются прометрином в дозе 4 кг/га. Под все выращиваемые культуры вносятся минеральные удобрения: азотные – 180 кг/га, фосфорные – 120 кг/га, калийные – 180 кг/га действующего вещества.

1.3. Часть вносимых на поле ядохимикатов и минеральных удобрений с поверхностным стоком попадает в водоем, вызывая его загрязнение. Коэффициент потерь (Π), отражающий долю средств химизации, попадающих в водоем, от внесенного количества, для ядохимикатов равен 2%, азотных удобрений – 15%, фосфорных – 5%, калийных – 10%.

2. Задание

Следует определить величину годового экономического ущерба (u) от загрязнения водоема пестицидами.

3. Порядок расчета

Годовой экономический ущерб (руб./год), наносимый окружающей среде в результате загрязнения водоема, равен:

$$u = j \cdot b \cdot M,$$

- где j – удельный ущерб, (руб./год);
 b – безразмерная константа, имеющая определенное значение для различных водохозяйственных участков;
 M – приведенная масса годового сброса (усл.т/год):

$$M = \sum_{i=1}^N m_i \times A_i,$$

- где N – количество средств химизации, попадающих в водоем;
 i – номер пестицида;
 m_i – общая масса пестицида, попадающего в водоем, т:

$$m_i = \frac{D \times \Pi \times S}{100},$$

- где D_i – доза i-го пестицида, попадающего в водоем, кг/га;
 Π_i – коэффициент потерь для i-го пестицида, %;
 S_i – площадь выращивания i-той культуры, га;
 A_i – показатель относительной опасности i-го пестицида, попадающего в водоем:

$$A_i = \frac{1}{\text{ПДК}}_{\text{p/x}},$$

- где ПДК_{p/x} – предельно допустимая концентрация i-го пестицида для рыбохозяйственных водоемов (ПДК_{p/x} для поликарбацина – 0,00024 мг/л, прометрина – 0,05 мг/л, соединений азота – 0,5 мг/л, фосфора – 0,7 мг/л, калия – 0,8 мг/л).

Данные для задачи 5

№ варианта	S	S ₂	S ₃	№ варианта	S	S ₂	S ₃
1	400	100	100	14	490	110	135
2	430	150	130	15	480	130	144
3	480	110	120	16	450	140	155
4	280	80	111	17	380	144	107
5	500	120	134	18	430	135	112
6	390	90	151	19	440	111	114
7	410	150	100	20	470	151	101
8	450	110	109	21	490	130	90
9	460	115	110	22	410	125	122
10	470	127	112	23	450	100	132
11	410	110	113	24	460	109	110
12	480	100	115	25	420	115	151
13	400	121	140				

Задача 7

Обоснование эффективности экологического страхования исходя из размера экологического риска

1. Исходные данные

1.1. На территории крупного города расположено действующее (T лет), выпускающее оборудование для предприятий отрасли химического машиностроения и товары народного потребления на устаревшем оборудовании.

1.2. На территории предприятия находятся 4 источника выбросов ЗВ в атмосферу (ΣM), два из которых характеризуются сверхнормативными выбросами (ΔM) (основные характеристики загрязняющих веществ приведены в табл. 1).

1.3. Данное предприятие решает застраховать ущерб (U), наносимый окружающей среде загрязняющими веществами и связывается со страховой компанией, которая предлагает при вероятном наступлении страхового события (P), выплатить страховую сумму (S).

2. Задание

Для принятия окончательного решения обеими сторонами, необходимо определить целесообразность заключения страхового соглашения. Для этого следует найти страховой тариф T , убыточность страховой суммы Y , рентабельность страховой операции R , ущерб, наносимый окружающей среде загрязняющими веществами U , значение максимальной страховой суммы S_{\max} .

3. Методика расчетов

3.1. При определении вероятности наступления страхового случая P , которая вычисляется по формуле:

$$P = r \times \omega \times U,$$

Где необходимо вычислить величину частоты наступления страхового события r по формуле:

$$r = \frac{1}{T} \times \sum_{i=1}^T \frac{N_{\text{св.н.}}}{n},$$

и величину потенциальной опасности выброса w , которая рассчитывается по формуле:

$$\omega = \frac{1}{T} \times \sum_{t=1}^T \frac{\Delta M}{\sum M},$$

3.2. Далее рассчитывается величина потенциального ущерба по формуле U :

$$U = \frac{1}{T} \times \sum_{t=1}^T \frac{\Pi_{\text{Св.н.}}}{\sum \Pi},$$

3.3. Рассчитывается страховой тариф, ставка страхового взноса рассчитывается с единицы страховой суммы (обычно со 100 руб.) за годичный период страхования. Величина брутто-ставки может быть формально интерпретирована следующим образом:

$$T_b = S \times E a^{-jR},$$

- где
- S – величина страховой выплаты в руб.,
 - $E a^{-jR}$ – средняя величина страхового взноса в рублях, определяемая некоторыми случайными параметрами
 - j – текущий банковский процент,
 - R – время действия договора, нетто-ставка
 - T_n – состоит из основной части T_o и рискованной надбавки T_p

$$T_n = T_o + T_p.$$

Основная часть нетто-ставки со 100 руб. страховой суммы рассчитывается по формуле:

$$T_o = 100 \times \frac{S_o}{S} \times p,$$

- где
- p – вероятность наступления страхового случая, S_o/S – отношение страхового возмещения в средней страховой сумме, согласно рекомендации Росстрахнадзора для оценки среднего возмещения к страховой сумме рекомендуется величина 0,7.

Рискованная надбавка находится по формуле:

$$T_p = 1,2 \times \alpha(\gamma) \times T_o \times \sqrt{\frac{1-p}{n \times p}},$$

где n – предполагаемое число договоров,
 $a(\gamma)$ – коэффициент опр. по таблице

Таблица 1

Значение коэффициента $a(\gamma)$					
γ	0,84	0,90	0,95	0,98	0,986
a	1,0	1,3	1,645	2,0	3,0

Брутто-ставка определяется по формуле:

$$T_o = \frac{T_n}{100 - f} \times 100,$$

3.4. Определяется убыточность страховой суммы Y , которая отражает соотношение между страховой выплатой и страховой суммой S

$$Y = \frac{\sum_n S_o \times 100}{\sum_n S},$$

С понятием «убыточность страховой суммы» связано и определение финансовой устойчивости операций Ψ :

$$\Psi = \sqrt{\frac{1 - p}{n \times p}},$$

3.5. Рассчитывается показатель рентабельности R :

$$R = \frac{\sum_n S_o \times 100}{\sum_n T_n} \times \frac{Y \times 100}{T_n},$$

3.6. В зависимости от показателя финансовой устойчивости разовых операций находится и максимальная страховая сумма S_{\max} :

$$S_{\max} = 2\Psi^2 \times T_n.$$

Данные для решения задачи 6.

№	Фактическая масса выброса т./г.				Нормативная масса выбросов ЗВ т./г.				Плата за выбросы тыс. руб.			Страх сумма, у.е.	Страх взнос, %	
	М фактическая				М нормативная				П					
	М ₁	М ₂	М ₃	М ₄	Мнорм ₁	Мнорм ₂	Мнорм ₃	Мнорм ₄	Псв.н.1	П	Псв.н.2			Псв.н.3
1	10	2,0	1,0	15	8,0	2,0	0,5	10,0	15,0	10,0	0,7	8,0	100	0,7
2	9	1,8	1,1	16	8,2	1,85	0,55	14,0	14,0	10,0	0,7	6,0	100	0,7
3	11	2,2	0,9	14,5	8,05	3,0	0,65	12,5	16,5	10,0	0,7	6,0	100	0,7
4	9,1	2,15	0,91	14	7,8	2,85	0,75	12,0	14,3	10,0	0,7	5,0	100	0,7
5	9,5	2,12	1,12	15,5	7,88	2,9	0,45	14,5	15,0	10,0	0,7	4,0	100	0,7
6	1,4	1,90	1,03	15,9	8,04	1,95	0,86	11,9	15,0	10,0	0,7	7,0	100	0,7
7	8,7	1,85	0,50	14,8	7,2	2,05	0,47	12,8	14,8	10,0	0,7	5,0	100	0,7
8	11,5	2,05	0,99	15,1	7,55	2,15	0,79	12,1	17,1	10,0	0,7	6,0	100	0,7
9	9,3	2,1	0,98	15,2	7,25	2,2	0,78	11,2	14,5	10,0	0,7	7,0	100	0,7
10	10,4	1,9	0,97	13,9	8,75	2,16	0,64	10,9	14,9	10,0	0,7	6,0	100	0,7
11	10,1	1,95	1,09	16,5	8,8	1,95	0,51	14,5	15,0	10,0	0,7	6,0	100	0,7
12	9,8	1,02	1,08	13,5	8,15	1,86	0,61	12,5	13,5	10,0	0,7	5,0	100	0,7
13	9,7	1,87	1,02	15,6	8,1	1,87	0,49	11,6	13,6	10,0	0,7	4,0	100	0,7
14	10,2	1,96	0,95	16,2	8,25	1,97	0,44	14,2	15,2	10,0	0,7	7,0	100	0,7
15	10,3	2,0	0,93	16,9	7,3	2,07	0,71	12,1	16,1	10,0	0,7	4,0	100	0,7
16	9,9	1,81	1,07	15,9	7,35	2,06	0,72	11,9	14,9	10,0	0,7	6,0	100	0,7
17	9,6	1,72	1,11	13,7	7,65	1,88	0,41	11,7	15,7	10,0	0,7	5,0	100	0,7
18	8,8	1,64	1,06	13,6	8,65	1,98	0,52	12,6	9,6	10,0	0,7	4,0	100	0,7
19	11,2	2,0	0,92	14,9	8,55	2,09	0,53	10,9	13,9	10,0	0,7	7,0	100	0,7
20	9,2	2,03	1,04	15,7	7,31	2,19	0,62	15,3	14,3	10,0	0,7	4,0	100	0,7
21	10,8	1,88	1,07	13,9	8,41	1,99	0,77	12,9	14,9	10,0	0,7	4,0	100	0,7
22	8,4	1,9	0,96	14,7	8,09	1,91	0,76	11,7	9,7	10,0	0,7	8,0	100	0,7
23	10,5	1,08	1,01	15,4	7,22	1,82	0,64	12,4	15,4	10,0	0,7	6,0	100	0,7
24	8,1	1,86	0,94	14,1	8,33	2,02	0,69	11,1	14,1	10,0	0,7	6,0	100	0,7
25	8,6	2,06	1,02	13,4	8,61	2,12	0,88	10,4	9,4	10,0	0,7	6,0	100	0,7

МИНОБРНАУКИ РОССИИ

ФГБОУ ВО «Уральский государственный горный университет»

**МЕТОДИЧЕСКИЕ МАТЕРИАЛЫ
ПО ВЫПОЛНЕНИЮ КОНТРОЛЬНОЙ РАБОТЫ
ПО ДИСЦИПЛИНЕ**

**Б1.В.ДВ.01.02 МЕТОДЫ И ТЕХНОЛОГИИ ЗАЩИТЫ И
ВОССТАНОВЛЕНИЯ ОКРУЖАЮЩЕЙ СРЕДЫ И
ПРИРОДНЫХ КОМПЛЕКСОВ**

Направление подготовки

20.03.02 Природообустройство и водопользование

Направленность (профиль)

Урбоэкология и цифровые природовоспроизводящие геотехнологии

формы обучения: **очная, заочная**

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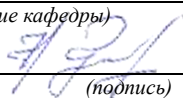
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Одобрена на заседании кафедры

Природообустройства и водопользования

(название кафедры)

Зав.кафедрой



(подпись)

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Протокол № 1 от 19.09.2021

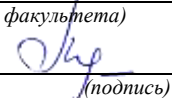
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Рассмотрена методической комиссией
факультета

Инженерно-экономического факультета

(название факультета)

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1 ТЕМАТИКА, ТРЕБОВАНИЯ И КРИТЕРИИ ОЦЕНКИ КОНТРОЛЬНОЙ РАБОТЫ

1.1 Тематика

Темы контрольной работы:

1. Организация защиты окружающей среды в системе обращения с отходами
2. Обезвреживание и переработка твердых бытовых отходов
3. Рекуперация свалочного газа
4. Рециклинг компонентов ТБО.
5. Основные направления и технологии использования отходов производства.
6. Концепция обращения с отходами потребления.
7. Рекультивация полигонов. Основные направления и этапы.
8. Строительство сооружений для защиты территории от затопления.
9. Инженерные мероприятия по стабилизации оползневых участков.
10. Эрозия и дефляция почв. Виды эрозии почв.
11. Система мероприятий по защите территории от оврагообразования.
12. Основные инженерные решения защиты селеопасных территорий.
13. Перспективные направления охраны водных ресурсов.
14. Способы сбора разливов нефти с поверхности воды.
15. Система мероприятий по защите территории от оврагообразования.
16. Основные инженерные решения защиты селеопасных территорий.
17. Мероприятия по охране окружающей среды при функционировании нефтегазового комплекса.

Структура контрольной работы:

ВВЕДЕНИЕ (АКТУАЛЬНОСТЬ)

Основная часть отчета должна содержать следующие разделы:

Глава 1. Техническое описание.

Глава 2. Применяемые технологические решения.

Глава 3. Ситуации, приводящие к аварийным случаям влияющих на окружающую среду.

Глава 4. Методы и способы ликвидации аварийных случаев, применяемое оборудование и материалы.

ЗАКЛЮЧЕНИЕ

СПИСОК ИСПОЛЬЗОВАННОЙ ЛИТЕРАТУРЫ

ПРИЛОЖЕНИЯ

ЗАКЛЮЧЕНИЕ

СПИСОК ИСПОЛЬЗОВАННОЙ ЛИТЕРАТУРЫ

ПРИЛОЖЕНИЯ

Контрольная работа – творческая, научная, самостоятельная исследовательская работа по определенной теме, в ходе которой студенты приобретают навыки работы с научной, учебной и методической литературой. Овладевают методами научного исследования, обработки, обобщения и анализа информации; расширяют общий кругозор; решают практические задачи на основе теоретических знаний; активизируют самостоятельную работу и творческое мышление.

Контрольная работа является завершающим этапом изучения дисциплины и позволяет судить о том, насколько студент усвоил теоретический курс и каковы его возможности применения полученных знаний для их обобщения по избранной теме.

Значение контрольной работы состоит в том, что в процессе ее выполнения студент не только закрепляет, но и углубляет полученные теоретические знания. Контрольная работа является составным элементом учебного процесса. Опыт и знания, полученные студентами на этом этапе обучения, во многом могут быть использованы для подготовки выпускной квалификационной работы.

1.2 Требования

К контрольной работе как самостоятельному исследованию предъявляются следующие требования:

- должна быть написана самостоятельно;
- должна отличаться критическим подходом к изучению научных источников;
- должна отвечать требованиям логичного, ясного и четкого изложения материала, с привлечением достаточного эмпирического материала;
- при необходимости в процессе изложения темы иллюстрировать доказательную базу графиками, таблицами, схемами и т.д.;
- должна быть оформлена в соответствии с ГОСТ;
- должна завершаться конкретными выводами и рекомендациями по теме исследования.

Критериями полноценности контрольной работы являются:

1. по форме:

- наличие плана и внутренних рубрикаций (правильность оформления);
- библиография источников, составленная в соответствии с ГОСТ;
- оформление цитирования в соответствии с ГОСТ;
- грамотность изложения (в т.ч. орфографической, пунктуационной, стилистической), владение научной терминологией;
- соблюдение требований объема курсовой работы;
- представление в срок к защите курсовой работы;

2. по содержанию:

- соответствие содержания заявленной теме;
- новизна и самостоятельность в постановке и раскрытии темы;
- самостоятельность изложения авторской позиции, обоснованность суждений и выводов;
- использование эмпирических, статистических и социологических исследований; - привлечение научно-исследовательской и монографической литературы;
- оригинальность текста.

1.3 Структура контрольной работы

Объём контрольной работы от 30 до 35 страниц машинописного текста через 1-1,5 интервала. При наличии приложений не более 40 страниц. Примерная структура контрольной работы:

- титульный лист (1стр.) – наименование темы,

- оглавление (1стр.)
- введение (1-2 стр.);
- изложение основной части, состоящей из 2-3 глав (20-25 стр.);
- заключение, в котором должны быть сформулированы теоретические выводы, а также рекомендации и предложения (2-3 стр.);
- список использованной литературы (1-2 стр.);
- приложения (не более 5 стр.).

Во введении студент обязан обосновать актуальность выбранной темы, кратко осветить существующий уровень её разработки, сформулировать цель и задачи КР, раскрыть предмет и объект исследования.

Обзор литературы по теме должен показать основательное знакомство исследователя со специальной литературой, его умение систематизировать источники, критически их рассматривать, выделять существенное, оценивать ранее сделанное другими исследователями, определять главное в современном состоянии изученности темы. Материалы такого обзора следует систематизировать в определенной логической связи и последовательности и потому перечень работ и их критический разбор не обязательно давать только в хронологическом порядке их публикации. От формулировки научной проблемы и доказательства того, что та часть этой проблемы, которая является темой данной работы, еще не получила своей разработки и освещения в специальной литературе, логично перейти к формулировке цели предпринимаемого исследования, а также указать на конкретные задачи (3-5 задач), которые предстоит решать в соответствии с этой целью. Это обычно делается в форме перечисления (изучить, описать, установить, выявить, вывести формулу, разработать методику и т.п.). Формулировки этих задач необходимо делать как можно более тщательно, поскольку описание их решения должно составить содержание глав научной работы. Это важно также и потому, что заголовки глав рождаются именно из формулировок задач предпринимаемого исследования.

Обязательным элементом введения является формулировка объекта и предмета исследования. Объект - это процесс или явления, порождающие проблемную ситуацию и избранные для изучения. Предмет - это то, что находится в границах объекта. Объект и предмет исследования как категории научного процесса соотносятся между собой как общее и частное. В объекте выделяется та его часть, которая служит предметом исследования. Именно на него и направлено основное внимание исследователя. Именно предмет работы определяет тему научной работы, которая обозначается на титульном листе как заглавие.

В основной части подробно раскрывается содержание глав и вопросов темы. Их рассмотрение должно отвечать требованиям научности, логической последовательности, конкретности и доказательности. В работах, посвященных современным проблемам важно показать тесную связь с жизнью.

Заключение представляет собой краткое обобщение сказанного в основной части работы, выводы, разработку рекомендаций и предложений, а также может включать краткую характеристику перспективы изучения проблемы.

В список литературы студент включает только те источники, которые он использовал при написании контрольной работы. Их должно быть содержать 15-20 источников, федеральные и региональные (муниципальные) нормативные акты обязательны. В тексте должны быть обязательно ссылки или сноски на источники из списка литературы.

В приложении выносятся таблицы, графики, схемы, образцы документов, опросных листов и другие вспомогательные материалы, на которые имеются ссылки в тексте

работы. Приложения имеют смысл только в том случае, если они дополняют, помогают раскрытию основных проблем.

1.4 Критерии оценки подготовки и защиты

Критерии оценки контрольной работы № 2	Количество баллов
Раскрытие темы контрольной работы	
Грамотность и логичность изложения	
Применение профессиональных терминов	
Соответствие требованиям оформления	
Итого	

12,6-15 баллов (85-100%) - оценка «отлично»
10,5-12,5 балла (70-84%) - оценка «хорошо»
7,5-10,6 балла (50-69%) - оценка «удовлетворительно»
0-7,4 балла (0-49%) - оценка «неудовлетворительно»

1.5 Основные ошибки при написании

1. Содержание работы не отвечает плану, не раскрывает предмет и объект исследования. Работа выглядит как бессистемный набор разрозненных фактов, мнений различных ученых, результатов социологических исследований.

2. Формулировка глав (параграфов) не раскрывает содержания исследуемого предмета по избранной теме.

3. Цель исследования не отражает специфику объекта и предмета исследования.

4. Аналитический обзор публикаций по теме работы имеет форму аннотированного списка и не отражает уровня исследования проблемы.

5. Конечный результат не отвечает цели исследования, выводы не отражают поставленной задаче.

6. В работе используются без указания источника чужие произведения, идеи и изобретения, что является нарушением авторских прав.

7. Библиографическое описание источников в списке использованной литературы приведено произвольно, без соблюдения требований ГОСТа.

8. Объем и оформление работы не отвечают требованиям; работа выполнена неаккуратно, с грамматическими, орфографическими, пунктуационными, стилистическими ошибками.

2 ТРЕБОВАНИЯ К ОФОРМЛЕНИЮ КОНТРОЛЬНОЙ РАБОТЫ

2.1 Общие требования

Оформление контрольной работы (далее «документа») осуществляется в соответствии с требованиями государственных стандартов и университета.

Отчет выполняется печатным способом с использованием компьютера.

Каждая страница текста, включая иллюстрации и приложения, нумеруется арабскими цифрами, кроме титульного листа и содержания, по порядку без пропусков и по-

вторений. Номера страниц проставляются, начиная с введения (третья страница), в центре нижней части листа без точки.

Текст работы следует печатать, соблюдая следующие размеры полей: правое – 10 мм, верхнее и нижнее – 20 мм, левое – 30 мм.

Рекомендуемым типом шрифта является Times New Roman, размер которого 14 pt (пунктов) (на рисунках и в таблицах допускается применение более мелкого размера шрифта, но не менее 10 pt).

Текст печатается через 1,5-ый интервал, красная строка – 1,25 см.

Цвет шрифта должен быть черным, необходимо соблюдать равномерную плотность, контрастность и четкость изображения по всей работе. Разрешается использовать компьютерные возможности акцентирования внимания на определенных терминах и формулах, применяя курсив, полужирный шрифт не применяется.

2.2 Правила оформления наименований и нумерации структурных элементов, глав и параграфов

Документ должен включать следующие структурные элементы: титульный лист, содержание, введение, основной текст, заключение, приложения (является дополнительным элементом). Основной текст может быть разделен на разделы и параграфы.

Каждый структурный элемент документа (титульный лист, содержание, введение, заключение, приложение) и разделы необходимо начинать с новой страницы. Следующий параграф внутри одного раздела начинается через 2 межстрочных интервала на том же листе, где закончился предыдущий.

Расстояние между заголовком структурного элемента и текстом, заголовками главы и параграфа, заголовком параграфа и текстом составляет 2 межстрочных интервала.

Наименования структурных элементов письменной работы («СОДЕРЖАНИЕ», «ВВЕДЕНИЕ», «ЗАКЛЮЧЕНИЕ», «ПРИЛОЖЕНИЕ») служат заголовками структурных элементов. Данные наименования пишутся по центру страницы без точки в конце прописными (заглавными) буквами, не подчеркивая.

Разделы, параграфы должны иметь заголовки. Их следует нумеровать арабскими цифрами и записывать по центру страницы прописными (заглавными) буквами без точки в конце, не подчеркивая. Номер раздела указывается цифрой (например, 1, 2, 3), номер параграфа включает номер раздела и порядковый номер параграфа, разделенные точкой (например, 1.1, 2.1, 3.3). После номера раздела и параграфа в тексте точку не ставят. Если заголовок состоит из двух предложений, их разделяют точкой. Переносы слов в заголовках не допускаются. Не допускается писать заголовок параграфа на одном листе, а его текст – на другом.

В содержании работы наименования структурных элементов указываются с левого края страницы, при этом первая буква наименования является прописной (заглавной), остальные буквы являются строчными, например:

Введение

1 Краткая характеристика организации – места прохождения практики

2 Практический раздел – выполненные работы

Заключение

Приложения

2.3 Правила оформления сокращений и аббревиатур

Сокращение русских слов и словосочетаний допускается при условии соблюдения требований ГОСТ 7.12–93 «Система стандартов по информации, библиотечному и изда-

тельскому делу. Библиографическая запись. Сокращение слов на русском языке. Общие требования и правила».

В тексте письменной работы допускаются общепринятые сокращения и аббревиатуры, установленные правилами орфографии и соответствующими нормативными документами, например: год – г., годы – гг., и так далее – и т. д., метр – м, тысяч – тыс., миллион – млн, миллиард – млрд, триллион – трлн, страница – с., Российская Федерация – РФ, общество с ограниченной ответственностью – ООО.

При использовании авторской аббревиатуры необходимо при первом ее упоминании дать полную расшифровку, например: «... Уральский государственный горный университет (далее – УГГУ)...».

Не допускается использование сокращений и аббревиатур в заголовках письменной работы, глав и параграфов.

2.4 Правила оформления перечислений

При необходимости в тексте работы могут быть приведены перечисления. Перед каждым элементом перечисления следует ставить дефис (иные маркеры не допустимы). Например:

«...заключение содержит:

- краткие выводы;
- оценку решений;
- разработку рекомендаций.»

При необходимости ссылки в тексте работы на один из элементов перечисления вместо дефиса ставятся строчные буквы в порядке русского алфавита, начиная с буквы а (за исключением букв ё, з, й, о, ч, ь, ы, ь). Для дальнейшей детализации перечислений необходимо использовать арабские цифры, после которых ставится скобка, а запись производится с абзацного отступа. Например:

- а) ...;
- б) ...;
- 1) ...;
- 2) ...;
- в) ...

2.5 Правила оформления рисунков

В письменной работе для наглядности, уменьшения физического объема сплошного текста следует использовать иллюстрации – графики, схемы, диаграммы, чертежи, рисунки и фотографии. Все иллюстрации именуется рисунками. Их количество зависит от содержания работы и должно быть достаточно для того, чтобы придать ей ясность и конкретность.

На все рисунки должны быть даны ссылки в тексте работы, например: «... в соответствии с рисунком 2 ...» или «... тенденцию к снижению (рисунок 2)».

Рисунки следует располагать в работе непосредственно после текста, в котором они упоминаются впервые (при наличии достаточного пространства для помещения рисунка со всеми поясняющими данными), или на следующей странице. Если рисунок достаточно велик, его можно размещать на отдельном листе. Допускается поворот рисунка по часовой стрелке (если он выполнен на отдельном листе). Рисунки, размеры которых больше формата А4, учитывают как одну страницу и помещают в приложениях.

Рисунки, за исключением рисунков в приложениях, следует нумеровать арабскими цифрами сквозной нумерацией по всей работе. Каждый рисунок (схема, график, диаграм-

ма) обозначается словом «Рисунок», должен иметь заголовок и подписываться следующим образом – посередине строки без абзацного отступа, например:



Рисунок 1 – Структура администрации организации

Если на рисунке отражены показатели, то после заголовка рисунка через запятую указывается единица измерения, например:

Рисунок 1 – Структура добычи, %

Рисунки каждого приложения обозначают отдельной нумерацией арабскими цифрами с добавлением перед цифрой обозначения приложения (например, рисунок А.3).

Если рисунок взят из первичного источника без авторской переработки, следует сделать ссылку, например:

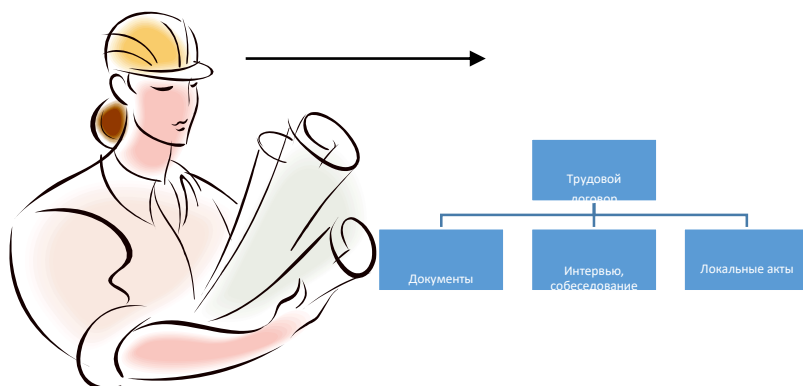
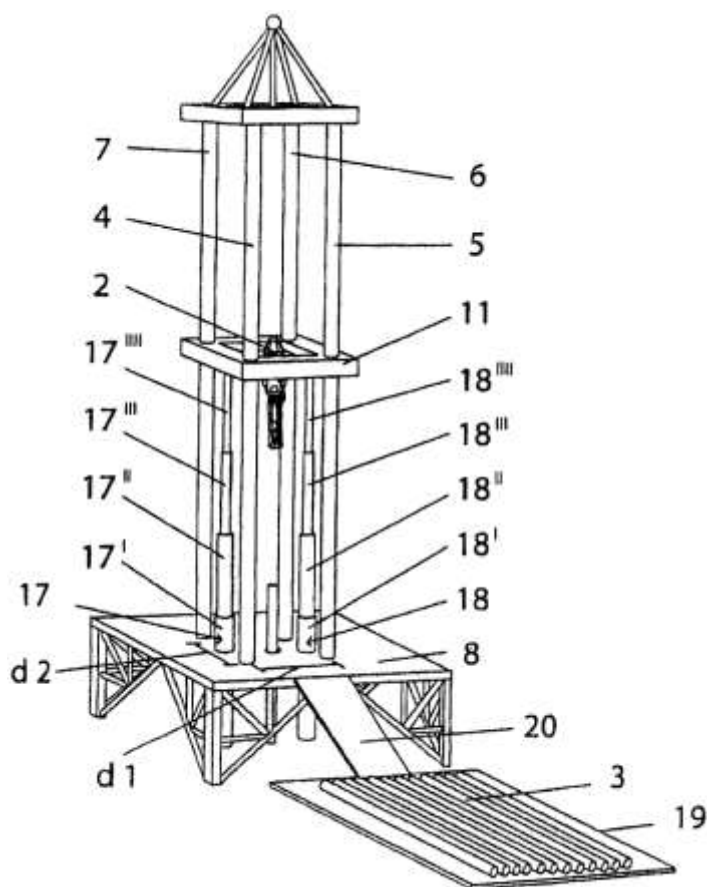


Рисунок 1 - Процесс заключения трудового договора [8, с. 46]

Если рисунок является авторской разработкой, необходимо после заголовка рисунка поставить знак сноски и указать в форме подстрочной сноски внизу страницы, на основании каких источников он составлен, например:



Фиг.4

Рисунок 2 – Буровая установка,.....¹

При необходимости между рисунком и его заголовком помещаются поясняющие данные (подрисовочный текст), например, легенда.

2.6 Правила оформления таблиц

В письменной работе фактический материал в обобщенном и систематизированном виде может быть представлен в виде таблицы для наглядности и удобства сравнения показателей.

На все таблицы должны быть ссылки в работе. При ссылке следует писать слово «таблица» с указанием ее номера, например: «...в таблице 2 представлены ...» или «... характеризуется показателями (таблица 2)».

Таблицу следует располагать в работе непосредственно после текста, в котором она упоминается впервые, или на следующей странице.

Таблицы, за исключением таблиц в приложениях, следует нумеровать арабскими цифрами сквозной нумерацией по всей работе. Каждая таблица должна иметь заголовок, который должен отражать ее содержание, быть точным, кратким. Заголовок таблицы следует помещать над таблицей слева, без абзачного отступа в одну строку с ее номером через тире, например:

Таблица 3 – Количество тонн угля, добытого шахтами Свердловской области

¹ Составлено автором по: [15, 23, 42].

Наименование организации	2017	2018
ПАО «Бокситы Севера»	58	59
Березниковская шахта	29	51

Если таблица взята из первичного источника без авторской переработки, следует сделать ссылку, например:

Таблица 2 – Динамика основных показателей развития шахтного строительства в России за 2015–2018 гг. [15, с. 35]

	2015	2016	2017	2018
Объем строительства, млрд. руб.				
.....				

Если таблица является авторской разработкой, необходимо после заголовка таблицы поставить знак сноски и указать в форме подстрочной сноски внизу страницы, на основании каких источников она составлена, например:

Таблица 3 – Количество оборудования¹

Вид оборудования	2016	2017
Буровая машина	3	5
.....	3	7

Располагают таблицы на странице обычно вертикально. Помещенные на отдельной странице таблицы могут быть расположены горизонтально, причем графа с наименованиями показателей должна размещаться в левой части страницы. Слева, справа и снизу таблицы ограничивают линиями.

Таблицу с большим числом строк допускается переносить на другую страницу. При переносе части таблицы на другую страницу слово «Таблица» указывают один раз слева над первой частью таблицы. На странице, на которую перенесена часть таблицы, слева пишут «Продолжение таблицы» или «Окончание таблицы» с указанием номера таблицы и повторением шапки таблицы.

Если таблица переносится, то на странице, где помещена первая часть таблицы, нижняя ограничительная линия таблицы не проводится. Это же относится к странице (страницам), где помещено продолжение (продолжения) таблицы. Нижняя ограничительная линия таблицы проводится только на странице, где помещено окончание таблицы.

Заголовки граф и строк таблицы следует писать с прописной буквы в единственном числе, а подзаголовки граф – со строчной буквы, если они составляют одно предложение с заголовком, или с прописной буквы, если они имеют самостоятельное значение. В конце заголовков и подзаголовков таблиц точки не ставят. Заголовки граф, как правило, записывают параллельно строкам таблицы. При необходимости допускается перпендикулярное расположение заголовков граф.

Примечания к таблице (подтабличные примечания) размещают непосредственно под таблицей в виде: а) общего примечания; б) сноски; в) отдельной графы или табличной строки с заголовком. Выделять примечание в отдельную графу или строку целесообразно лишь тогда, когда примечание относится к большинству строк или граф. Примечания к отдельным заголовкам граф или строк следует связывать с ними знаком сноски. Общее примечание ко всей таблице не связывают с ней знаком сноски, а помещают после заголовка «Примечание» или «Примечания», оформляют как внутритекстовое примечание.

Допускается применять размер шрифта в таблице меньший, чем в тексте работы, но не менее 10 pt.

Если все показатели, приведенные в графах таблицы, выражены в одной и той же единице измерения, то ее обозначение необходимо помещать над таблицей справа. Если показатели таблицы выражены в разных единицах измерения, то обозначение единицы измерения указывается после наименования показателя через запятую. Допускается при необходимости выносить в отдельную графу обозначения единиц измерения.

Текст, повторяющийся в строках одной и той же графы и состоящий из одиночных слов, чередующихся с цифрами, заменяют кавычками. Если повторяющийся текст состоит из двух или более слов, то при первом повторении его заменяют словами «То же», а далее – кавычками. Если предыдущая фраза является частью последующей, то допускается заменить ее словами «То же» и добавить дополнительные сведения. При наличии горизонтальных линий текст необходимо повторять. Если в ячейке таблицы приведен текст из нескольких предложений, то в последнем предложении точка не ставится.

Заменять кавычками повторяющиеся в таблице цифры, математические знаки, знаки процента и номера, обозначения нормативных материалов, марок материалов не допускается.

При отсутствии отдельных данных в таблице следует ставить прочерк (тире). Цифры в графах таблиц должны проставляться так, чтобы разряды чисел во всей графе были расположены один под другим, если они относятся к одному показателю. В одной графе должно быть соблюдено, как правило, одинаковое количество десятичных знаков для всех значений величин.

Если таблицы размещены в приложении, их нумерация имеет определенные особенности. Таблицы каждого приложения нумеруют отдельной нумерацией арабскими цифрами. При этом перед цифрой, обозначающей номер таблицы в приложении, ставится буква соответствующего приложения, например:

Таблица В.1.– Динамика показателей за 2016–2017 гг.

Если в документе одна таблица, то она должна быть обозначена «Таблица 1» или «Таблица В.1», если она приведена в приложении (допустим, В).

2.7 Правила оформления примечаний и ссылок

При необходимости пояснить содержание текста, таблицы или иллюстрации в работе следует помещать примечания. Их размещают непосредственно в конце страницы, таблицы, иллюстрации, к которым они относятся, и печатают с прописной буквы с абзацного отступа после слова «Примечание» или «Примечания». Если примечание одно, то после слова «Примечание» ставится тире и примечание печатается с прописной буквы. Одно примечание не нумеруют. Если их несколько, то после слова «Примечания» ставят двоеточие и каждое примечание печатают с прописной буквы с новой строки с абзацного отступа, нумеруя их по порядку арабскими цифрами.

Цитаты, а также все заимствования из печати данные (нормативы, цифры и др.) должны иметь библиографическую ссылку на первичный источник. Ссылка ставится непосредственно после того слова, числа, предложения, по которому дается пояснение, в квадратных скобках. В квадратных скобках указывается порядковый номер источника в соответствии со списком использованных источников и номер страницы, с которой взята информация, например: [4, с. 32]. Это значит, использован четвертый источник из списка литературы со страницы 32. Если дается свободный пересказ принципиальных положений тех или иных авторов, то достаточно указать в скобках после изложения заимствованных положений номер источника по списку использованной литературы без указания номера страницы.

2.8 Правила оформления списка использованных источников

Оформлению списка использованных источников, прилагаемого к документу, следует уделять самое серьезное внимание.

Сведения об источниках приводятся в следующем порядке:

1) **нормативные правовые акты:** Нормативные правовые акты включаются в список в порядке убывания юридической силы в следующей очередности: международные нормативные правовые акты, Конституция Российской Федерации, федеральные конституционные законы, федеральные законы, акты Конституционного Суда Российской Федерации, решения других высших судебных органов, указы Президента Российской Федерации, постановления Правительства Российской Федерации, нормативные правовые акты федеральных органов исполнительной власти, законы субъектов Российской Федерации, подзаконные акты субъектов Российской Федерации, муниципальные правовые акты, акты организаций.

Нормативные правовые акты одного уровня располагаются в хронологическом порядке, от принятых в более ранние периоды к принятым в более поздние периоды.

Примеры оформления нормативных правовых актов и судебной практики:

1. Об общих принципах организации законодательных (представительных) и исполнительных органов власти субъектов Российской Федерации [Текст]: Федеральный закон от 06.10.1999 г. № 184-ФЗ // Собрание законодательства РФ. - 1999. - № 43.

2. О порядке разработки и утверждения административных регламентов исполнения государственных функций (предоставления государственных услуг) [Электронный ресурс]: Постановление Правительства РФ от 11.11.2005 г. № 679. - Доступ из справочно-правовой системы «КонсультантПлюс». – Режим доступа: <http://www.consultant.ru>.

3. О практике применения судами Закона Российской Федерации «О средствах массовой информации» [Электронный ресурс]: Постановление Пленума Верховного Суда РФ от 15.06.2010 № 16. - Доступ из справочно-правовой системы «КонсультантПлюс». – Режим доступа: <http://www.consultant.ru>.

4. Определение судебной коллегии по гражданским делам Верховного Суда Российской Федерации по иску Цирихова // Бюллетень Верховного Суда Российской Федерации. - 1994. - №9. - С. 1-3.

2) **книги, статьи, материалы конференций и семинаров.** Располагаются по алфавиту фамилии автора или названию, если книга печатается под редакцией. Например:

5. Абрамова, А.А. Трудовое законодательство и права женщин [Текст] / А.А.Абрамова // Вестн. Моск. ун-та. Сер. 11, Право. - 2001. - № 5. - С. 23–25.

6. Витрянский, В.В. Договор банковского счета [Текст] / В.В. Витрянский // Хозяйство и право.- 2006.- № 4.- С. 19 – 25.

7. Двинянинова, Г.С. Комплимент: Коммуникативный статус или стратегия в дискурсе [Текст] / Г.С. Двинянинова // Социальная власть языка: сб. науч. тр. / Воронеж. межрегион. ин-т обществ. наук, Воронеж. гос. ун-т, Фак. романо-герман. истории. - Воронеж, 2001. - С. 101–106.

8. История России [Текст]: учеб. пособие для студентов всех специальностей / В.Н. Быков [и др.]; отв. ред. В.Н. Сухов; М-во образования Рос. Федерации, С.-Петерб. гос. лесотехн. акад. - 2-е изд., перераб. и доп. / при участии Т.А. Суховой. - СПб.: СПбЛТА, 2001. - 231 с.

9. Трудовое право России [Текст]: учебник / Под ред. Л.А.Сыроватской. - М.: Юристъ, 2006. - 280 с.

10. Семенов, В.В. Философия: итог тысячелетий. Философская психология [Текст] / В.В. Семенов; Рос. акад. наук, Пушчин. науч. центр, Ин-т биофизики клетки, Акад. проблем сохранения жизни. - Пушино: ПНЦ РАН, 2000. - 64 с.

11. Черткова, Е.Л. Утопия как способ постижения социальной действительности [Электронный ресурс] / Е.Л. Черткова // Социемы: журнал Уральского гос. ун-та. - 2002. - N 8. – Режим доступа: <http://www2.usu.ru/philosoph/chertkova>.

12. Юридический советник [Электронный ресурс]. - 1 электрон. опт. диск (CD-ROM) : зв., цв. ; 12 см. - Прил.: Справочник пользователя [Текст] / сост. В.А. Быков. - 32 с.;

3) **статистические сборники, инструктивные материалы, методические рекомендации, реферативная информация, нормативно-справочные материалы.** Располагаются по алфавиту. Например:

13. Временные методические рекомендации по вопросам реструктуризации бюджетной сферы и повышения эффективности расходов региональных и местных бюджетов (Краткая концепция реструктуризации государственного и муниципального сектора и повышения эффективности бюджетных расходов на региональном и местном уровнях) [Текст]. - М.: ИЭПП, 2006. - 67 с.

14. Свердловская область в 1992-1996 годах [Текст]: Стат. сб. / Свердл. обл. комитет гос. статистики Госкомстата РФ. - Екатеринбург, 1997. - 115 с.

15. Социальное положение и уровень жизни населения России в 2010 г. [Текст]: Стат. сб. / Росстат. - М., 2002. - 320 с.

16. Социально-экономическое положение федеральных округов в 2010 г. [Электронный ресурс]. – Режим доступа: <http://www.gks.ru>

4) **книги и статьи на иностранных языках** в алфавитном порядке. Например:

17. An Interview with Douglass C. North [Text] // The Newsletter of The Cliometric Society. - 1993. - Vol. 8. - N 3. - P. 23–28.

18. Burkhead, J. The Budget and Democratic Government [Text] / Lyden F.J., Miller E.G. (Eds.) / Planning, Programming, Budgeting. Markham : Chicago, 1972. 218 p.

19. Miller, D. Strategy Making and Structure: Analysis and Implications for Performance [Text] // Academy of Management Journal. - 1987. - Vol. 30. - N 1. - P. 45–51;

20. Marry S.E. Legal Pluralism. – Law and Society Review. Vol 22.- 1998.- №5.- p. 22-27

5) **интернет-сайты.** Например:

21. Министерство финансов Российской Федерации: [Электронный ресурс]. – Режим доступа: <http://www.minfin.ru>

22. Российская книжная палата: [Электронный ресурс]. - Режим доступа: <http://www.bookchamber.ru>

В списке использованных источников применяется сквозная нумерация с применением арабского алфавита. Все объекты печатаются единым списком, группы объектов не выделяются, источники печатаются с абзацного отступа.

Объекты описания списка должны быть обозначены терминами в квадратных скобках²:

- [Видеозапись];
- [Мультимедиа];
- [Текст];
- [Электронный ресурс].

При занесении источников в список литературы следует придерживаться установленных правил их библиографического описания.

² Полный перечень см. в: Система стандартов по информации, библиотечному и издательскому делу. Библиографическая запись. Библиографическое описание. Общие требования и правила составления [Текст]: ГОСТ 7.1-2003.

2.9 Правила оформления приложений

В приложения рекомендовано включать материалы, которые по каким-либо причинам не могут быть включены в основную часть: материалы, дополняющие работу; таблицы вспомогательных цифровых данных; инструкции, методики, описания алгоритмов и программ задач, иллюстрации вспомогательного характера; нормативные правовые акты, например, должностные инструкции. В приложения также включают иллюстрации, таблицы и распечатки, выполненные на листах формата А3.

Приложения оформляют как продолжение данного документа на последующих его листах после списка использованных источников.

Приложения обозначают заглавными буквами русского алфавита, начиная с А, за исключением букв Ё, З, Й, О, Ч, Ъ, Ы, Ъ (ПРИЛОЖЕНИЕ А, ПРИЛОЖЕНИЕ Б, ПРИЛОЖЕНИЕ В и т.д.). Допускается обозначение приложений буквами латинского алфавита, за исключением букв I и O. В случае полного использования букв русского и латинского алфавитов допускается обозначать приложения арабскими цифрами.

Само слово «ПРИЛОЖЕНИЕ» пишется прописными (заглавными) буквами.

Если в работе одно приложение, оно обозначается «ПРИЛОЖЕНИЕ А».

Каждое приложение следует начинать с новой страницы. При этом слово «ПРИЛОЖЕНИЕ» и его буквенное обозначение пишутся с абзацного отступа.

Приложение должно иметь заголовок, который записывают на следующей строке после слова «ПРИЛОЖЕНИЕ» с абзацного отступа. Заголовок пишется с прописной буквы.

В тексте работы на все приложения должны быть даны ссылки, например: «... в приложении Б...». Приложения располагают в порядке ссылок на них в тексте работы.

Текст каждого приложения, при необходимости, может быть разделен на разделы, подразделы, пункты, подпункты, которые нумеруют в пределах каждого приложения. Перед номером ставится обозначение этого приложения.

Приложения должны иметь общую с остальной частью документа сквозную нумерацию страниц.

3. Подготовка к защите контрольной работы

3.1 Методические рекомендации:

Презентация, это демонстрация возможности студента и его способности организации в наглядной форме основных положений доклада в соответствии с современными требованиями и с использованием современных информационных технологий. Презентация выполняется в программе PowerPoint.

Подготовка презентации предполагает следующие пошаговые действия:

1. Подготовка доклада.
2. Разработка структуры презентации
3. Создание презентации в Power Point
4. Репетиция доклада с использованием презентации

Презентация должна полностью соответствовать тексту доклада. В первую очередь необходимо составить сам текст доклада, во вторую очередь - создать презентацию.

Очередность слайдов должна четко соответствовать структуре в доклада. Не планируйте в процессе доклада возвращаться к предыдущим слайдам или перелистывать их вперед, это усложнит процесс и может сбить ход ваших рассуждений.

Не пытайтесь отразить в презентации весь текст доклада! Слайды должны демонстрировать лишь основные положения доклада. Слайды не должны быть перегружены графической и текстовой информацией, различными эффектами анимации.

Презентация должна состоять из 10-20 слайдов.

3.2 Дизайн слайдов.

Оформление слайдов не должно отвлекать внимание от защищаемого – это всего лишь вспомогательный материал.

Дизайн должен быть единый. Текст должен быть четко виден на фоне и легко мог быть прочитан. Лучшее сочетание: белый фон, черный текст. Рекомендуется использовать один вид шрифта, простой печатный черного или темно-синего цвета, вместо экзотических и витиеватых шрифтов. Лучше использовать одну цветовую гамму во всей презентации, а не различные стили для каждого слайда.

Особое внимание к деталям.

Каждый элемент должен быть тщательно подготовлен: все рисунки и фотографии очищены от лишних надписей.

Текстовые объекты.

Оптимальное число строк на слайде—от 6 до 11. Перегруженность и мелкий шрифт тяжелы для восприятия.

Пункты перечней должны быть выполнены короткими фразами, оптимально — одна строка, максимум—две. Шрифт для заголовков 24 -34 пункта; для информационного текста 18-22 пункта; для надписей – обозначений в рисунках на объектах не ниже 12 пункта.

Рекомендуется цветом или жирным шрифтом выделять те их ключевые фрагменты, на которых Вы останавливаетесь при обсуждении.

В презентации желательны чертежи, рисунки, схемы и другой графический материал, иллюстрирующий основные положения доклада.

Оформление таблиц и рисунков.

Таблицы и рисунки должны иметь названия и порядковую нумерацию. Нумерация таблиц и рисунков должна быть сквозной в презентации.

Порядковый номер таблицы и название таблицы проставляются выше таблицы. Порядковый номер рисунка и его название проставляются под рисунком.

3.3 Структура выступления

Выступление должно содержать: название, сообщение основной идеи, современную оценку предмета изложения, краткое перечисление рассматриваемых вопросов, живую интересную форму изложения, акцентирование внимания на важных моментах, оригинальность подхода.

Основная часть, в которой выступающий должен глубоко раскрыть суть затронутой темы, обычно строится по принципу отчета. Задача основной части – представить достаточно данных для того, чтобы слушатели заинтересовались темой и захотели ознакомиться с материалами. При этом логическая структура теоретического блока не должны даваться без наглядных пособий, аудио-визуальных и визуальных материалов.

Заключение – ясное, четкое обобщение и краткие выводы.

МИНИСТЕРСТВО ОБРАЗОВАНИЯ И НАУКИ РОССИЙСКОЙ ФЕДЕРАЦИИ

ФГБОУ ВО «Уральский государственный горный университет»

**МЕТОДИЧЕСКИЕ РЕКОМЕНДАЦИИ
ПО ВЫПОЛНЕНИЮ САМОСТОЯТЕЛЬНОЙ РАБОТЫ
ПО ДИСЦИПЛИНЕ
Б1.В.ДВ.01.02 МЕТОДЫ И ТЕХНОЛОГИИ ЗАЩИТЫ И
ВОССТАНОВЛЕНИЯ ОКРУЖАЮЩЕЙ СРЕДЫ И
ПРИРОДНЫХ КОМПЛЕКСОВ**

Направление подготовки

20.03.02 Природообустройство и водопользование

Направленность (профиль)

Урбоэкология и цифровые природовоспроизводящие геотехнологии
формы обучения: очная, заочная

год набора: 2022

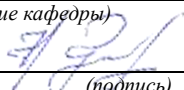
Автор: Якупов Д. Р., к.г.-м.н.

Одобрена на заседании кафедры

Природообустройства и водопользования

(название кафедры)

Зав.кафедрой


(подпись)

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Протокол № 1 от 19.09.2021

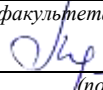
(Дата)

Рассмотрена методической комиссией
факультета

Инженерно-экономического факультета

(название факультета)

Председатель


(подпись)

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(Фамилия И.О.)

Протокол № 1 от 29.09.2021

(Дата)

Екатеринбург

МЕТОДИЧЕСКИЕ РЕКОМЕНДАЦИИ ПО ОРГАНИЗАЦИИ САМОСТОЯТЕЛЬНОЙ РАБОТЫ ПО ДИСЦИПЛИНЕ «МЕТОДЫ И ТЕХНОЛОГИИ ЗАЩИТЫ И ВОССТАНОВЛЕНИЯ ОКРУЖАЮЩЕЙ СРЕДЫ И ПРИРОДНЫХ КОМПЛЕКСОВ»

1. ЦЕЛЬ И ЗАДАЧИ САМОСТОЯТЕЛЬНОЙ РАБОТЫ ОБУЧАЮЩИХСЯ

Самостоятельная работа студентов является одной из важнейших составляющих образовательного процесса. Независимо от полученной профессии и характера работы любой начинающий специалист должен обладать фундаментальными знаниями, профессиональными умениями и навыками деятельности своего профиля, опытом творческой и исследовательской деятельности по решению новых проблем, опытом социально-оценочной деятельности.

Основным принципом организации самостоятельной работы студентов является комплексный подход, направленный на формирование навыков репродуктивной и творческой деятельности студента в аудитории, при внеаудиторных контактах с преподавателем на консультациях и домашней подготовке.

Самостоятельная работа – это планируемая работа студентов, выполняемая по заданию и при методическом руководстве преподавателя, но без его непосредственного участия. Предназначение самостоятельной работы:

- для усвоения материала дисциплины,
- для формирования навыков самостоятельной работы в учебной, научной, профессиональной деятельности,
- для приобретения способности принимать на себя ответственность, самостоятельно решать проблему, находить конструктивные решения и т. д.

Самостоятельная работа способствует:

- углублению и расширению знаний;
- формированию интереса к познавательной деятельности;
- овладению приемами процесса познания;
- развитию познавательных способностей.

Основная цель самостоятельной работы студентов состоит в овладении фундаментальными знаниями, профессиональными умениями и навыками деятельности по профилю, опытом творческой, исследовательской деятельности.

Задачами самостоятельной работы студентов являются:

- развитие способности работать самостоятельно, формирование самостоятельности мышления и принятия решений.
- развитие активности и познавательных способностей студентов, развитие исследовательских умений
- стимулирование самообразования и самовоспитания
- развитие способности планировать и распределять свое время. Кроме того, самостоятельная работа неразрывно связана с формированием компетенций в процессе изучения дисциплины:

- Способность и готовность к планированию и документальному оформлению природоохранной деятельности организации, проведению экологического анализ проектов расширения, реконструкции, модернизации действующих производств, создаваемых новых технологий и оборудования в организации. (ПК-1.1);

2 ВИДЫ САМОСТОЯТЕЛЬНОЙ РАБОТЫ

Самостоятельная работа бакалавров по данной дисциплине предполагает:

- самостоятельный поиск ответов и необходимой информации по предложенным вопросам;
- выполнение заданий для самостоятельной работы;
- изучение теоретического и лекционного материала, а также основной и дополнительной литературы при подготовке к семинарским занятиям, написании докладов;
- самостоятельное изучение отдельных вопросов, не рассматриваемых на практических занятиях;
- подготовка к контрольным работам по темам, предусмотренным программой данного курса;
- выполнение индивидуальных заданий по отдельным темам дисциплины

Самостоятельная работа включает в себя подготовку к лекционным и практическим занятиям, а также подготовку к экзамену.

Виды самостоятельной работы студентов, формы отчетности и контроля

Вид самостоятельной работы	Формы отчетности и контроля
1. Работа с опорным конспектом	Составление и проверка конспектов
2. Письменные практико-ориентированные задания	Проверка работ
3. Подготовка докладов, сообщений	Выступление с докладом и сообщением.
4. Работа с экзаменационными тестовыми вопросами	Проверочное тестирование
5. Работа с экзаменационными вопросами	Экзамен

Подготовка к практическим занятиям, устному опросу, контрольной работе, письменному тестированию, экзамену.

В процессе подготовки к практическим занятиям, устному опросу, контрольной работе, письменному тестированию студентам необходимо обратить особое внимание на самостоятельное изучение рекомендованной учебно-методической (а также научной и популярной) литературы. Самостоятельная работа с учебниками, учебными пособиями, научной, справочной и популярной литературой, материалами периодических изданий и Интернета, статистическими данными является наиболее эффективным методом получения знаний, позволяет значительно активизировать процесс овладения информацией, способствует более глубокому усвоению изучаемого материала, формирует у студентов свое отношение к конкретной проблеме. Более глубокому раскрытию вопросов способствует знакомство с дополнительной литературой, рекомендованной преподавателем по каждой теме семинарского или практического занятия, что позволяет студентам проявить свою индивидуальность в рамках выступления на данных занятиях, выявить широкий спектр мнений по изучаемой проблеме.

2.1 Подготовка к выполнению практико-ориентированных заданий

Выполнение практико-ориентированных заданий имеет целью закрепление обучающимися полученных на лекциях теоретических знаний и практического опыта, приобретенного на практических занятиях.

2.1.1 Методические рекомендации:

Оформление отчета по практико-ориентированным заданиям (далее «документа») осуществляется в соответствии с требованиями государственных стандартов и университета.

Отчет выполняется печатным способом с использованием компьютера.

Каждая страница текста, включая иллюстрации и приложения, нумеруется арабскими цифрами, кроме титульного листа и содержания, по порядку без пропусков и повторений. Номера страниц проставляются, начиная с введения (третья страница), в центре нижней части листа без точки.

Текст работы следует печатать, соблюдая следующие размеры полей: правое – 10 мм, верхнее и нижнее – 20 мм, левое – 30 мм.

Рекомендуемым типом шрифта является Times New Roman, размер которого 14 pt (пунктов) (на рисунках и в таблицах допускается применение более мелкого размера шрифта, но не менее 10 pt).

Текст печатается через 1,5-ый интервал, красная строка – 1,25 см.

Цвет шрифта должен быть черным, необходимо соблюдать равномерную плотность, контрастность и четкость изображения по всей работе. Разрешается использовать компьютерные возможности акцентирования внимания на определенных терминах и формулах, применяя курсив, полужирный шрифт не применяется.

2.1.2 Правила оформления наименований и нумерации структурных элементов, глав и параграфов

Документ должен включать следующие структурные элементы: титульный лист, содержание, введение, основной текст, заключение, приложения (является дополнительным элементом). Основной текст может быть разделен на разделы и параграфы.

Каждый структурный элемент документа (титульный лист, содержание, введение, заключение, приложение) и разделы необходимо начинать с новой страницы. Следующий параграф внутри одного раздела начинается через 2 межстрочных интервала на том же листе, где закончился предыдущий.

Расстояние между заголовком структурного элемента и текстом, заголовками главы и параграфа, заголовком параграфа и текстом составляет 2 межстрочных интервала.

Наименования структурных элементов письменной работы («СОДЕРЖАНИЕ», «ВВЕДЕНИЕ», «ЗАКЛЮЧЕНИЕ», «ПРИЛОЖЕНИЕ») служат заголовками структурных элементов. Данные наименования пишутся по центру страницы без точки в конце прописными (заглавными) буквами, не подчеркивая.

Разделы, параграфы должны иметь заголовки. Их следует нумеровать арабскими цифрами и записывать по центру страницы прописными (заглавными) буквами без точки в конце, не подчеркивая. Номер раздела указывается цифрой (например, 1, 2, 3), номер параграфа включает номер раздела и порядковый номер параграфа, разделенные точкой (например, 1.1, 2.1, 3.3). После номера раздела и параграфа в тексте точку не ставят. Если заголовок состоит из двух предложений, их разделяют точкой. Переносы слов в заголовках не допускаются. Не допускается писать заголовок параграфа на одном листе, а его текст – на другом.

В содержании работы наименования структурных элементов указываются с левого края страницы, при этом первая буква наименования является прописной (заглавной), остальные буквы являются строчными, например:

Введение

1 Практический раздел – выполненные работы

Заключение

Приложения

2.1.3 Правила оформления сокращений и аббревиатур

Сокращение русских слов и словосочетаний допускается при условии соблюдения требований ГОСТ 7.12–93 «Система стандартов по информации, библиотечному и издательскому делу. Библиографическая запись. Сокращение слов на русском языке. Общие требования и правила».

В тексте письменной работы допускаются общепринятые сокращения и аббревиатуры, установленные правилами орфографии и соответствующими нормативными документами, например: год – г., годы – гг., и так далее – и т. д., метр – м, тысяч – тыс., миллион – млн, миллиард – млрд, триллион – трлн, страница – с., Российская Федерация – РФ, общество с ограниченной ответственностью – ООО.

При использовании авторской аббревиатуры необходимо при первом ее упоминании дать полную расшифровку, например: «... Уральский государственный горный университет (далее – УГГУ)...».

Не допускается использование сокращений и аббревиатур в заголовках письменной работы, глав и параграфов.

2.1.4 Правила оформления перечислений

При необходимости в тексте работы могут быть приведены перечисления. Перед каждым элементом перечисления следует ставить дефис (иные маркеры не допустимы). Например:

«...заключение содержит:

- краткие выводы;
- оценку решений;
- разработку рекомендаций.»

При необходимости ссылки в тексте работы на один из элементов перечисления вместо дефиса ставятся строчные буквы в порядке русского алфавита, начиная с буквы а (за исключением букв ё, з, й, о, ч, ь, ы, ь). Для дальнейшей детализации перечислений необходимо использовать арабские цифры, после которых ставится скобка, а запись производится с абзацного отступа. Например:

- а) ...;
- б) ...;
- 1) ...;
- 2) ...;
- в) ...

2.1.5 Правила оформления рисунков

В письменной работе для наглядности, уменьшения физического объема сплошного текста следует использовать иллюстрации – графики, схемы, диаграммы, чертежи, рисунки и фотографии. Все иллюстрации именуется рисунками. Их количество зависит от содержания работы и должно быть достаточно для того, чтобы придать ей ясность и конкретность.

На все рисунки должны быть даны ссылки в тексте работы, например: «... в соответствии с рисунком 2 ...» или «... тенденцию к снижению (рисунок 2)».

Рисунки следует располагать в работе непосредственно после текста, в котором они упоминаются впервые (при наличии достаточного пространства для помещения рисунка со всеми поясняющими данными), или на следующей странице. Если рисунок достаточно велик, его можно размещать на отдельном листе. Допускается поворот рисунка по часовой стрелке (если он выполнен на отдельном листе). Рисунки, размеры которых больше формата А4, учитывают как одну страницу и помещают в приложении.

Рисунки, за исключением рисунков в приложениях, следует нумеровать арабскими цифрами сквозной нумерацией по всей работе. Каждый рисунок (схема, график, диаграм-

ма) обозначается словом «Рисунок», должен иметь заголовок и подписываться следующим образом – посередине строки без абзацного отступа, например:



Рисунок 1 – Структура администрации организации

Если на рисунке отражены показатели, то после заголовка рисунка через запятую указывается единица измерения, например:

Рисунок 1 – Структура добычи, %

Рисунки каждого приложения обозначают отдельной нумерацией арабскими цифрами с добавлением перед цифрой обозначения приложения (например, рисунок А.3).

Если рисунок взят из первичного источника без авторской переработки, следует сделать ссылку, например:

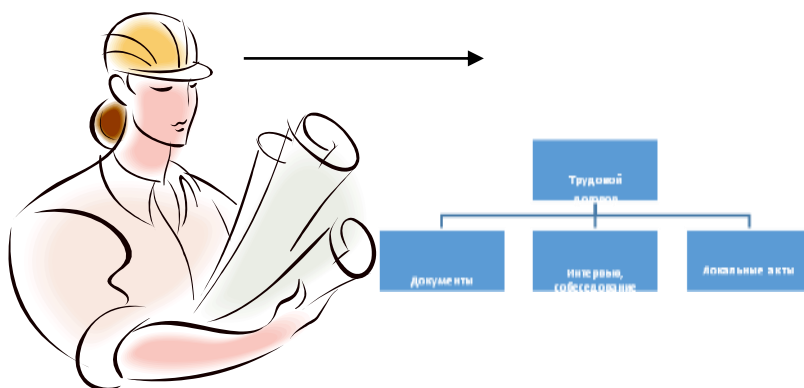
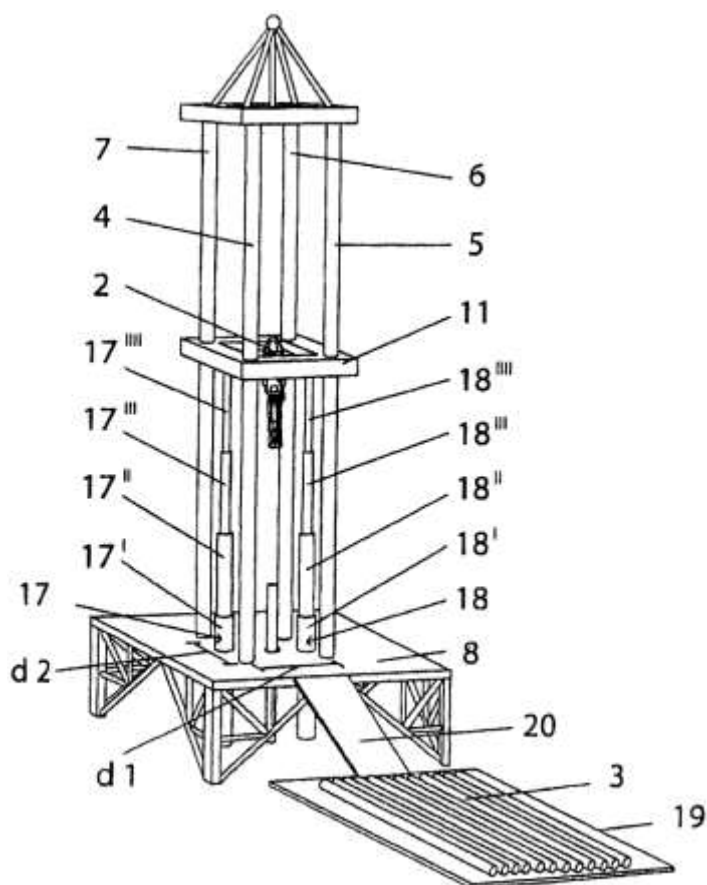


Рисунок 1 - Процесс заключения трудового договора [8, с. 46]

Если рисунок является авторской разработкой, необходимо после заголовка рисунка поставить знак сноски и указать в форме подстрочной сноски внизу страницы, на основании каких источников он составлен, например:



Фиг.4

Рисунок 2 – Буровая установка,.....¹

При необходимости между рисунком и его заголовком помещаются поясняющие данные (подрисовочный текст), например, легенда.

2.1.6 Правила оформления таблиц

В письменной работе фактический материал в обобщенном и систематизированном виде может быть представлен в виде таблицы для наглядности и удобства сравнения показателей.

На все таблицы должны быть ссылки в работе. При ссылке следует писать слово «таблица» с указанием ее номера, например: «... в таблице 2 представлены ...» или «... характеризуется показателями (таблица 2)».

Таблицу следует располагать в работе непосредственно после текста, в котором она упоминается впервые, или на следующей странице.

Таблицы, за исключением таблиц в приложениях, следует нумеровать арабскими цифрами сквозной нумерацией по всей работе. Каждая таблица должна иметь заголовок, который должен отражать ее содержание, быть точным, кратким. Заголовок таблицы следует помещать над таблицей слева, без абзацного отступа в одну строку с ее номером через тире, например:

Таблица 3 – Количество тонн угля, добытого шахтами Свердловской области

Наименование организации	2017	2018
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¹ Составлено автором по: [15, 23, 42].

ПАО «Бокситы Севера»	58	59
Березниковская шахта	29	51

Если таблица взята из первичного источника без авторской переработки, следует сделать ссылку, например:

Таблица 2 – Динамика основных показателей развития шахтного строительства в России за 2015–2018 гг. [15, с. 35]

	2015	2016	2017	2018
Объем строительства, млрд. руб.				
.....				

Если таблица является авторской разработкой, необходимо после заголовка таблицы поставить знак сноски и указать в форме подстрочной сноски внизу страницы, на основании каких источников она составлена, например:

Таблица 3 – Количество оборудования¹

Вид оборудования	2016	2017
Буровая машина	3	5
.....	3	7

Располагают таблицы на странице обычно вертикально. Помещенные на отдельной странице таблицы могут быть расположены горизонтально, причем графа с наименованиями показателей должна размещаться в левой части страницы. Слева, справа и снизу таблицы ограничивают линиями.

Таблицу с большим числом строк допускается переносить на другую страницу. При переносе части таблицы на другую страницу слово «Таблица» указывают один раз слева над первой частью таблицы. На странице, на которую перенесена часть таблицы, слева пишут «Продолжение таблицы» или «Окончание таблицы» с указанием номера таблицы и повторением шапки таблицы.

Если таблица переносится, то на странице, где помещена первая часть таблицы, нижняя ограничительная линия таблицы не проводится. Это же относится к странице (страницам), где помещено продолжение (продолжения) таблицы. Нижняя ограничительная линия таблицы проводится только на странице, где помещено окончание таблицы.

Заголовки граф и строк таблицы следует писать с прописной буквы в единственном числе, а подзаголовки граф – со строчной буквы, если они составляют одно предложение с заголовком, или с прописной буквы, если они имеют самостоятельное значение. В конце заголовков и подзаголовков таблиц точки не ставят. Заголовки граф, как правило, записывают параллельно строкам таблицы. При необходимости допускается перпендикулярное расположение заголовков граф.

Примечания к таблице (подтабличные примечания) размещают непосредственно под таблицей в виде: а) общего примечания; б) сноски; в) отдельной графы или табличной строки с заголовком. Выделять примечание в отдельную графу или строку целесообразно лишь тогда, когда примечание относится к большинству строк или граф. Примечания к отдельным заголовкам граф или строк следует связывать с ними знаком сноски. Общее примечание ко всей таблице не связывают с ней знаком сноски, а помещают после заголовка «Примечание» или «Примечания», оформляют как внутритекстовое примечание.

Допускается применять размер шрифта в таблице меньший, чем в тексте работы, но не менее 10 pt.

Если все показатели, приведенные в графах таблицы, выражены в одной и той же единице измерения, то ее обозначение необходимо помещать над таблицей справа. Если показатели таблицы выражены в разных единицах измерения, то обозначение единицы измерения указывается после наименования показателя через запятую. Допускается при необходимости выносить в отдельную графу обозначения единиц измерения.

Текст, повторяющийся в строках одной и той же графы и состоящий из одиночных слов, чередующихся с цифрами, заменяют кавычками. Если повторяющийся текст состоит из двух или более слов, то при первом повторении его заменяют словами «То же», а далее – кавычками. Если предыдущая фраза является частью последующей, то допускается заменить ее словами «То же» и добавить дополнительные сведения. При наличии горизонтальных линий текст необходимо повторять. Если в ячейке таблицы приведен текст из нескольких предложений, то в последнем предложении точка не ставится.

Заменять кавычками повторяющиеся в таблице цифры, математические знаки, знаки процента и номера, обозначения нормативных материалов, марок материалов не допускается.

При отсутствии отдельных данных в таблице следует ставить прочерк (тире). Цифры в графах таблиц должны проставляться так, чтобы разряды чисел во всей графе были расположены один под другим, если они относятся к одному показателю. В одной графе должно быть соблюдено, как правило, одинаковое количество десятичных знаков для всех значений величин.

Если таблицы размещены в приложении, их нумерация имеет определенные особенности. Таблицы каждого приложения нумеруют отдельной нумерацией арабскими цифрами. При этом перед цифрой, обозначающей номер таблицы в приложении, ставится буква соответствующего приложения, например:

Таблица В.1.– Динамика показателей за 2016–2017 гг.

Если в документе одна таблица, то она должна быть обозначена «Таблица 1» или «Таблица В.1», если она приведена в приложении (допустим, В).

Расчетно-практические работы выполняются в печатном виде на листах формата А4. На титульном листе указываются реквизиты вуза, кафедры, а также наименование расчетно-практической работы с фамилией и инициалами студента и преподавателя, проверяющего данную работу, номер варианта, который определяется преподавателем индивидуально для каждого студента.

Критерием оценки за практико-ориентированные задания определяется простым суммированием баллов:

Критерии оценки ответа на вопрос	Количество баллов
Верность выполнения расчетов	0-1
Соответствие требованиям оформления	0-1
Владение профессиональной лексикой	0-1
Умение анализировать материал	0-1
Полнота и последовательность ответа	0-1
	0-5

2.2. Подготовка доклада с презентацией

2.2.1 Методические рекомендации:

Презентация, это демонстрация возможности студента и его способности организации в наглядной форме основных положений доклада в соответствии с современными требованиями и с использованием современных информационных технологий. Презентация выполняется в программе PowerPoint.

Подготовка презентации предполагает следующие пошаговые действия:

1. Подготовка доклада.
2. Разработка структуры презентации
3. Создание презентации в Power Point
4. Репетиция доклада с использованием презентации

Презентация должна полностью соответствовать тексту доклада. В первую очередь необходимо составить сам текст доклада, во вторую очередь - создать презентацию.

Очередность слайдов должна четко соответствовать структуре в доклада. Не планируйте в процессе доклада возвращаться к предыдущим слайдам или перелистывать их вперед, это усложнит процесс и может сбить ход ваших рассуждений.

Не пытайтесь отразить в презентации весь текст доклада! Слайды должны демонстрировать лишь основные положения доклада. Слайды не должны быть перегружены графической и текстовой информацией, различными эффектами анимации.

Презентация должна состоять из 10-20 слайдов.

2.2.2 Дизайн слайдов.

Оформление слайдов не должно отвлекать внимание от защищаемого – это всего лишь вспомогательный материал.

Дизайн должен быть единый. Текст должен быть четко виден на фоне и легко мог быть прочитан. Лучшее сочетание: белый фон, черный текст. Рекомендуется использовать один вид шрифта, простой печатный черного или темно-синего цвета, вместо экзотических и витиеватых шрифтов. Лучше использовать одну цветовую гамму во всей презентации, а не различные стили для каждого слайда.

Особое внимание к деталям.

Каждый элемент должен быть тщательно подготовлен: все рисунки и фотографии очищены от лишних надписей.

Текстовые объекты.

Оптимальное число строк на слайде—от 6 до 11. Перегруженность и мелкий шрифт тяжелы для восприятия.

Пункты перечней должны быть выполнены короткими фразами, оптимально — одна строка, максимум—две. Шрифт для заголовков 24 -34 пункта; для информационного текста 18-22 пункта; для надписей – обозначений в рисунках на объектах не ниже 12 пункта.

Рекомендуется цветом или жирным шрифтом выделять те их ключевые фрагменты, на которых Вы останавливаетесь при обсуждении.

В презентации желательны чертежи, рисунки, схемы и другой графический материал, иллюстрирующий основные положения доклада.

Оформление таблиц и рисунков.

Таблицы и рисунки должны иметь названия и порядковую нумерацию. Нумерация таблиц и рисунков должна быть сквозной в презентации.

Порядковый номер таблицы и название таблицы проставляются выше таблицы. Порядковый номер рисунка и его название проставляются под рисунком.

2.2.3 Структура выступления

Вступление должно содержать: название, сообщение основной идеи, современную оценку предмета изложения, краткое перечисление рассматриваемых вопросов, живую интересную форму изложения, акцентирование внимания на важных моментах, оригинальность подхода.

Основная часть, в которой выступающий должен глубоко раскрыть суть затронутой темы, обычно строится по принципу отчета. Задача основной части – представить достаточно данных для того, чтобы слушатели заинтересовались темой и захотели ознакомиться с материалами. При этом логическая структура теоретического блока не должны даваться без наглядных пособий, аудио-визуальных и визуальных материалов.

Заключение – ясное, четкое обобщение и краткие выводы.

2.2.4 Примерная тематика докладов с презентацией:

- Возникновение отходов как результат деятельности человека.
- Полигонное захоронение отходов.
- Проблемы прогнозирования изменений окружающей среды.
- Размещение и утилизация отходов производства.
- Обращение с отходами потребления.
- Проблемы очистки сточных вод и выбросов в атмосферный воздух.
- Мероприятия по охране окружающей среды при функционировании горнодобывающих предприятий угольной и металлургической промышленности.
- Характер антропогенных воздействий на окружающую среду.
- Проблемы охраны окружающей среды на современном этапе.
- Техногенные аварии и природные катастрофы.
- Полигоны твердых бытовых отходов и их экологическая роль.
- Обезвреживание и использование отходов растениеводства и животноводства.
- Защита территорий от затопления.
- Способы рекультивации почв, загрязненных тяжелыми металлами, их оценка и эффективность.
- Организация сбора и удаления твердых бытовых отходов в городских условиях.
- Принципы переработки твердых бытовых отходов.
- Сепарация твердых бытовых отходов.
- Термическая переработка твердых бытовых отходов.
- Сжигание без образования шлакового расплава.
- Полигоны для захоронения отходов.
- Использование биогаза из захоронений отходов.
- Захоронение отходов в море.
- Классификация металлических отходов.
- Технология и оборудование для подготовки металлолома к переплаву. Технологические схемы переработки лома и цветных металлов.
- Обезвреживание отходов.
- Направления утилизации шлаков.
- Производство строительных материалов из металлургических шлаков.
- Анализ достоинств и недостатков существующих способов утилизации и переработки отходов.
- Отходы предприятий строительного комплекса и методы их утилизации и переработки.
- Основы технологических процессов переработки промышленных отходов.
- Утилизация шлаков, золы и горелой земли.
- Переработка текстильных отходов.
- Проблема газообразных отходов и их обезвреживание.
- Отходы металлургии и их переработка.

- Авторециклинг.
- Твердые бытовые отходы – ценное сырье.
- Переработка отходов гальванических производств.
- Утилизация отходов пластмасс. Переработка резиновых отходов. Воздушные массы и их движение.

Критерием оценки за доклад с презентацией определяется простым суммированием баллов:

Критерии оценки доклада	Количество баллов
правильность представления материала	0-0,5
соответствие требованиям оформления презентации	0-0,5
всесторонность и глубина ответов на вопросы (полнота)	0-2
Итого	0-3

3. Подготовка к экзамену

Экзамен по дисциплине проводится в письменной форме по билетам.

Ознакомление обучающихся с процедурой и алгоритмом оценивания (в течение первой недели начала изучения дисциплины).

Проведение предварительных консультаций.

Проверка ответов на задания письменного экзамена.

Сообщение результатов оценивания обучающимся.

Экзаменационный билет на зачет включает в себя 10 тестовых заданий и два теоретических вопроса.

Ответ на теоретический вопрос, требующий изложения, должен быть представлен в виде грамотно изложенного, связного текста, позволяющего проследить логику рассуждений, лежащих в основе сделанных выводов. Ответ, представляющий бессвязный набор определений и иных положений, рассматривается как неверный. Наличие в ответах любой грубой ошибки является основанием для снижения оценки. Оценка за письменный экзамен может быть снижена за небрежное оформление работы (недопустимые сокращения, зачеркивания, неразборчивый почерк).

На экзамене преподаватель может задать обучающемуся дополнительные и уточняющие вопросы. Дополнительные вопросы задаются помимо вопросов билета и связаны, как правило, с плохим ответом. Уточняющие вопросы задаются в рамках билета и направлены на уточнение мысли и действий студента.

Система оценивания по оценочным средствам промежуточного контроля

Форма и описание контрольного мероприятия	Балловая стоимость контрольного мероприятия	Критерии начисления баллов
Тест - система стандартизированных заданий, позволяющая автоматизировать процедуру измерения уровня знаний обучающегося	0-10 баллов (10 вопросов)	Правильность ответов
Теоретический вопрос - индивидуальная деятельность обучающегося по концентрированному выражению накопленного знания. Средство проверки умений применять полученные знания для решения задач определенного типа	0-15 баллов (2 вопроса)	Полнота и последовательность ответа на вопрос (верное, четкое и достаточно глубокое изложение идей, понятий, фактов и т.д.), степень использования и понимания научных, нормативных источников, демонстрация умения анализировать материал, соблюдение норм литературной речи, владение профессиональной лексикой

по теме или разделу.		
Итого	40 баллов	

3.1 Примеры теоретических вопросов для подготовки к экзамену:

1. Понятие «геосистема» (ландшафт). Компоненты ландшафта и ландшафтообразующие факторы. Свойства геосистем и ландшафтов
2. Устойчивость геосистем. Классификация функций ландшафтов. Смена функций ландшафта. Этапы функционального анализа
3. Техногенные воздействия на геосистемы. Природно-техногенные комплексы
4. Принципы создания культурных ландшафтов. Основы систематизации и организации территории ландшафта
5. Основные законы движения веществ и энергии в геосистемах, моделирование.
6. Движение воздушных масс и загрязнителей
7. Круговорот воды в природе, движение почвенной влаги и подземных вод
8. Геохимический круговорот веществ. Биогеохимические барьеры
9. Биотический круговорот веществ
10. Характер антропогенных воздействий на окружающую среду. Основные факторы взаимодействия общества и природы на современном этапе
11. Проблемы охраны окружающей среды на современном этапе. Загрязнение и истощение природной среды, причины загрязнения и разрушения. Техногенные аварии и природные катастрофы
12. Экологический кризис и экологические катастрофы. Основные причины и пути выхода из экологического кризиса
13. Охрана атмосферного воздуха. Источники и состав загрязнений атмосферы. Последствия загрязнения атмосферы и мероприятия по снижению загрязнения воздушной среды
14. Охрана и рациональное использование водных ресурсов. Основные источники загрязнения природных вод. Охрана водных ресурсов. Основные методы предотвращения загрязнения водных объектов
15. Охрана и рациональное использование недр и земель. Воздействие горнодобывающей промышленности на окружающую среду
16. Современные экологические концепции и основные положения экологической доктрины.
17. Энергия и общество. Мировые тенденции развития энергетики
18. Энергетические ресурсы и проблемы окружающей среды
19. Общепроблемные вопросы экологии энергетики
20. Экологические проблемы нефтеперерабатывающей отрасли. Характеристика состояния окружающей природной среды
21. Природоохранные мероприятия и рекомендации по предотвращению ущерба окружающей среде при добыче углеводородного сырья
22. Этапы рекультивации природно-техногенных ландшафтов
23. Рекультивация и обустройство карьеров нерудных материалов при сухой выемке грунта
24. Рекультивация и обустройство обводненных карьеров
25. Рекультивация выработанных площадей торфяных месторождений
26. Рекультивация и обустройство отвалов и насыпей
27. Рекультивация и обустройство нарушенных земель свалками и полигонами. Твердые отходы и санитарные захоронения
28. Рекультивация земель, нарушенных при строительстве и эксплуатации линейных сооружений
29. Противоэрозионные мероприятия, проводимые при рекультивации земель
30. Рекультивация земель, загрязненных пестицидами
31. Малоотходное и безотходное производство. Концепция и основные пути

- создания безотходных и малоотходных технологии
32. Рациональное управление природными ресурсами
 33. Современные методы и подходы к рациональному использованию природных ресурсов. Новые технологии и материалы
 34. Основные понятия и структура мониторинга.
 35. Основные виды мониторинга. Фоновый мониторинг
 36. Утилизация осадков городских сточных вод
 37. Оценка качества окружающей природной среды
 38. Экологический контроль и экологическая экспертиза воздействия на окружающую среду
 39. Эколого-экономическая оптимизация природопользования
 40. Организационные, технологические и технические подходы и методы минимизации воздействия производств на окружающую среду

Критерием оценки за теоретический вопрос определяется простым суммированием баллов:

Критерии оценки ответа на теоретический вопрос	Количество баллов
Полнота и последовательность ответа	0-3
Логичность изложения материала	0-3
Умение анализировать материал	0-3
Соблюдение норм литературной речи	0-2
Владение профессиональной лексикой	0-2
Степень использования и понимания научных, нормативных источников	0-2
Итого	0-15

3.3 Количество баллов за промежуточную аттестацию складывается из суммы баллов за каждое задание:

- 34-40 баллов (85-100%) - оценка «отлично»
- 28-33 баллов (70-84%) - оценка «хорошо»
- 20-27 баллов (50-69%) - оценка «удовлетворительно»
- 0-19 баллов (0-49%) - оценка «неудовлетворительно».

3.4 Итоговая оценка по дисциплине складывается из суммы баллов текущего контроля и баллов по промежуточной аттестации.

- 85 - 100 баллов (85% - 100%) – оценка «отлично».
- 70 - 84 баллов (70% - 84%) – оценка «хорошо»;
- 50 - 69 баллов (50% - 69 %) – оценка «удовлетворительно»;
- 0 - 49 баллов и менее (0-49%) – оценка «неудовлетворительно»;

Методические материалы, определяющие процедуры оценивания умений, знаний, характеризующие формирование компетенций

Ознакомление обучающихся с процедурой и алгоритмом оценивания (в течение первой недели начала изучения дисциплины).

- Проведение предварительных консультаций.
- Проверка ответов на задания письменного экзамена.
- Сообщение результатов оценивания обучающимся.
- Оформление необходимой документации.

Экзамен – форма контроля промежуточной аттестации, в результате которого обучающийся получает оценку по шкале: «отлично», «хорошо», «удовлетворительно», «неудовлетворительно».

Экзамен проводится по расписанию.

Цель экзамена – завершить курс освоения дисциплины, проверить сложившуюся у обучающегося систему знаний, понятий, отметить степень полученных умений, определить сформированность компетенций.

Экзамен подводит итог всей учебной работы по данной дисциплине.

При подготовке к экзамену прежде всего необходимо запоминать определение каждого понятия, так как именно в нем фиксируются признаки, показывающие его сущность и позволяющие отличать данную категорию от других. В процессе заучивания определений конкретных понятий обучающийся «наращивает» знания. Название дисциплины имеет свою систему понятий, и обучающийся через запоминание конкретной учебной информации приобщается к данной системе, «поднимается» до ее уровня, говорит на ее языке (не пытаюсь объяснить суть той или иной категории с помощью обыденных слов).

Однако преподаватель на экзамене проверяет не столько уровень запоминания учебного материала, сколько то, как обучающийся понимает те или иные категории и реальные проблемы, как умеет мыслить, аргументировать, отстаивать определенную позицию, объяснить заученную дефиницию.

Таким образом, необходимо разумно сочетать запоминание и понимание, простое воспроизводство учебной информации и работу мысли.

Для того чтобы быть уверенным на экзамене, необходимо ответы на наиболее трудные, с точки зрения обучающегося, вопросы подготовить заранее и тезисно записать. Запись включает дополнительные ресурсы памяти.

К экзамену по дисциплине необходимо начинать готовиться с первой лекции, практического занятия, так как материал, набираемый памятью постепенно, неоднократно подвергавшийся обсуждению, образует качественные знания, формирует необходимые компетенции.

При подготовке к экзамену следует пользоваться конспектами лекций, учебниками, ресурсами интернета, научной и научно – популярной литературой, словарем, демонстрационными листами (раздаточным материалом) и другими источниками сведений.

На выполнение экзаменационного задания обучающегося дается 90 минут.

4. ПЕРЕЧЕНЬ ОСНОВНОЙ И ДОПОЛНИТЕЛЬНОЙ УЧЕБНОЙ ЛИТЕРАТУРЫ, НЕОБХОДИМОЙ ДЛЯ ОСВОЕНИЯ ДИСЦИПЛИНЫ

4.1 Основная литература

№ п/п	Наименование	Кол-во экз.
1	Лейкин Ю. А. Основы экологического нормирования/Ю. А. Лейкин. – 2014	20
2	Ветошкин, А. Г. Инженерная защита окружающей среды от вредных выбросов : учебное пособие / А. Г. Ветошкин. — 2-е изд., испр. и доп. — Вологда : Инфра-Инженерия, 2019. — 416 с. URL: https://e.lanbook.com/book/124601	Эл. ресурс
3	Инженерно-геоэкологические изыскания полигонов твердых бытовых и промышленных отходов : учеб. пособие / О. М. Гуман [и др.]. - Екатеринбург : УГГГА, 2000. - 51 с	5
4	Экология природопользования : учебное пособие / В. Е. Лотош. - Екатеринбург : Издательство УрГУПС, 2002. - 540 с. - Библиогр.: с. 503-536.	2
5	Ветошкин, А. Г. Обеспечение надежности и безопасности в техносфере : учебное пособие / А. Г. Ветошкин. — 3-е изд., стер. — Санкт-Петербург : Лань, 2020. — 236 с. URL: https://e.lanbook.com/book/126946	Электронный ресурс
6	Харламова М. Д. Твердые отходы: технологии утилизации, методы контроля, мониторинг/М. Д. Харламова, А. И. Курбатова ; под ред. М. Д. Харламовой. – 2015	2

4.2 Дополнительная литература

№ п/п	Наименование	Кол-во экз.
1	Ветошкин, А. Г. Техника и технология обращения с отходами жизнедеятельности : учебное пособие : в 2 частях / А. Г. Ветошкин. — Вологда : Инфра-Инженерия, [б. г.].— 2019. — 440 с. URL: https://e.lanbook.com/book/124596	Эл. ресурс
2	Рашоян, И. И. Расчет, проектирование и повышение надежности систем обеспечения безопасности : учебно-методическое пособие / И. И. Рашоян. — Тольятти : ТГУ, 2017. — 228 с. —URL: https://e.lanbook.com/book/140057	Эл. ресурс
3	Научно-практический журнал «Твердые бытовые отходы» https://www.solidwaste.ru/	Эл. ресурс
	Научно-практический журнал «Экология производства» https://promo.ecoindustry.ru/	Эл. ресурс

4.3 Нормативные правовые акты

1. Указ Президента РФ № 440 от 01.04.1996 г. «О Концепции перехода РФ к устойчивому развитию». - Режим доступа: ИПС «Консультант Плюс»
2. Федеральный закон от 10.01.2002 № 7-ФЗ «Об охране окружающей среды». - Режим доступа: ИПС «Консультант Плюс»
3. Федеральный закон "Об отходах производства и потребления" от 24.06.1998 N 89-ФЗ (последняя редакция) - Режим доступа: ИПС «Консультант Плюс»

5. ПЕРЕЧЕНЬ РЕСУРСОВ ИНФОРМАЦИОННО - ТЕЛЕКОММУНИКАЦИОННОЙ СЕТИ «ИНТЕРНЕТ», НЕОБХОДИМЫХ ДЛЯ ОСВОЕНИЯ ДИСЦИПЛИНЫ

Официальный сайт Министерства природных ресурсов и экологии Свердловской области <http://www.mprso.ru>

Российская государственная библиотека [Электронный ресурс]: содержит электронные версии книг, учебников, монографий, сборников научных трудов как отечественных, так и зарубежных авторов, периодических изданий. Режим доступа: <http://www.rbc.ru>

Издательство "Лань" [Электронный ресурс]: электронная библиотечная система: содержит электронные версии книг издательства «Лань» и других ведущих издательств учебной литературы, так и электронные версии периодических изданий по естественным, техническим и гуманитарным наукам. – Москва, 2010– . Режим доступа: <http://e.lanbook.com>.

Научно-практический журнал «Твердые бытовые отходы»
<https://www.solidwaste.ru/>

Научно-практический журнал «Экология производства» <https://promo.ecoindustry.ru/>

6. ПЕРЕЧЕНЬ ИНФОРМАЦИОННЫХ ТЕХНОЛОГИЙ, ИСПОЛЬЗУЕМЫХ ПРИ ОСУЩЕСТВЛЕНИИ ОБРАЗОВАТЕЛЬНОГО ПРОЦЕССА ПО ДИСЦИПЛИНЕ, ВКЛЮЧАЯ ПЕРЕЧЕНЬ ПРОГРАММНОГО ОБЕСПЕЧЕНИЯ И ИНФОРМАЦИОННЫХ СПРАВОЧНЫХ СИСТЕМ

1. Microsoft Windows 8 Professional
2. Microsoft Office Standard 2013

Информационные справочные системы

ИПС «КонсультантПлюс»

Отраслевой портал Отходы.ru <https://www.waste.ru/>

Базы данных

Scopus: база данных рефератов и цитирования

<https://www.scopus.com/customer/profile/display.uri>

E-library: электронная научная библиотека: <https://elibrary.ru>

МИНИСТЕРСТВО ОБРАЗОВАНИЯ И НАУКИ РОССИЙСКОЙ ФЕДЕРАЦИИ

ФГБОУ ВО «Уральский государственный горный университет»

**МЕТОДИЧЕСКИЕ РЕКОМЕНДАЦИИ
ПО ВЫПОЛНЕНИЮ САМОСТОЯТЕЛЬНОЙ РАБОТЫ
ПО ДИСЦИПЛИНЕ
Б1.В.ДВ.01.02 МЕТОДЫ И ТЕХНОЛОГИИ ЗАЩИТЫ И
ВОССТАНОВЛЕНИЯ ОКРУЖАЮЩЕЙ СРЕДЫ И
ПРИРОДНЫХ КОМПЛЕКСОВ**

Направление подготовки

20.03.02 Природообустройство и водопользование

Направленность (профиль)

Урбоэкология и цифровые природовоспроизводящие геотехнологии

формы обучения: очная, заочная

год набора: 2022

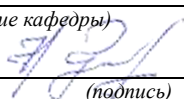
Автор: Якупов Д. Р., к.г.-м.н.

Одобрена на заседании кафедры

Природообустройства и водопользования

(название кафедры)

Зав.кафедрой


(подпись)

Гревцев Н.В.

(Фамилия И.О.)

Протокол № 1 от 19.09.2021

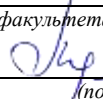
(Дата)

Рассмотрена методической комиссией
факультета

Инженерно-экономического факультета

(название факультета)

Председатель


(подпись)

Мочалова Л.А.

(Фамилия И.О.)

Протокол № 1 от 29.09.2021

(Дата)

Екатеринбург

МЕТОДИЧЕСКИЕ РЕКОМЕНДАЦИИ ПО ОРГАНИЗАЦИИ САМОСТОЯТЕЛЬНОЙ РАБОТЫ ПО ДИСЦИПЛИНЕ «МЕТОДЫ И ТЕХНОЛОГИИ ЗАЩИТЫ И ВОССТАНОВЛЕНИЯ ОКРУЖАЮЩЕЙ СРЕДЫ И ПРИРОДНЫХ КОМПЛЕКСОВ»

1. ЦЕЛЬ И ЗАДАЧИ САМОСТОЯТЕЛЬНОЙ РАБОТЫ ОБУЧАЮЩИХСЯ

Самостоятельная работа студентов является одной из важнейших составляющих образовательного процесса. Независимо от полученной профессии и характера работы любой начинающий специалист должен обладать фундаментальными знаниями, профессиональными умениями и навыками деятельности своего профиля, опытом творческой и исследовательской деятельности по решению новых проблем, опытом социально-оценочной деятельности.

Основным принципом организации самостоятельной работы студентов является комплексный подход, направленный на формирование навыков репродуктивной и творческой деятельности студента в аудитории, при внеаудиторных контактах с преподавателем на консультациях и домашней подготовке.

Самостоятельная работа – это планируемая работа студентов, выполняемая по заданию и при методическом руководстве преподавателя, но без его непосредственного участия. Предназначение самостоятельной работы:

- для усвоения материала дисциплины,
- для формирования навыков самостоятельной работы в учебной, научной, профессиональной деятельности,
- для приобретения способности принимать на себя ответственность, самостоятельно решать проблему, находить конструктивные решения и т. д.

Самостоятельная работа способствует:

- углублению и расширению знаний;
- формированию интереса к познавательной деятельности;
- овладению приемами процесса познания;
- развитию познавательных способностей.

Основная цель самостоятельной работы студентов состоит в овладении фундаментальными знаниями, профессиональными умениями и навыками деятельности по профилю, опытом творческой, исследовательской деятельности.

Задачами самостоятельной работы студентов являются:

- развитие способности работать самостоятельно, формирование самостоятельности мышления и принятия решений.
- развитие активности и познавательных способностей студентов, развитие исследовательских умений
- стимулирование самообразования и самовоспитания
- развитие способности планировать и распределять свое время. Кроме того, самостоятельная работа неразрывно связана с формированием компетенций в процессе изучения дисциплины:

- Способность и готовность к планированию и документальному оформлению природоохранной деятельности организации, проведению экологического анализ проектов расширения, реконструкции, модернизации действующих производств, создаваемых новых технологий и оборудования в организации. (ПК-1.1);

2 ВИДЫ САМОСТОЯТЕЛЬНОЙ РАБОТЫ

Самостоятельная работа бакалавров по данной дисциплине предполагает:

- самостоятельный поиск ответов и необходимой информации по предложенным вопросам;
- выполнение заданий для самостоятельной работы;
- изучение теоретического и лекционного материала, а также основной и дополнительной литературы при подготовке к семинарским занятиям, написании докладов;
- самостоятельное изучение отдельных вопросов, не рассматриваемых на практических занятиях;
- подготовка к контрольным работам по темам, предусмотренным программой данного курса;
- выполнение индивидуальных заданий по отдельным темам дисциплины

Самостоятельная работа включает в себя подготовку к лекционным и практическим занятиям, а также подготовку к экзамену.

Виды самостоятельной работы студентов, формы отчетности и контроля

Вид самостоятельной работы	Формы отчетности и контроля
1. Работа с опорным конспектом	Составление и проверка конспектов
2. Письменные практико-ориентированные задания	Проверка работ
3. Подготовка докладов, сообщений	Выступление с докладом и сообщением.
4. Работа с экзаменационными тестовыми вопросами	Проверочное тестирование
5. Работа с экзаменационными вопросами	Экзамен

Подготовка к практическим занятиям, устному опросу, контрольной работе, письменному тестированию, экзамену.

В процессе подготовки к практическим занятиям, устному опросу, контрольной работе, письменному тестированию студентам необходимо обратить особое внимание на самостоятельное изучение рекомендованной учебно-методической (а также научной и популярной) литературы. Самостоятельная работа с учебниками, учебными пособиями, научной, справочной и популярной литературой, материалами периодических изданий и Интернета, статистическими данными является наиболее эффективным методом получения знаний, позволяет значительно активизировать процесс овладения информацией, способствует более глубокому усвоению изучаемого материала, формирует у студентов свое отношение к конкретной проблеме. Более глубокому раскрытию вопросов способствует знакомство с дополнительной литературой, рекомендованной преподавателем по каждой теме семинарского или практического занятия, что позволяет студентам проявить свою индивидуальность в рамках выступления на данных занятиях, выявить широкий спектр мнений по изучаемой проблеме.

2.1 Подготовка к выполнению практико-ориентированных заданий

Выполнение практико-ориентированных заданий имеет целью закрепление обучающимися полученных на лекциях теоретических знаний и практического опыта, приобретенного на практических занятиях.

2.1.1 Методические рекомендации:

Оформление отчета по практико-ориентированным заданиям (далее «документа») осуществляется в соответствии с требованиями государственных стандартов и университета.

Отчет выполняется печатным способом с использованием компьютера.

Каждая страница текста, включая иллюстрации и приложения, нумеруется арабскими цифрами, кроме титульного листа и содержания, по порядку без пропусков и повторений. Номера страниц проставляются, начиная с введения (третья страница), в центре нижней части листа без точки.

Текст работы следует печатать, соблюдая следующие размеры полей: правое – 10 мм, верхнее и нижнее – 20 мм, левое – 30 мм.

Рекомендуемым типом шрифта является Times New Roman, размер которого 14 pt (пунктов) (на рисунках и в таблицах допускается применение более мелкого размера шрифта, но не менее 10 pt).

Текст печатается через 1,5-ый интервал, красная строка – 1,25 см.

Цвет шрифта должен быть черным, необходимо соблюдать равномерную плотность, контрастность и четкость изображения по всей работе. Разрешается использовать компьютерные возможности акцентирования внимания на определенных терминах и формулах, применяя курсив, полужирный шрифт не применяется.

2.1.2 Правила оформления наименований и нумерации структурных элементов, глав и параграфов

Документ должен включать следующие структурные элементы: титульный лист, содержание, введение, основной текст, заключение, приложения (является дополнительным элементом). Основной текст может быть разделен на разделы и параграфы.

Каждый структурный элемент документа (титульный лист, содержание, введение, заключение, приложение) и разделы необходимо начинать с новой страницы. Следующий параграф внутри одного раздела начинается через 2 межстрочных интервала на том же листе, где закончился предыдущий.

Расстояние между заголовком структурного элемента и текстом, заголовками главы и параграфа, заголовком параграфа и текстом составляет 2 межстрочных интервала.

Наименования структурных элементов письменной работы («СОДЕРЖАНИЕ», «ВВЕДЕНИЕ», «ЗАКЛЮЧЕНИЕ», «ПРИЛОЖЕНИЕ») служат заголовками структурных элементов. Данные наименования пишутся по центру страницы без точки в конце прописными (заглавными) буквами, не подчеркивая.

Разделы, параграфы должны иметь заголовки. Их следует нумеровать арабскими цифрами и записывать по центру страницы прописными (заглавными) буквами без точки в конце, не подчеркивая. Номер раздела указывается цифрой (например, 1, 2, 3), номер параграфа включает номер раздела и порядковый номер параграфа, разделенные точкой (например, 1.1, 2.1, 3.3). После номера раздела и параграфа в тексте точку не ставят. Если заголовок состоит из двух предложений, их разделяют точкой. Переносы слов в заголовках не допускаются. Не допускается писать заголовок параграфа на одном листе, а его текст – на другом.

В содержании работы наименования структурных элементов указываются с левого края страницы, при этом первая буква наименования является прописной (заглавной), остальные буквы являются строчными, например:

Введение

1 Практический раздел – выполненные работы

Заключение

Приложения

2.1.3 Правила оформления сокращений и аббревиатур

Сокращение русских слов и словосочетаний допускается при условии соблюдения требований ГОСТ 7.12–93 «Система стандартов по информации, библиотечному и издательскому делу. Библиографическая запись. Сокращение слов на русском языке. Общие требования и правила».

В тексте письменной работы допускаются общепринятые сокращения и аббревиатуры, установленные правилами орфографии и соответствующими нормативными документами, например: год – г., годы – гг., и так далее – и т. д., метр – м, тысяч – тыс., миллион – млн, миллиард – млрд, триллион – трлн, страница – с., Российская Федерация – РФ, общество с ограниченной ответственностью – ООО.

При использовании авторской аббревиатуры необходимо при первом ее упоминании дать полную расшифровку, например: «... Уральский государственный горный университет (далее – УГГУ)...».

Не допускается использование сокращений и аббревиатур в заголовках письменной работы, глав и параграфов.

2.1.4 Правила оформления перечислений

При необходимости в тексте работы могут быть приведены перечисления. Перед каждым элементом перечисления следует ставить дефис (иные маркеры не допустимы). Например:

«...заключение содержит:

- краткие выводы;
- оценку решений;
- разработку рекомендаций.»

При необходимости ссылки в тексте работы на один из элементов перечисления вместо дефиса ставятся строчные буквы в порядке русского алфавита, начиная с буквы а (за исключением букв ё, з, й, о, ч, ь, ы, ь). Для дальнейшей детализации перечислений необходимо использовать арабские цифры, после которых ставится скобка, а запись производится с абзацного отступа. Например:

- а) ...;
- б) ...;
- 1) ...;
- 2) ...;
- в) ...

2.1.5 Правила оформления рисунков

В письменной работе для наглядности, уменьшения физического объема сплошного текста следует использовать иллюстрации – графики, схемы, диаграммы, чертежи, рисунки и фотографии. Все иллюстрации именуется рисунками. Их количество зависит от содержания работы и должно быть достаточно для того, чтобы придать ей ясность и конкретность.

На все рисунки должны быть даны ссылки в тексте работы, например: «... в соответствии с рисунком 2 ...» или «... тенденцию к снижению (рисунок 2)».

Рисунки следует располагать в работе непосредственно после текста, в котором они упоминаются впервые (при наличии достаточного пространства для помещения рисунка со всеми поясняющими данными), или на следующей странице. Если рисунок достаточно велик, его можно размещать на отдельном листе. Допускается поворот рисунка по часовой стрелке (если он выполнен на отдельном листе). Рисунки, размеры которых больше формата А4, учитывают как одну страницу и помещают в приложении.

Рисунки, за исключением рисунков в приложениях, следует нумеровать арабскими цифрами сквозной нумерацией по всей работе. Каждый рисунок (схема, график, диаграм-

ма) обозначается словом «Рисунок», должен иметь заголовок и подписываться следующим образом – посередине строки без абзацного отступа, например:



Рисунок 1 – Структура администрации организации

Если на рисунке отражены показатели, то после заголовка рисунка через запятую указывается единица измерения, например:

Рисунок 1 – Структура добычи, %

Рисунки каждого приложения обозначают отдельной нумерацией арабскими цифрами с добавлением перед цифрой обозначения приложения (например, рисунок А.3).

Если рисунок взят из первичного источника без авторской переработки, следует сделать ссылку, например:

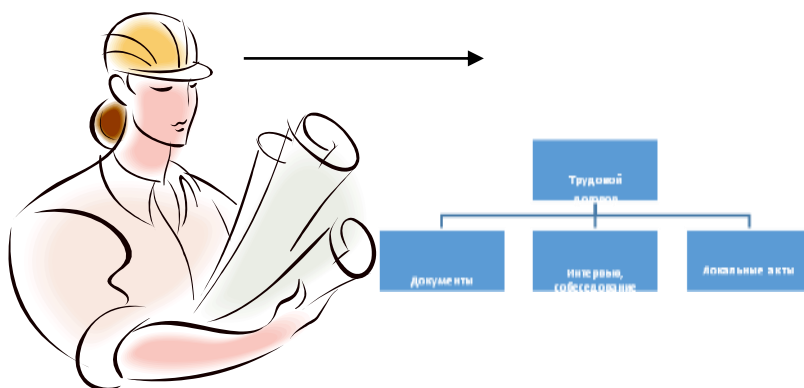
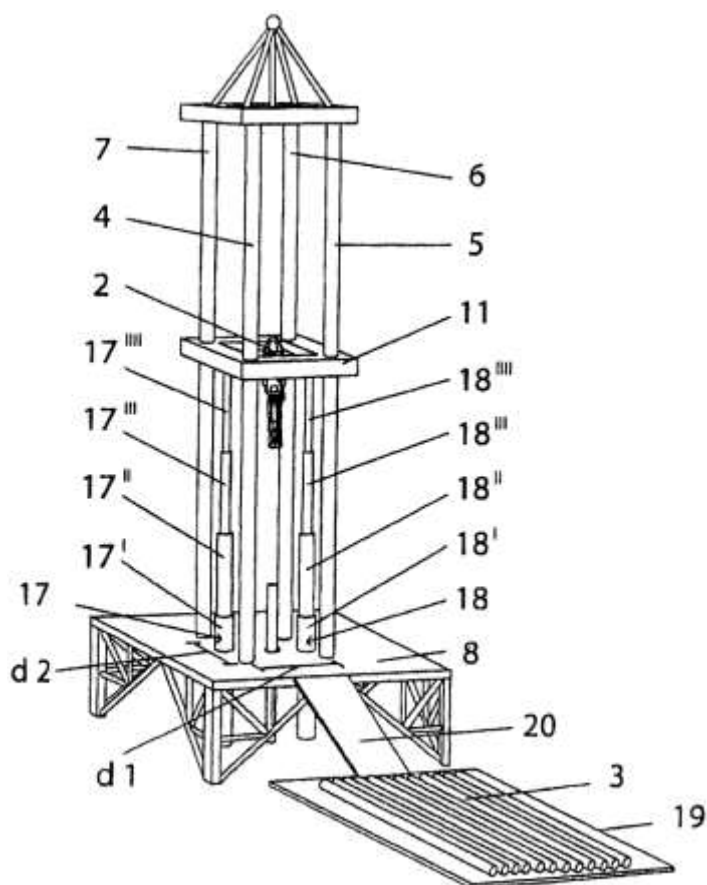


Рисунок 1 - Процесс заключения трудового договора [8, с. 46]

Если рисунок является авторской разработкой, необходимо после заголовка рисунка поставить знак сноски и указать в форме подстрочной сноски внизу страницы, на основании каких источников он составлен, например:



Фиг.4

Рисунок 2 – Буровая установка,.....¹

При необходимости между рисунком и его заголовком помещаются поясняющие данные (подрисовочный текст), например, легенда.

2.1.6 Правила оформления таблиц

В письменной работе фактический материал в обобщенном и систематизированном виде может быть представлен в виде таблицы для наглядности и удобства сравнения показателей.

На все таблицы должны быть ссылки в работе. При ссылке следует писать слово «таблица» с указанием ее номера, например: «... в таблице 2 представлены ...» или «... характеризуется показателями (таблица 2)».

Таблицу следует располагать в работе непосредственно после текста, в котором она упоминается впервые, или на следующей странице.

Таблицы, за исключением таблиц в приложениях, следует нумеровать арабскими цифрами сквозной нумерацией по всей работе. Каждая таблица должна иметь заголовок, который должен отражать ее содержание, быть точным, кратким. Заголовок таблицы следует помещать над таблицей слева, без абзацного отступа в одну строку с ее номером через тире, например:

Таблица 3 – Количество тонн угля, добытого шахтами Свердловской области

Наименование организации	2017	2018
--------------------------	------	------

¹ Составлено автором по: [15, 23, 42].

ПАО «Бокситы Севера»	58	59
Березниковская шахта	29	51

Если таблица взята из первичного источника без авторской переработки, следует сделать ссылку, например:

Таблица 2 – Динамика основных показателей развития шахтного строительства в России за 2015–2018 гг. [15, с. 35]

	2015	2016	2017	2018
Объем строительства, млрд. руб.				
.....				

Если таблица является авторской разработкой, необходимо после заголовка таблицы поставить знак сноски и указать в форме подстрочной сноски внизу страницы, на основании каких источников она составлена, например:

Таблица 3 – Количество оборудования¹

Вид оборудования	2016	2017
Буровая машина	3	5
.....	3	7

Располагают таблицы на странице обычно вертикально. Помещенные на отдельной странице таблицы могут быть расположены горизонтально, причем графа с наименованиями показателей должна размещаться в левой части страницы. Слева, справа и снизу таблицы ограничивают линиями.

Таблицу с большим числом строк допускается переносить на другую страницу. При переносе части таблицы на другую страницу слово «Таблица» указывают один раз слева над первой частью таблицы. На странице, на которую перенесена часть таблицы, слева пишут «Продолжение таблицы» или «Окончание таблицы» с указанием номера таблицы и повторением шапки таблицы.

Если таблица переносится, то на странице, где помещена первая часть таблицы, нижняя ограничительная линия таблицы не проводится. Это же относится к странице (страницам), где помещено продолжение (продолжения) таблицы. Нижняя ограничительная линия таблицы проводится только на странице, где помещено окончание таблицы.

Заголовки граф и строк таблицы следует писать с прописной буквы в единственном числе, а подзаголовки граф – со строчной буквы, если они составляют одно предложение с заголовком, или с прописной буквы, если они имеют самостоятельное значение. В конце заголовков и подзаголовков таблиц точки не ставят. Заголовки граф, как правило, записывают параллельно строкам таблицы. При необходимости допускается перпендикулярное расположение заголовков граф.

Примечания к таблице (подтабличные примечания) размещают непосредственно под таблицей в виде: а) общего примечания; б) сноски; в) отдельной графы или табличной строки с заголовком. Выделять примечание в отдельную графу или строку целесообразно лишь тогда, когда примечание относится к большинству строк или граф. Примечания к отдельным заголовкам граф или строк следует связывать с ними знаком сноски. Общее примечание ко всей таблице не связывают с ней знаком сноски, а помещают после заголовка «Примечание» или «Примечания», оформляют как внутритекстовое примечание.

Допускается применять размер шрифта в таблице меньший, чем в тексте работы, но не менее 10 pt.

Если все показатели, приведенные в графах таблицы, выражены в одной и той же единице измерения, то ее обозначение необходимо помещать над таблицей справа. Если показатели таблицы выражены в разных единицах измерения, то обозначение единицы измерения указывается после наименования показателя через запятую. Допускается при необходимости выносить в отдельную графу обозначения единиц измерения.

Текст, повторяющийся в строках одной и той же графы и состоящий из одиночных слов, чередующихся с цифрами, заменяют кавычками. Если повторяющийся текст состоит из двух или более слов, то при первом повторении его заменяют словами «То же», а далее – кавычками. Если предыдущая фраза является частью последующей, то допускается заменить ее словами «То же» и добавить дополнительные сведения. При наличии горизонтальных линий текст необходимо повторять. Если в ячейке таблицы приведен текст из нескольких предложений, то в последнем предложении точка не ставится.

Заменять кавычками повторяющиеся в таблице цифры, математические знаки, знаки процента и номера, обозначения нормативных материалов, марок материалов не допускается.

При отсутствии отдельных данных в таблице следует ставить прочерк (тире). Цифры в графах таблиц должны проставляться так, чтобы разряды чисел во всей графе были расположены один под другим, если они относятся к одному показателю. В одной графе должно быть соблюдено, как правило, одинаковое количество десятичных знаков для всех значений величин.

Если таблицы размещены в приложении, их нумерация имеет определенные особенности. Таблицы каждого приложения нумеруют отдельной нумерацией арабскими цифрами. При этом перед цифрой, обозначающей номер таблицы в приложении, ставится буква соответствующего приложения, например:

Таблица В.1.– Динамика показателей за 2016–2017 гг.

Если в документе одна таблица, то она должна быть обозначена «Таблица 1» или «Таблица В.1», если она приведена в приложении (допустим, В).

Расчетно-практические работы выполняются в печатном виде на листах формата А4. На титульном листе указываются реквизиты вуза, кафедры, а также наименование расчетно-практической работы с фамилией и инициалами студента и преподавателя, проверяющего данную работу, номер варианта, который определяется преподавателем индивидуально для каждого студента.

Критерием оценки за практико-ориентированные задания определяется простым суммированием баллов:

Критерии оценки ответа на вопрос	Количество баллов
Верность выполнения расчетов	0-1
Соответствие требованиям оформления	0-1
Владение профессиональной лексикой	0-1
Умение анализировать материал	0-1
Полнота и последовательность ответа	0-1
	0-5

2.2. Подготовка доклада с презентацией

2.2.1 Методические рекомендации:

Презентация, это демонстрация возможности студента и его способности организации в наглядной форме основных положений доклада в соответствии с современными требованиями и с использованием современных информационных технологий. Презентация выполняется в программе PowerPoint.

Подготовка презентации предполагает следующие пошаговые действия:

1. Подготовка доклада.
2. Разработка структуры презентации
3. Создание презентации в Power Point
4. Репетиция доклада с использованием презентации

Презентация должна полностью соответствовать тексту доклада. В первую очередь необходимо составить сам текст доклада, во вторую очередь - создать презентацию.

Очередность слайдов должна четко соответствовать структуре в доклада. Не планируйте в процессе доклада возвращаться к предыдущим слайдам или перелистывать их вперед, это усложнит процесс и может сбить ход ваших рассуждений.

Не пытайтесь отразить в презентации весь текст доклада! Слайды должны демонстрировать лишь основные положения доклада. Слайды не должны быть перегружены графической и текстовой информацией, различными эффектами анимации.

Презентация должна состоять из 10-20 слайдов.

2.2.2 Дизайн слайдов.

Оформление слайдов не должно отвлекать внимание от защищаемого – это всего лишь вспомогательный материал.

Дизайн должен быть единый. Текст должен быть четко виден на фоне и легко мог быть прочитан. Лучшее сочетание: белый фон, черный текст. Рекомендуется использовать один вид шрифта, простой печатный черного или темно-синего цвета, вместо экзотических и витиеватых шрифтов. Лучше использовать одну цветовую гамму во всей презентации, а не различные стили для каждого слайда.

Особое внимание к деталям.

Каждый элемент должен быть тщательно подготовлен: все рисунки и фотографии очищены от лишних надписей.

Текстовые объекты.

Оптимальное число строк на слайде—от 6 до 11. Перегруженность и мелкий шрифт тяжелы для восприятия.

Пункты перечней должны быть выполнены короткими фразами, оптимально — одна строка, максимум—две. Шрифт для заголовков 24 -34 пункта; для информационного текста 18-22 пункта; для надписей – обозначений в рисунках на объектах не ниже 12 пункта.

Рекомендуется цветом или жирным шрифтом выделять те их ключевые фрагменты, на которых Вы останавливаетесь при обсуждении.

В презентации желательны чертежи, рисунки, схемы и другой графический материал, иллюстрирующий основные положения доклада.

Оформление таблиц и рисунков.

Таблицы и рисунки должны иметь названия и порядковую нумерацию. Нумерация таблиц и рисунков должна быть сквозной в презентации.

Порядковый номер таблицы и название таблицы проставляются выше таблицы. Порядковый номер рисунка и его название проставляются под рисунком.

2.2.3 Структура выступления

Вступление должно содержать: название, сообщение основной идеи, современную оценку предмета изложения, краткое перечисление рассматриваемых вопросов, живую интересную форму изложения, акцентирование внимания на важных моментах, оригинальность подхода.

Основная часть, в которой выступающий должен глубоко раскрыть суть затронутой темы, обычно строится по принципу отчета. Задача основной части – представить достаточно данных для того, чтобы слушатели заинтересовались темой и захотели ознакомиться с материалами. При этом логическая структура теоретического блока не должны даваться без наглядных пособий, аудио-визуальных и визуальных материалов.

Заключение – ясное, четкое обобщение и краткие выводы.

2.2.4 Примерная тематика докладов с презентацией:

- Возникновение отходов как результат деятельности человека.
- Полигонное захоронение отходов.
- Проблемы прогнозирования изменений окружающей среды.
- Размещение и утилизация отходов производства.
- Обращение с отходами потребления.
- Проблемы очистки сточных вод и выбросов в атмосферный воздух.
- Мероприятия по охране окружающей среды при функционировании горнодобывающих предприятий угольной и металлургической промышленности.
- Характер антропогенных воздействий на окружающую среду.
- Проблемы охраны окружающей среды на современном этапе.
- Техногенные аварии и природные катастрофы.
- Полигоны твердых бытовых отходов и их экологическая роль.
- Обезвреживание и использование отходов растениеводства и животноводства.
- Защита территорий от затопления.
- Способы рекультивации почв, загрязненных тяжелыми металлами, их оценка и эффективность.
- Организация сбора и удаления твердых бытовых отходов в городских условиях.
- Принципы переработки твердых бытовых отходов.
- Сепарация твердых бытовых отходов.
- Термическая переработка твердых бытовых отходов.
- Сжигание без образования шлакового расплава.
- Полигоны для захоронения отходов.
- Использование биогаза из захоронений отходов.
- Захоронение отходов в море.
- Классификация металлических отходов.
- Технология и оборудование для подготовки металлолома к переплаву. Технологические схемы переработки лома и цветных металлов.
- Обезвреживание отходов.
- Направления утилизации шлаков.
- Производство строительных материалов из металлургических шлаков.
- Анализ достоинств и недостатков существующих способов утилизации и переработки отходов.
- Отходы предприятий строительного комплекса и методы их утилизации и переработки.
- Основы технологических процессов переработки промышленных отходов.
- Утилизация шлаков, золы и горелой земли.
- Переработка текстильных отходов.
- Проблема газообразных отходов и их обезвреживание.
- Отходы металлургии и их переработка.

- Авторециклинг.
- Твердые бытовые отходы – ценное сырье.
- Переработка отходов гальванических производств.
- Утилизация отходов пластмасс. Переработка резиновых отходов. Воздушные массы и их движение.

Критерием оценки за доклад с презентацией определяется простым суммированием баллов:

Критерии оценки доклада	Количество баллов
правильность представления материала	0-0,5
соответствие требованиям оформления презентации	0-0,5
всесторонность и глубина ответов на вопросы (полнота)	0-2
Итого	0-3

3. Подготовка к экзамену

Экзамен по дисциплине проводится в письменной форме по билетам.

Ознакомление обучающихся с процедурой и алгоритмом оценивания (в течение первой недели начала изучения дисциплины).

Проведение предварительных консультаций.

Проверка ответов на задания письменного экзамена.

Сообщение результатов оценивания обучающимся.

Экзаменационный билет на зачет включает в себя 10 тестовых заданий и два теоретических вопроса.

Ответ на теоретический вопрос, требующий изложения, должен быть представлен в виде грамотно изложенного, связного текста, позволяющего проследить логику рассуждений, лежащих в основе сделанных выводов. Ответ, представляющий бессвязный набор определений и иных положений, рассматривается как неверный. Наличие в ответах любой грубой ошибки является основанием для снижения оценки. Оценка за письменный экзамен может быть снижена за небрежное оформление работы (недопустимые сокращения, зачеркивания, неразборчивый почерк).

На экзамене преподаватель может задать обучающемуся дополнительные и уточняющие вопросы. Дополнительные вопросы задаются помимо вопросов билета и связаны, как правило, с плохим ответом. Уточняющие вопросы задаются в рамках билета и направлены на уточнение мысли и действий студента.

Система оценивания по оценочным средствам промежуточного контроля

Форма и описание контрольного мероприятия	Балловая стоимость контрольного мероприятия	Критерии начисления баллов
Тест - система стандартизированных заданий, позволяющая автоматизировать процедуру измерения уровня знаний обучающегося	0-10 баллов (10 вопросов)	Правильность ответов
Теоретический вопрос - индивидуальная деятельность обучающегося по концентрированному выражению накопленного знания. Средство проверки умений применять полученные знания для решения задач определенного типа	0-15 баллов (2 вопроса)	Полнота и последовательность ответа на вопрос (верное, четкое и достаточно глубокое изложение идей, понятий, фактов и т.д.), степень использования и понимания научных, нормативных источников, демонстрация умения анализировать материал, соблюдение норм литературной речи, владение профессиональной лексикой

по теме или разделу.		
Итого	40 баллов	

3.1 Примеры теоретических вопросов для подготовки к экзамену:

1. Понятие «геосистема» (ландшафт). Компоненты ландшафта и ландшафтообразующие факторы. Свойства геосистем и ландшафтов
2. Устойчивость геосистем. Классификация функций ландшафтов. Смена функций ландшафта. Этапы функционального анализа
3. Техногенные воздействия на геосистемы. Природно-техногенные комплексы
4. Принципы создания культурных ландшафтов. Основы систематизации и организации территории ландшафта
5. Основные законы движения веществ и энергии в геосистемах, моделирование.
6. Движение воздушных масс и загрязнителей
7. Круговорот воды в природе, движение почвенной влаги и подземных вод
8. Геохимический круговорот веществ. Биогеохимические барьеры
9. Биотический круговорот веществ
10. Характер антропогенных воздействий на окружающую среду. Основные факторы взаимодействия общества и природы на современном этапе
11. Проблемы охраны окружающей среды на современном этапе. Загрязнение и истощение природной среды, причины загрязнения и разрушения. Техногенные аварии и природные катастрофы
12. Экологический кризис и экологические катастрофы. Основные причины и пути выхода из экологического кризиса
13. Охрана атмосферного воздуха. Источники и состав загрязнений атмосферы. Последствия загрязнения атмосферы и мероприятия по снижению загрязнения воздушной среды
14. Охрана и рациональное использование водных ресурсов. Основные источники загрязнения природных вод. Охрана водных ресурсов. Основные методы предотвращения загрязнения водных объектов
15. Охрана и рациональное использование недр и земель. Воздействие горнодобывающей промышленности на окружающую среду
16. Современные экологические концепции и основные положения экологической доктрины.
17. Энергия и общество. Мировые тенденции развития энергетики
18. Энергетические ресурсы и проблемы окружающей среды
19. Общепроблемные вопросы экологии энергетики
20. Экологические проблемы нефтеперерабатывающей отрасли. Характеристика состояния окружающей природной среды
21. Природоохранные мероприятия и рекомендации по предотвращению ущерба окружающей среде при добыче углеводородного сырья
22. Этапы рекультивации природно-техногенных ландшафтов
23. Рекультивация и обустройство карьеров нерудных материалов при сухой выемке грунта
24. Рекультивация и обустройство обводненных карьеров
25. Рекультивация выработанных площадей торфяных месторождений
26. Рекультивация и обустройство отвалов и насыпей
27. Рекультивация и обустройство нарушенных земель свалками и полигонами. Твердые отходы и санитарные захоронения
28. Рекультивация земель, нарушенных при строительстве и эксплуатации линейных сооружений
29. Противоэрозионные мероприятия, проводимые при рекультивации земель
30. Рекультивация земель, загрязненных пестицидами
31. Малоотходное и безотходное производство. Концепция и основные пути

- создания безотходных и малоотходных технологии
32. Рациональное управление природными ресурсами
 33. Современные методы и подходы к рациональному использованию природных ресурсов. Новые технологии и материалы
 34. Основные понятия и структура мониторинга.
 35. Основные виды мониторинга. Фоновый мониторинг
 36. Утилизация осадков городских сточных вод
 37. Оценка качества окружающей природной среды
 38. Экологический контроль и экологическая экспертиза воздействия на окружающую среду
 39. Эколого-экономическая оптимизация природопользования
 40. Организационные, технологические и технические подходы и методы минимизации воздействия производств на окружающую среду

Критерием оценки за теоретический вопрос определяется простым суммированием баллов:

Критерии оценки ответа на теоретический вопрос	Количество баллов
Полнота и последовательность ответа	0-3
Логичность изложения материала	0-3
Умение анализировать материал	0-3
Соблюдение норм литературной речи	0-2
Владение профессиональной лексикой	0-2
Степень использования и понимания научных, нормативных источников	0-2
Итого	0-15

3.3 Количество баллов за промежуточную аттестацию складывается из суммы баллов за каждое задание:

- 34-40 баллов (85-100%) - оценка «отлично»
- 28-33 баллов (70-84%) - оценка «хорошо»
- 20-27 баллов (50-69%) - оценка «удовлетворительно»
- 0-19 баллов (0-49%) - оценка «неудовлетворительно».

3.4 Итоговая оценка по дисциплине складывается из суммы баллов текущего контроля и баллов по промежуточной аттестации.

- 85 - 100 баллов (85% - 100%) – оценка «отлично».
- 70 - 84 баллов (70% - 84%) – оценка «хорошо»;
- 50 - 69 баллов (50% - 69 %) – оценка «удовлетворительно»;
- 0 - 49 баллов и менее (0-49%) – оценка «неудовлетворительно»;

Методические материалы, определяющие процедуры оценивания умений, знаний, характеризующие формирование компетенций

Ознакомление обучающихся с процедурой и алгоритмом оценивания (в течение первой недели начала изучения дисциплины).

- Проведение предварительных консультаций.
- Проверка ответов на задания письменного экзамена.
- Сообщение результатов оценивания обучающимся.
- Оформление необходимой документации.

Экзамен – форма контроля промежуточной аттестации, в результате которого обучающийся получает оценку по шкале: «отлично», «хорошо», «удовлетворительно», «неудовлетворительно».

Экзамен проводится по расписанию.

Цель экзамена – завершить курс освоения дисциплины, проверить сложившуюся у обучающегося систему знаний, понятий, отметить степень полученных умений, определить сформированность компетенций.

Экзамен подводит итог всей учебной работы по данной дисциплине.

При подготовке к экзамену прежде всего необходимо запоминать определение каждого понятия, так как именно в нем фиксируются признаки, показывающие его сущность и позволяющие отличать данную категорию от других. В процессе заучивания определений конкретных понятий обучающийся «наращивает» знания. Название дисциплины имеет свою систему понятий, и обучающийся через запоминание конкретной учебной информации приобщается к данной системе, «поднимается» до ее уровня, говорит на ее языке (не пытаюсь объяснить суть той или иной категории с помощью обыденных слов).

Однако преподаватель на экзамене проверяет не столько уровень запоминания учебного материала, сколько то, как обучающийся понимает те или иные категории и реальные проблемы, как умеет мыслить, аргументировать, отстаивать определенную позицию, объяснить заученную дефиницию.

Таким образом, необходимо разумно сочетать запоминание и понимание, простое воспроизводство учебной информации и работу мысли.

Для того чтобы быть уверенным на экзамене, необходимо ответы на наиболее трудные, с точки зрения обучающегося, вопросы подготовить заранее и тезисно записать. Запись включает дополнительные ресурсы памяти.

К экзамену по дисциплине необходимо начинать готовиться с первой лекции, практического занятия, так как материал, набираемый памятью постепенно, неоднократно подвергавшийся обсуждению, образует качественные знания, формирует необходимые компетенции.

При подготовке к экзамену следует пользоваться конспектами лекций, учебниками, ресурсами интернета, научной и научно – популярной литературой, словарем, демонстрационными листами (раздаточным материалом) и другими источниками сведений.

На выполнение экзаменационного задания обучающегося дается 90 минут.

4. ПЕРЕЧЕНЬ ОСНОВНОЙ И ДОПОЛНИТЕЛЬНОЙ УЧЕБНОЙ ЛИТЕРАТУРЫ, НЕОБХОДИМОЙ ДЛЯ ОСВОЕНИЯ ДИСЦИПЛИНЫ

4.1 Основная литература

№ п/п	Наименование	Кол-во экз.
1	Лейкин Ю. А. Основы экологического нормирования/Ю. А. Лейкин. – 2014	20
2	Ветошкин, А. Г. Инженерная защита окружающей среды от вредных выбросов : учебное пособие / А. Г. Ветошкин. — 2-е изд., испр. и доп. — Вологда : Инфра-Инженерия, 2019. — 416 с. URL: https://e.lanbook.com/book/124601	Эл. ресурс
3	Инженерно-геоэкологические изыскания полигонов твердых бытовых и промышленных отходов : учеб. пособие / О. М. Гуман [и др.]. - Екатеринбург : УГГГА, 2000. - 51 с	5
4	Экология природопользования : учебное пособие / В. Е. Лотош. - Екатеринбург : Издательство УрГУПС, 2002. - 540 с. - Библиогр.: с. 503-536.	2
5	Ветошкин, А. Г. Обеспечение надежности и безопасности в техносфере : учебное пособие / А. Г. Ветошкин. — 3-е изд., стер. — Санкт-Петербург : Лань, 2020. — 236 с. URL: https://e.lanbook.com/book/126946	Электронный ресурс
6	Харламова М. Д. Твердые отходы: технологии утилизации, методы контроля, мониторинг/М. Д. Харламова, А. И. Курбатова ; под ред. М. Д. Харламовой. – 2015	2

4.2 Дополнительная литература

№ п/п	Наименование	Кол-во экз.
1	Ветошкин, А. Г. Техника и технология обращения с отходами жизнедеятельности : учебное пособие : в 2 частях / А. Г. Ветошкин. — Вологда : Инфра-Инженерия, [б. г.].— 2019. — 440 с. URL: https://e.lanbook.com/book/124596	Эл. ресурс
2	Рашоян, И. И. Расчет, проектирование и повышение надежности систем обеспечения безопасности : учебно-методическое пособие / И. И. Рашоян. — Тольятти : ТГУ, 2017. — 228 с. —URL: https://e.lanbook.com/book/140057	Эл. ресурс
3	Научно-практический журнал «Твердые бытовые отходы» https://www.solidwaste.ru/	Эл. ресурс
	Научно-практический журнал «Экология производства» https://promo.ecoindustry.ru/	Эл. ресурс

4.3 Нормативные правовые акты

1. Указ Президента РФ № 440 от 01.04.1996 г. «О Концепции перехода РФ к устойчивому развитию». - Режим доступа: ИПС «Консультант Плюс»
2. Федеральный закон от 10.01.2002 № 7-ФЗ «Об охране окружающей среды». - Режим доступа: ИПС «Консультант Плюс»
3. Федеральный закон "Об отходах производства и потребления" от 24.06.1998 N 89-ФЗ (последняя редакция) - Режим доступа: ИПС «Консультант Плюс»

5. ПЕРЕЧЕНЬ РЕСУРСОВ ИНФОРМАЦИОННО - ТЕЛЕКОММУНИКАЦИОННОЙ СЕТИ «ИНТЕРНЕТ», НЕОБХОДИМЫХ ДЛЯ ОСВОЕНИЯ ДИСЦИПЛИНЫ

Официальный сайт Министерства природных ресурсов и экологии Свердловской области <http://www.mprso.ru>

Российская государственная библиотека [Электронный ресурс]: содержит электронные версии книг, учебников, монографий, сборников научных трудов как отечественных, так и зарубежных авторов, периодических изданий. Режим доступа: <http://www.rbc.ru>

Издательство "Лань" [Электронный ресурс]: электронная библиотечная система: содержит электронные версии книг издательства «Лань» и других ведущих издательств учебной литературы, так и электронные версии периодических изданий по естественным, техническим и гуманитарным наукам. – Москва, 2010– . Режим доступа: <http://e.lanbook.com>.

Научно-практический журнал «Твердые бытовые отходы» <https://www.solidwaste.ru/>

Научно-практический журнал «Экология производства» <https://promo.ecoindustry.ru/>

6. ПЕРЕЧЕНЬ ИНФОРМАЦИОННЫХ ТЕХНОЛОГИЙ, ИСПОЛЬЗУЕМЫХ ПРИ ОСУЩЕСТВЛЕНИИ ОБРАЗОВАТЕЛЬНОГО ПРОЦЕССА ПО ДИСЦИПЛИНЕ, ВКЛЮЧАЯ ПЕРЕЧЕНЬ ПРОГРАММНОГО ОБЕСПЕЧЕНИЯ И ИНФОРМАЦИОННЫХ СПРАВОЧНЫХ СИСТЕМ

1. Microsoft Windows 8 Professional
2. Microsoft Office Standard 2013

Информационные справочные системы

ИПС «КонсультантПлюс»

Отраслевой портал Отходы.ru <https://www.waste.ru/>

Базы данных

Scopus: база данных рефератов и цитирования

<https://www.scopus.com/customer/profile/display.uri>

E-library: электронная научная библиотека: <https://elibrary.ru>

МИНОБРНАУКИ РОССИИ

ФГБОУ ВО «Уральский государственный горный университет»

МЕТОДИЧЕСКИЕ МАТЕРИАЛЫ

ПО УЧЕБНЫМ И ПРОИЗВОДСТВЕННЫМ ПРАКТИКАМ:

ОЗНАКОМИТЕЛЬНАЯ ПРАКТИКА

ТЕХНОЛОГИЧЕСКАЯ (ПРОЕКТНО-ТЕХНОЛОГИЧЕСКАЯ) ПРАКТИКА

НАУЧНО-ИССЛЕДОВАТЕЛЬСКАЯ РАБОТА

ПРЕДДИПЛОМНАЯ ПРАКТИКА

Направление подготовки:

20.04.02 *Природообустройство и водопользование*

Профиль

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Екатеринбург

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1 Общая информация

Практика – форма практической подготовки. Практика ориентирована на практическую подготовку путём непосредственного выполнения обучающимся определённых видов работ, связанных с будущей профессиональной деятельностью. Практическая подготовка способствует развитию и повышению мотивации к профессиональной деятельности, осознанию себя как компетентного специалиста. Кроме того, она позволяет обучающемуся попробовать свои силы в выбранной профессии, научиться применять теоретические знания, полученные в ходе теоретического обучения.

Практика позволяет заложить у студентов основы навыков практической деятельности для решения профессиональных задач.

Основная цель практики - закрепление теоретических и практических знаний; овладение на основе полученных теоретических знаний профессиональными навыками и умениями по производству основных видов работ по снижению последствия антропогенной деятельности объектов различного назначения.

Практика проводится как в структурных подразделениях УГГУ, так и в организациях – базах практики, с которыми УГГУ заключены договоры о практике, деятельность которых соответствует видам деятельности, осваиваемым в рамках ОПОП ВО.

Обучающиеся заочной формы обучения могут пройти практику по месту работы, если деятельность организации связана с природообустройством и водопользованием, при этом профессиональная деятельность, осуществляемая ими, соответствует требованиям образовательной программы к проведению практики, содержанию практики. В случае несоответствия (отсутствия) места работы профилю обучения, обучающийся обязан согласовать практическую подготовку с выпускающей кафедрой.

У каждого вида практики свои задачи, определяющие ее содержание.

При реализации практики образовательная деятельность организована в форме практической подготовки путем непосредственного выполнения обучающимися определенных видов работ, связанных с будущей профессиональной деятельностью, и направленных на формирование, закрепление, развитие практических навыков и компетенций по профилю образовательной программы.

Обучающийся выполняет в соответствии с целями, задачами и заданием руководителя практики работы по месту прохождения практики, фиксирует все виды выполняемой работы в дневнике прохождения практики.

Конкретное содержание практики зависит от места её прохождения.

Практика проводится на основе договоров между организацией, осуществляющей деятельность по образовательной программе соответствующего профиля (далее – организация), и университетом.

Обучающемуся предоставляется право самостоятельно выбрать базу практики.

Обучающиеся, совмещающие обучение с трудовой деятельностью, вправе проходить преддипломную практику в организации по месту работы, в случаях если осуществляемая ими профессиональная деятельность соответствует целям практики.

Перед началом практики для студентов проводится организационное собрание, на котором разъясняются цели и задачи, содержание, сроки практики, порядок её прохождения, формулируются задания практики, разъясняются формы, виды отчётности, порядок заполнения бланков отчетности, требования к оформлению отчётных документов, порядок защиты отчёта по практике, даются иные рекомендации по прохождению практики.

Перед прохождением практики студент должен изучить программу практики, при необходимости подготовить: ксерокопии своих свидетельств о постановке на учет в налоговом органе (ИНН), пенсионного страхования; получить при необходимости медицинскую справку по форме, требуемой организацией-базой практики, в поликлинике, к которой прикреплены; подготовить фотографии (формат по требованию организации-базы практики) и паспортные данные (ксерокопии разворотов с фотографией и регистрацией места жительства) для оформления пропусков в организации.

Студенты получают программу практики, направление на практику и иную необходимую для прохождения практики документацию.

По прибытии на практику производится согласование конкретного структурного подразделения, где будет проходить практика (при необходимости), проводится инструктаж по охране труда и технике безопасности.

Практику целесообразно начать с экскурсии по организации (структурному подразделению организации), ведущими специалистами организации обучающимся могут быть прочитаны установочные лекции, отражающие характеристику организации/продукции организации, технологию её производства, контроль качества продукции, решение вопросов охраны труда и окружающей среды и т.д.

Организацию и руководство практикой осуществляют руководители практики от организации и от университета.

Руководители практики от университета контролируют реализацию программы практики и условия проведения практики организациями, проводят индивидуальные и групповые консультации в ходе практики, оказывают методическую помощь обучающимся при выполнении ими заданий практики, оценивает результаты практики.

Руководители практики от организаций (назначаемые руководителем организации)) знакомят обучающихся с порядком прохождения практики, проводят инструктаж со студентами по ознакомлению с требованиями охраны труда, техники безопасности, а также правилами внутреннего трудового распорядка, помогают обучающимся овладеть профессиональными навыками.

При прохождении практики обучающиеся обязаны:

- своевременно прибыть на место прохождения практики, иметь при себе все необходимые документы;
- соблюдать действующие правила внутреннего трудового распорядка организации – места прохождения практики;

- соблюдать требования охраны труда, пожарной безопасности;
- выполнять задания, предусмотренные программой практики, вести дневник практики с фиксацией результатов выполненной работы, фактических материалов, наблюдений, оценок и выводов как фрагментов будущего отчета;
- получить по месту проведения практики характеристику, отзыв о проделанной работе, подписанный надлежащим лицом;
- в установленный срок отчитаться о прохождении практики руководителю практики от университета, подготовить и сдать отчет и другие документы практики.

При возникновении затруднений в процессе практики студент может обратиться к руководителю практики от университета либо от организации-базы практики и получить необходимые разъяснения.

Примерный план прохождения практики:

Задание	Отчетность
<i>Знакомство с предприятием (подразделением)</i>	
Ознакомиться с организацией и (или) ее подразделением, технологическим циклом предприятия и (или) подразделения, организационной структурой, пройти инструктаж по технике безопасности.	Описание организации – наименование и адрес организации, вид (профиль) деятельности, технологический цикл предприятия, организационная структура, правила техники безопасности.
<i>Формирование профессиональных компетенций (умений и навыков)</i>	
1. профессионально использовать современное научное и техническое оборудование и приборы, а также профессиональные компьютерные программные средства 2. определять исходные данные для проектирования объектов природообустройства и водопользования	1. теоретические основы новых методов исследования 2. цели и задачи исследований 3. методы исследования при изучении природных процессов

1.2 Формы отчетности

По результатам практики обучающийся представляет набор документов: направление на практику с отметкой организации-базы практики; дневник практики; характеристику с места практики; отчет по практике.

В процессе прохождения практики студент ведет дневник практики. Дневник практики должен быть оформлен надлежащим образом, в него записываются сведения о выполненных студентом работах и заданиях. Записи должны быть конкретными, с указанием характера и объёма проделанной работы. Руководитель практики от организации проверяет дневник. В дневнике должна быть отметка о выполнении работ студентом с подписью руководителя практики от организации.

Характеристика с места практики должна обязательно содержать Фамилию. И. О. студента полностью, указание на отношение студента к работе, наличие или отсутствие жалоб на студента, оценку его теоретических знаний, умение применять теоретические знания на практике, степень выраженности необходимых личностных и профессиональных качеств, степень сформированности компетенций, др.

Отчет вместе с документами служит основанием для оценки результатов практики руководителем. Полученная оценка выставляется в ведомость и зачетную книжку обучающегося.

Содержание отчёта должно соответствовать программе практики, в нем обобщается и анализируется весь ход практики, выполнение заданий и других запланированных мероприятий. Отчет должен иметь четкое построение, логическую последовательность, конкретность.

Отчет по практике имеет следующую структуру: титульный лист, содержание, введение, основная часть (первый и второй разделы), заключение, приложения.

Титульный лист отчета содержит: указание места прохождения практики, данные о руководителе практики от университета.

Содержание отчета о прохождении практики помещают после титульного листа. В содержании отчета указывают: перечень разделов (при желании параграфов), номера страниц, с которых начинается каждый из них.

Во введении следует отразить: место и сроки практики; её цели и задачи; выполненные обязанности, изученный информационный материал.

Введение не должно превышать 1 страницы компьютерного набора.

Основная часть отчета состоит из разделов, каждый из которых посвящен предприятию и (или) подразделению, на которых проходила практика в определенный период времени. Дается описание организации – наименование и адрес организации, вид (профиль) деятельности, технологический цикл предприятия, организационная структура, правила техники безопасности. Приводится оценка воздействия на окружающую среду, организация охраны окружающей среды, охраны труда, нормы промышленной безопасности, возможные чрезвычайные ситуации.

Объем основной части не должен превышать 40 страниц.

В заключении студент должен указать, как проходила практика, знания и навыки (компетенции), которые он приобрел в ходе практики, выводы и предложения, к которым пришел студент в результате прохождения учебной практики.

Заключение должно быть по объему не более 1-2 стр.

В приложениях располагают вспомогательный материал:

схемы и чертежи;

прочее, на усмотрение студента.

Объем отчета (без приложений) не должен превышать 43 страниц, набранных на компьютере.

Все документы практики должны быть подшиты в папку-скоросшиватель, заполнены в соответствии с требованиями. Документы располагаются и сшиваются в следующей

последовательности: направление и задание на практику, дневник практики, характеристика (приложение 1), отчёт по практике - титульный лист, содержание (приложение 2 и 3), основной текст.

Готовый отчет вместе с документами практики направляется на проверку руководителю практики от университета, который готовит отзыв об отчёте о прохождении практики.

К защите допускаются студенты, предоставившие руководителю практики от университета полный комплект документов о прохождении практики в установленные сроки.

По итогам практики проводится защита отчёта.

Защита отчета по практике проводится руководителем практики от университета. К защите могут привлекаться руководители организаций - баз проведения практики и непосредственные руководители практики от принимающих организаций.

Форма защиты результатов практики - собеседование. Обучающийся кратко докладывает о содержании своей работы во время практики, отвечает на вопросы принимающих отчет (проводящих защиту).

Оценочные средства, используемые для промежуточной аттестации: вопросы, отчет по практике, дневник практики, характеристика с места практики.

При оценке практики используется балльно-рейтинговая система оценки учебной деятельности в соответствии с Положением о балльно-рейтинговой системе оценки учебной деятельности (учебном рейтинге) обучающихся в ФГБОУ ВО «Уральский государственный горный университет» (СМК ОД.Пл.04-06.222-2021).

1.3 Аттестация

Формой аттестации по практике является зачёт или дифференцированный зачёт.

Оценка результатов практики и сформированности компетенций производится по шкале: «зачтено», «не зачтено»/ «отлично», «хорошо», «удовлетворительно», «неудовлетворительно».

Для практики с зачетом:

«зачтено» - обучающийся продемонстрировал знания, умения и навыки, являющиеся результатами освоения компетенций по практике (базовый: минимальные характеристики сформированности компетенций; углубленный: превышение минимальных характеристик сформированности компетенций обучающихся; продвинутый показатель: максимально выраженные характеристики сформированности компетенций обучающихся);

«не зачтено» - обучающийся продемонстрировал знания, умения и навыки, являющиеся результатами освоения компетенций по практике (недостаточный показатель: характеристики сформированности компетенций ниже базового).

Для практики с дифференцированным зачетом (зачет с оценкой)

«отлично» - обучающийся продемонстрировал знания, умения и навыки, являющиеся результатами освоения компетенций по практике (продвинутый показатель: максимально выраженные характеристики сформированности компетенций обучающихся);

«хорошо» - обучающийся продемонстрировал знания, умения и навыки, являющиеся результатами освоения компетенций по практике (углубленный: превышение минимальных характеристик сформированности компетенций обучающихся);

«удовлетворительно» - обучающийся продемонстрировал знания, умения и навыки, являющиеся результатами освоения компетенций по практике (базовый: минимальные характеристики сформированности компетенций);

«неудовлетворительно» - обучающийся продемонстрировал знания, умения и навыки, являющиеся результатами освоения компетенций по практике (недостаточный показатель: характеристики сформированности компетенций ниже базового).

В качестве учебно-методического обеспечения самостоятельной работы обучающихся в период прохождения ими практики выступает программа практики.

Во время проведения практики по получению первичных профессиональных умений и навыков используются следующие технологии: экскурсии, обучение методикам решения задач по природоохранному обустройству территорий, соблюдению промышленной безопасности.

1.4 Продолжительности и содержание

У обучающихся по направлению подготовки 20.04.02 Природообустройство и водопользование профилю «Урбоэкология и цифровые природовоспроизводящие геотехнологии» предусмотрены следующие виды практики:

Наименование практики	Продолжительность				Семестр
	недели	Практическая подготовка, час	Самостоятельная работа, час	Всего, час	
Ознакомительная практика	4	144	72	216	2
Технологическая (проектно-технологическая) практика	4	144	72	216	4
Научно-исследовательская работа	4	144	72	216	4
Преддипломная практика	4	144	72	216	4

1.4.1 Ознакомительная практика

№ п/п	Этапы и краткое содержание практики	Практическая подготовка час.	Самостоятельная работа, час	Формы контроля
	<i>Информационный</i>	3	0	
1	Организационное собрание, формулирование задания на практику, получение необходимых консультаций по организации и методике проведения работ со стороны руководителя практики от университета	2	0	Собеседование, отчет по практике
2	Ознакомление с требованиями охраны труда, безопасности жизнедеятельности,	1	0	Запись в журнале организации, заполнение соответствующего раздела

	пожарной безопасности, правил внутреннего трудового распорядка			в направлении на практику
	<i>Практический</i>	134	50	
3	Сущность и формы научно-исследовательской и педагогической работы магистрантов	34	16	Собеседование, дневник практики, отчёт по практике
4	Направления исследований и принципы формулировки темы магистерской диссертации	50	14	Собеседование, отчёт по практике
5	Образовательные, научно-исследовательские и научно-производственные технологии, используемые при подготовке магистерской диссертации	50	20	Собеседование, отчёт по практике, дневник практики характеристика с места практики
	<i>Результативно-оценочный</i>	7	22	
6	Подготовка отчёта о практике, получение характеристики, заверение документов по месту практики, защита отчёта	7	22	Защита отчета по итогам прохождения практики
Всего:		144	72	Зачёт

План отчета:

ВВЕДЕНИЕ. (Общие сведения о содержании учебной практики и форме ее проведения).

1. Сущность и формы научно-исследовательской и педагогической работы магистрантов.
2. Направления исследований и принципы формулировки темы магистерской диссертации.
3. Образовательные, научно-исследовательские и научно-производственные технологии, используемые при подготовке магистерской диссертации.

3.1 Образовательные.

3.2 Научно-исследовательские.

3.3 Научно-производственные технологии.

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1.4.2 Технологическая (проектно-технологическая) практика

№ п/п	Этапы и краткое содержание практики	Практическая подготовка час.	Самостоятельная работа, час	Формы контроля
	<i>Информационный</i>	3	0	
1	Организационное собрание, формулирование задания на практику, получение необходимых консультаций по организации и методике проведения работ со стороны руководителя практики от университета	2	0	Собеседование, отчёт по практике
2	Ознакомление с требованиями охраны труда, безопасности жизнедеятельности, пожарной безопасности, правил внутреннего трудового распорядка	1	0	Запись в журнале организации, заполнение соответствующего раздела в направлении на практику
	<i>Практический</i>	134	50	
3	Изучение образовательных, научно-исследовательских и научно-производственных технологий, используемых на практике образовательные технологии:	34	16	Собеседование, дневник практики, отчёт по практике

	Разработка рабочей программы дисциплины экологической направленности. Подготовка материала и презентации для проведения лекции по одной из тем дисциплины			
4	научно-исследовательские технологии: Обоснование направления исследований (совместно с научным руководителем). Аналитический обзор по выбранной тематике Постановка цели и задач исследований.	50	14	Собеседование, отчёт по практике
5	научно-исследовательские технологии: Обоснование направления исследований (совместно с научным руководителем). Аналитический обзор по выбранной тематике Постановка цели и задач исследований.	50	20	Собеседование, отчёт по практике, дневник практики характеристика с места практики
	<i>Результативно-оценочный</i>	7	22	
6	Подготовка отчёта о практике, получение характеристики, заверение документов по месту практики, защита отчёта	7	22	Защита отчета по итогам прохождения практики
Всего:		144	72	Зачёт

План отчета:

ВВЕДЕНИЕ

1. Педагогический раздел
 - 1.1. Комплект оценочных материалов по дисциплине экологической направленности.
 - 1.2. Методические материалы по дисциплине экологической направленности.
2. Научно-исследовательский раздел
 - 2.1. Методика проведения эксперимента
 - 2.2. Отработка методики проведения эксперимента
 - 2.3. Проведение экспериментальных исследований
 - 2.4. Обработка результатов экспериментов
3. Научно-производственный раздел
 - 3.1. Разработка структуры проекта и его исследовательской части
 - 3.2. Данные по инновационным технологиям и по объекту проектирования.
 - 3.3. Подготовка материалов для написания научной статьи
4. Выводы и предложения

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1.4.3 Научно-исследовательская работа

№ п/п	Этапы и краткое содержание практики	Практическая подготовка час.	Самостоятельная работа, час	Формы контроля
	<i>Информационный</i>	3	0	
1	Организационное собрание, формулирование задания на практику, получение необходимых консультаций по организации и	2	0	Собеседование, отчёт по практике

	методике проведения работ со стороны руководителя практики от университета			
2	Ознакомление с требованиями охраны труда, безопасности жизнедеятельности, пожарной безопасности, правил внутреннего трудового распорядка	1	0	Запись в журнале организации, заполнение соответствующего раздела в направлении на практику
	<i>Практический</i>	<i>134</i>	<i>50</i>	
3	Изучение научно-исследовательских технологий: <ul style="list-style-type: none"> – утверждение темы диссертации и плана-графика работы над диссертацией с указанием основных мероприятий и сроков их реализации; – постановка целей и задач диссертационного исследования; определение объекта и предмета исследования; – обоснование актуальности выбранной темы и характеристика современного состояния изучаемой проблемы; – характеристика методологического аппарата, который предполагается использовать; 	<i>34</i>	16	Собеседование, дневник практики, отчёт по практике
4	Изучение научно-исследовательских технологий: <ul style="list-style-type: none"> – подбор и изучение основных литературных источников, которые будут использованы в качестве теоретической базы исследования; – предполагаемый личный вклад автора в разработку темы. – разработка методологии сбора данных, методов обработки результатов, оценку их достоверности и достаточности для завершения НИР; – анализ результатов предварительных исследований; – разработка программы дальнейших исследований; – разработка плана коммерциализации и конкурсных заявок. 	<i>50</i>	14	Собеседование, отчёт по практике
5	Изучение научно-производственных технологий: <ul style="list-style-type: none"> – Разработка методики многовариантного проектирования – Выбор и разработка алгоритмов и программ расчетов технологических, экологических и экономических показателей предлагаемой природоохранной технологии. 	50	20	Собеседование, отчёт по практике, дневник практики характеристика с места практики
	<i>Результативно-оценочный</i>	<i>7</i>	<i>22</i>	
6	Подготовка отчёта о практике, получение характеристики, заверение документов по месту практики, защита отчёта	7	22	Защита отчета по итогам прохождения практики
Всего:		144	72	Зачёт

План отчета:

ВВЕДЕНИЕ. (Общие сведения о содержании учебной НИР и форме ее проведения).

1. Сущность и формы научно-исследовательской и педагогической работы магистрантов.
2. Направления исследований и принципы формулировки темы магистерской диссертации.
3. Образовательные, научно-исследовательские и научно-производственные технологии, используемые при подготовке магистерской диссертации.

3.1 Научно-исследовательские.

3.2 Научно-производственные технологии.

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1.4.3 Преддипломная практика

№ п/п	Этапы и краткое содержание практики	Практическая подготовка час.	Самостоятельная работа, час	Формы контроля
	<i>Информационный</i>	3	0	
1	Организационное собрание, формулирование задания на практику, получение необходимых консультаций по организации и методике проведения работ со стороны руководителя практики от университета	2	0	Собеседование, отчёт по практике
2	Ознакомление с требованиями охраны труда, безопасности жизнедеятельности, пожарной безопасности, правил внутреннего трудового распорядка	1	0	Запись в журнале организации, заполнение соответствующего раздела в направлении на практику
	<i>Практический</i>	134	50	
3	<u>Изучение образовательных технологий:</u> Подготовка доклада по образовательной деятельности на научно- методическом семинаре. Подготовка методических материалов по дисциплине экологической направленности к изданию.	34	16	Собеседование, дневник практики, отчёт по практике
4	<u>Изучение научно-исследовательских и технологий:</u> Отработка методики проведения эксперимента. Проведение экспериментальных исследований. Обработка результатов экспериментов.	50	14	Собеседование, отчёт по практике
5	<u>Изучение научно- производственных технологий:</u> Сбор информации по инновационным технологиям и по объекту проектирования. Разработка структуры проекта и его исследовательской части. Подготовка материалов для написания научной статьи.	50	20	Собеседование, отчёт по практике, дневник практики характеристика с места практики
	<i>Результативно-оценочный</i>	7	22	
6	Подготовка отчёта о практике, получение характеристики, заверение документов по месту практики, защита отчёта	7	22	Защита отчета по итогам прохождения практики
Всего:		144	72	Зачёт

План отчета:

ВВЕДЕНИЕ

1. Педагогический раздел
 - 1.1. Комплект оценочных материалов по дисциплине экологической направленности.
 - 1.2. Методические материалы по дисциплине экологической направленности.
 2. Научно-исследовательский раздел
 - 2.1. Методика проведения эксперимента
 - 2.2. Отработка методики проведения эксперимента
 - 2.3. Проведение экспериментальных исследований
 - 2.4. Обработка результатов экспериментов
 3. Научно-производственный раздел
 - 3.1. Разработка структуры проекта и его исследовательской части
 - 3.2. Данные по инновационным технологиям и по объекту проектирования.
 - 3.3. Подготовка материалов для написания научной статьи
 4. Выводы и предложения
 5. ЗАКЛЮЧЕНИЕ
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2 Требования к оформлению отчета по практике

2.1 Общие требования

Оформление документа осуществляется в соответствии с требованиями государственных стандартов и университета.

Отчет выполняется печатным способом с использованием компьютера.

Каждая страница текста, включая иллюстрации и приложения, нумеруется арабскими цифрами, кроме титульного листа и содержания, по порядку без пропусков и повторов. Номера страниц проставляются, начиная с введения (третья страница), в центре нижней части листа без точки.

Текст работы следует печатать, соблюдая следующие размеры полей: правое – 10 мм, верхнее и нижнее – 20 мм, левое – 30 мм.

Рекомендуемым типом шрифта является Times New Roman, размер которого 14 pt (пунктов) (на рисунках и в таблицах допускается применение более мелкого размера шрифта, но не менее 10 pt).

Текст печатается через 1,5-ый интервал, красная строка – 1,25 см.

Цвет шрифта должен быть черным, необходимо соблюдать равномерную плотность, контрастность и четкость изображения по всей работе. Разрешается использовать компьютерные возможности акцентирования внимания на определенных терминах и формулах, применяя курсив, полужирный шрифт не применяется.

2.2 Правила оформления наименований и нумерации структурных элементов, глав и параграфов

Документ должен включать следующие структурные элементы: титульный лист, содержание, введение, основной текст, заключение, приложения (является дополнительным элементом). Основной текст может быть разделен на разделы и параграфы.

Каждый структурный элемент документа (титульный лист, содержание, введение, заключение, приложение) и разделы необходимо начинать с новой страницы. Следующий параграф внутри одного раздела начинается через 2 межстрочных интервала на том же листе, где закончился предыдущий.

Расстояние между заголовком структурного элемента и текстом, заголовками главы и параграфа, заголовком параграфа и текстом составляет 2 межстрочных интервала.

Наименования структурных элементов письменной работы («СОДЕРЖАНИЕ», «ВВЕДЕНИЕ», «ЗАКЛЮЧЕНИЕ», «ПРИЛОЖЕНИЕ») служат заголовками структурных элементов. Данные наименования пишутся по центру страницы без точки в конце прописными (заглавными) буквами, не подчеркивая.

Разделы, параграфы должны иметь заголовки. Их следует нумеровать арабскими цифрами и записывать по центру страницы прописными (заглавными) буквами без точки в конце, не подчеркивая. Номер раздела указывается цифрой (например, 1, 2, 3), номер параграфа включает номер раздела и порядковый номер параграфа, разделенные точкой (например, 1.1, 2.1, 3.3). После номера раздела и параграфа в тексте точку не ставят. Если заголовок состоит из двух предложений, их разделяют точкой. Переносы слов в заголовках не допускаются. Не допускается писать заголовок параграфа на одном листе, а его текст – на другом.

В содержании работы наименования структурных элементов указываются с левого края страницы, при этом первая буква наименования является прописной (заглавной), остальные буквы являются строчными, например:

Введение

1 Краткая характеристика организации – места прохождения практики

2 Практический раздел – выполненные работы

Заключение

Приложения

2.3 Правила оформления сокращений и аббревиатур

Сокращение русских слов и словосочетаний допускается при условии соблюдения требований ГОСТ 7.12–93 «Система стандартов по информации, библиотечному и издательскому делу. Библиографическая запись. Сокращение слов на русском языке. Общие требования и правила».

В тексте письменной работы допускаются общепринятые сокращения и аббревиатуры, установленные правилами орфографии и соответствующими нормативными документами, например: год – г., годы – гг., и так далее – и т. д., метр – м, тысяч – тыс., миллион – млн, миллиард – млрд, триллион – трлн, страница – с., Российская Федерация – РФ, общество с ограниченной ответственностью – ООО.

При использовании авторской аббревиатуры необходимо при первом ее упоминании дать полную расшифровку, например: «... Уральский государственный горный университет (далее – УГГУ)...».

Не допускается использование сокращений и аббревиатур в заголовках письменной работы, глав и параграфов.

2.4 Правила оформления перечислений

При необходимости в тексте работы могут быть приведены перечисления. Перед каждым элементом перечисления следует ставить дефис (иные маркеры не допустимы). Например:

- «...заключение содержит:
- краткие выводы;
 - оценку решений;
 - разработку рекомендаций.»

При необходимости ссылки в тексте работы на один из элементов перечисления вместо дефиса ставятся строчные буквы в порядке русского алфавита, начиная с буквы а (за исключением букв ё, з, й, о, ч, ь, ы, ь). Для дальнейшей детализации перечислений необходимо использовать арабские цифры, после которых ставится скобка, а запись производится с абзацного отступа. Например:

- а) ...;
- б) ...;
- 1) ...;
- 2) ...;
- в) ...

2.5 Правила оформления рисунков

В письменной работе для наглядности, уменьшения физического объема сплошного текста следует использовать иллюстрации – графики, схемы, диаграммы, чертежи, рисунки и фотографии. Все иллюстрации именуется рисунками. Их количество зависит от содержания работы и должно быть достаточно для того, чтобы придать ей ясность и конкретность.

На все рисунки должны быть даны ссылки в тексте работы, например: «... в соответствии с рисунком 2 ...» или «... тенденцию к снижению (рисунок 2)».

Рисунки следует располагать в работе непосредственно после текста, в котором они упоминаются впервые (при наличии достаточного пространства для помещения рисунка со всеми поясняющими данными), или на следующей странице. Если рисунок достаточно велик, его можно размещать на отдельном листе. Допускается поворот рисунка по часовой стрелке (если он выполнен на отдельном листе). Рисунки, размеры которых больше формата А4, учитывают как одну страницу и помещают в приложениях.

Рисунки, за исключением рисунков в приложениях, следует нумеровать арабскими цифрами сквозной нумерацией по всей работе. Каждый рисунок (схема, график, диаграмма) обозначается словом «Рисунок», должен иметь заголовок и подписываться следующим образом – посередине строки без абзацного отступа, например:



Рисунок 1 – Структура администрации организации

Если на рисунке отражены показатели, то после заголовка рисунка через запятую указывается единица измерения, например:

Рисунок 1 – Структура добычи, %

Рисунки каждого приложения обозначают отдельной нумерацией арабскими цифрами с добавлением перед цифрой обозначения приложения (например, рисунок А.3).

Если рисунок взят из первичного источника без авторской переработки, следует сделать ссылку, например:

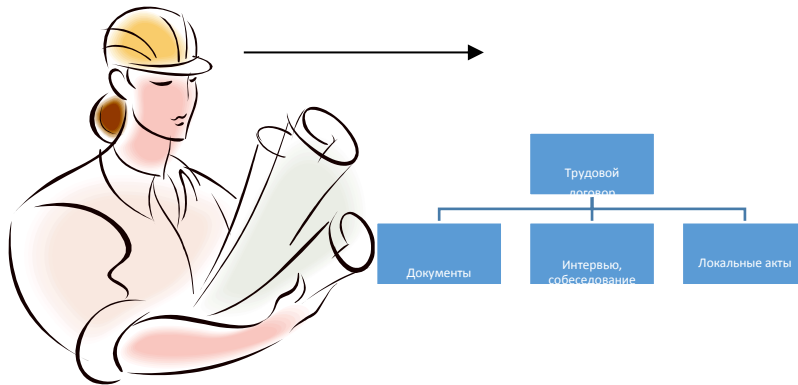
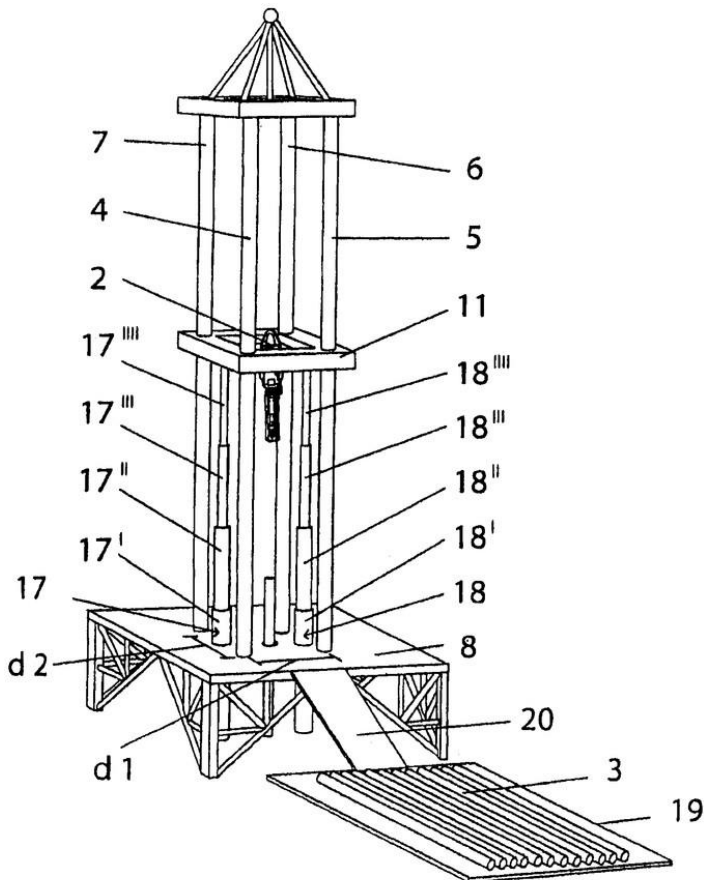


Рисунок 1 - Процесс заключения трудового договора [8, с. 46]

Если рисунок является авторской разработкой, необходимо после заголовка рисунка поставить знак сноски и указать в форме подстрочной сноски внизу страницы, на основании каких источников он составлен, например:



Фиг.4

При необходимости между рисунком и его заголовком помещаются поясняющие данные (подрисуночный текст), например, легенда.

2.6 Правила оформления таблиц

В письменной работе фактический материал в обобщенном и систематизированном виде может быть представлен в виде таблицы для наглядности и удобства сравнения показателей.

На все таблицы должны быть ссылки в работе. При ссылке следует писать слово «таблица» с указанием ее номера, например: «... в таблице 2 представлены ...» или «... характеризуется показателями (таблица 2)».

Таблицу следует располагать в работе непосредственно после текста, в котором она упоминается впервые, или на следующей странице.

Таблицы, за исключением таблиц в приложениях, следует нумеровать арабскими цифрами сквозной нумерацией по всей работе. Каждая таблица должна иметь заголовок, который должен отражать ее содержание, быть точным, кратким. Заголовок таблицы следует помещать над таблицей слева, без абзацного отступа в одну строку с ее номером через тире, например:

Таблица 3 – Количество тонн угля, добытого шахтами Свердловской области

Наименование организации	2017	2018
ПАО «Бокситы Севера»	58	59
Березниковская шахта	29	51

Если таблица взята из первичного источника без авторской переработки, следует сделать ссылку, например:

Таблица 2 – Динамика основных показателей развития шахтного строительства в России за 2015–2018 гг. [15, с. 35]

	2015	2016	2017	2018
Объем строительства, млрд. руб.				
.....				

Если таблица является авторской разработкой, необходимо после заголовка таблицы поставить знак сноски и указать в форме подстрочной сноски внизу страницы, на основании каких источников она составлена, например:

Таблица 3 – Количество оборудования¹

Вид оборудования	2016	2017
Буровая машина	3	5
.....	3	7

¹ Составлено автором по: [15, 23, 42].

Располагают таблицы на странице обычно вертикально. Помещенные на отдельной странице таблицы могут быть расположены горизонтально, причем графа с наименованиями показателей должна размещаться в левой части страницы. Слева, справа и снизу таблицы ограничивают линиями.

Таблицу с большим числом строк допускается переносить на другую страницу. При переносе части таблицы на другую страницу слово «Таблица» указывают один раз слева над первой частью таблицы. На странице, на которую перенесена часть таблицы, слева пишут «Продолжение таблицы» или «Окончание таблицы» с указанием номера таблицы и повторением шапки таблицы.

Если таблица переносится, то на странице, где помещена первая часть таблицы, нижняя ограничительная линия таблицы не проводится. Это же относится к странице (страницам), где помещено продолжение (продолжения) таблицы. Нижняя ограничительная линия таблицы проводится только на странице, где помещено окончание таблицы.

Заголовки граф и строк таблицы следует писать с прописной буквы в единственном числе, а подзаголовки граф – со строчной буквы, если они составляют одно предложение с заголовком, или с прописной буквы, если они имеют самостоятельное значение. В конце заголовков и подзаголовков таблиц точки не ставят. Заголовки граф, как правило, записывают параллельно строкам таблицы. При необходимости допускается перпендикулярное расположение заголовков граф.

Примечания к таблице (подтабличные примечания) размещают непосредственно под таблицей в виде: а) общего примечания; б) сноски; в) отдельной графы или табличной строки с заголовком. Выделять примечание в отдельную графу или строку целесообразно лишь тогда, когда примечание относится к большинству строк или граф. Примечания к отдельным заголовкам граф или строк следует связывать с ними знаком сноски. Общее примечание ко всей таблице не связывают с ней знаком сноски, а помещают после заголовка «Примечание» или «Примечания», оформляют как внутритекстовое примечание.

Допускается применять размер шрифта в таблице меньший, чем в тексте работы, но не менее 10 pt.

Если все показатели, приведенные в графах таблицы, выражены в одной и той же единице измерения, то ее обозначение необходимо помещать над таблицей справа. Если показатели таблицы выражены в разных единицах измерения, то обозначение единицы измерения указывается после наименования показателя через запятую. Допускается при необходимости выносить в отдельную графу обозначения единиц измерения.

Текст, повторяющийся в строках одной и той же графы и состоящий из одиночных слов, чередующихся с цифрами, заменяют кавычками. Если повторяющийся текст состоит из двух или более слов, то при первом повторении его заменяют словами «То же», а далее – кавычками. Если предыдущая фраза является частью последующей, то допускается заменить ее словами «То же» и добавить дополнительные сведения. При наличии горизонтальных линий текст необходимо повторять. Если в ячейке таблицы приведен текст из нескольких предложений, то в последнем предложении точка не ставится.

Заменять кавычками повторяющиеся в таблице цифры, математические знаки, знаки процента и номера, обозначения нормативных материалов, марок материалов не допускается.

При отсутствии отдельных данных в таблице следует ставить прочерк (тире). Цифры в графах таблиц должны проставляться так, чтобы разряды чисел во всей графе были расположены один под другим, если они относятся к одному показателю. В одной графе должно быть соблюдено, как правило, одинаковое количество десятичных знаков для всех значений величин.

Если таблицы размещены в приложении, их нумерация имеет определенные особенности. Таблицы каждого приложения нумеруют отдельной нумерацией арабскими цифрами. При этом перед цифрой, обозначающей номер таблицы в приложении, ставится буква соответствующего приложения, например:

Таблица В.1.– Динамика показателей за 2016–2017 гг.

Если в документе одна таблица, то она должна быть обозначена «Таблица 1» или «Таблица В.1», если она приведена в приложении (допустим, В).

2.7 Правила оформления примечаний и ссылок

При необходимости пояснить содержание текста, таблицы или иллюстрации в работе следует помещать примечания. Их размещают непосредственно в конце страницы, таблицы, иллюстрации, к которым они относятся, и печатают с прописной буквы с абзацного отступа после слова «Примечание» или «Примечания». Если примечание одно, то после слова «Примечание» ставится тире и примечание печатается с прописной буквы. Одно примечание не нумеруют. Если их несколько, то после слова «Примечания» ставят двоеточие и каждое примечание печатают с прописной буквы с новой строки с абзацного отступа, нумеруя их по порядку арабскими цифрами.

Цитаты, а также все заимствования из печати данные (нормативы, цифры и др.) должны иметь библиографическую ссылку на первичный источник. Ссылка ставится непосредственно после того слова, числа, предложения, по которому дается пояснение, в квадратных скобках. В квадратных скобках указывается порядковый номер источника в соответствии со списком использованных источников и номер страницы, с которой взята информация, например: [4, с. 32]. Это значит, использован четвертый источник из списка литературы со страницы 32. Если дается свободный пересказ принципиальных положений тех или иных авторов, то достаточно указать в скобках после изложения заимствованных положений номер источника по списку использованной литературы без указания номера страницы.

2.8 Правила оформления списка использованных источников

Оформлению списка использованных источников, прилагаемого к документу, следует уделять самое серьезное внимание.

Сведения об источниках приводятся в следующем порядке:

1) **нормативные правовые акты:** Нормативные правовые акты включаются в список в порядке убывания юридической силы в следующей очередности: международные нормативные правовые акты, Конституция Российской Федерации, федеральные конституционные законы, федеральные законы, акты Конституционного Суда Российской Федерации, решения других высших судебных органов, указы Президента Российской Федерации, постановления Правительства Российской Федерации, нормативные правовые акты федеральных органов исполнительной власти, законы субъектов Российской Федерации, подзаконные акты субъектов Российской Федерации, муниципальные правовые акты, акты организаций.

Нормативные правовые акты одного уровня располагаются в хронологическом порядке, от принятых в более ранние периоды к принятым в более поздние периоды.

Примеры оформления нормативных правовых актов и судебной практики:

1. Об общих принципах организации законодательных (представительных) и исполнительных органов власти субъектов Российской Федерации [Текст]: Федеральный закон от 06.10.1999 г. № 184-ФЗ // Собрание законодательства РФ. - 1999. - № 43.

2. О порядке разработки и утверждения административных регламентов исполнения государственных функций (предоставления государственных услуг) [Электронный ресурс]: Постановление Правительства РФ от 11.11.2005 г. № 679. - Доступ из справочно-правовой системы «КонсультантПлюс». – Режим доступа: <http://www.consultant.ru>.

3. О практике применения судами Закона Российской Федерации «О средствах массовой информации» [Электронный ресурс]: Постановление Пленума Верховного Суда РФ

от 15.06.2010 № 16. - Доступ из справочно-правовой системы «КонсультантПлюс». – Режим доступа: <http://www.consultant.ru>.

4. Определение судебной коллегии по гражданским делам Верховного Суда Российской Федерации по иску Цирихова // Бюллетень Верховного Суда Российской Федерации. - 1994. - №9. - С. 1-3.

2) **книги, статьи, материалы конференций и семинаров.** Располагаются по алфавиту фамилии автора или названию, если книга печатается под редакцией. Например:

5. Абрамова, А.А. Трудовое законодательство и права женщин [Текст] / А.А.Абрамова // Вестн. Моск. ун-та. Сер. 11, Право. - 2001. - № 5. - С. 23–25.

6. Витрянский, В.В. Договор банковского счета [Текст] / В.В. Витрянский // Хозяйство и право.- 2006.- № 4.- С. 19 – 25.

7. Двинянинова, Г.С. Комплимент: Коммуникативный статус или стратегия в дискурсе [Текст] / Г.С. Двинянинова // Социальная власть языка: сб. науч. тр. / Воронеж. межрегион. ин-т обществ. наук, Воронеж. гос. ун-т, Фак. романо-герман. истории. - Воронеж, 2001. - С. 101–106.

8. История России [Текст]: учеб. пособие для студентов всех специальностей / В.Н. Быков [и др.]; отв. ред. В.Н. Сухов; М-во образования Рос. Федерации, С.-Петербург. гос. лесотехн. акад. - 2-е изд., перераб. и доп. / при участии Т.А. Суховой. - СПб.: СПбЛТА, 2001. - 231 с.

9. Трудовое право России [Текст]: учебник / Под ред. Л.А.Сыроватской. - М.: Юристъ, 2006. - 280 с.

10. Семенов, В.В. Философия: итог тысячелетий. Философская психология [Текст] / В.В. Семенов; Рос. акад. наук, Пуштин. науч. центр, Ин-т биофизики клетки, Акад. проблем сохранения жизни. - Пушино: ПНИЦ РАН, 2000. - 64 с.

11. Черткова, Е.Л. Утопия как способ постижения социальной действительности [Электронный ресурс] / Е.Л. Черткова // Социемы: журнал Уральского гос. ун-та. - 2002. - N 8. – Режим доступа: <http://www2.usu.ru/philosoph/chertkova>.

12. Юридический советник [Электронный ресурс]. - 1 электрон. опт. диск (CD-ROM) : зв., цв. ; 12 см. - Прил.: Справочник пользователя [Текст] / сост. В.А. Быков. - 32 с.;

3) **статистические сборники, инструктивные материалы, методические рекомендации, реферативная информация, нормативно-справочные материалы.** Располагаются по алфавиту. Например:

13. Временные методические рекомендации по вопросам реструктуризации бюджетной сферы и повышения эффективности расходов региональных и местных бюджетов (Краткая концепция реструктуризации государственного и муниципального сектора и повышения эффективности бюджетных расходов на региональном и местном уровнях) [Текст]. - М.: ИЭПП, 2006. - 67 с.

14. Свердловская область в 1992-1996 годах [Текст]: Стат. сб. / Свердлов. обл. комитет гос. статистики Госкомстата РФ. - Екатеринбург, 1997. - 115 с.

15. Социальное положение и уровень жизни населения России в 2010 г. [Текст]: Стат. сб. / Росстат. - М., 2002. - 320 с.

16. Социально-экономическое положение федеральных округов в 2010 г. [Электронный ресурс]. – Режим доступа: <http://www.gks.ru>

4) **книги и статьи на иностранных языках** в алфавитном порядке. Например:

17. An Interview with Douglass C. North [Text] // The Newsletter of The Cliometric Society. - 1993. - Vol. 8. - N 3. - P. 23–28.

18. Burkhead, J. The Budget and Democratic Government [Text] / Lyden F.J., Miller E.G. (Eds.) / Planning, Programming, Budgeting. Markham : Chicago, 1972. 218 p.

19. Miller, D. Strategy Making and Structure: Analysis and Implications for Performance [Text] // Academy of Management Journal. - 1987. - Vol. 30. - N 1. - P. 45–51;

20. Marry S.E. Legal Pluralism. – Law and Society Review. Vol 22.- 1998.- №5.- p. 22-27

5) **интернет-сайты**. Например:

21. Министерство финансов Российской Федерации: [Электронный ресурс]. – Режим доступа: <http://www.minfin.ru>

22. Российская книжная палата: [Электронный ресурс]. - Режим доступа: <http://www.bookchamber.ru>

В списке использованных источников применяется сквозная нумерация с применением арабского алфавита. Все объекты печатаются единым списком, группы объектов не выделяются, источники печатаются с абзацного отступа.

Объекты описания списка должны быть обозначены терминами в квадратных скобках²:

- [Видеозапись];
- [Мультимедиа];
- [Текст];
- [Электронный ресурс].

При занесении источников в список литературы следует придерживаться установленных правил их библиографического описания.

2.9 Правила оформления приложений

В приложения рекомендовано включать материалы, которые по каким-либо причинам не могут быть включены в основную часть: материалы, дополняющие работу; таблицы вспомогательных цифровых данных; инструкции, методики, описания алгоритмов и программ задач, иллюстрации вспомогательного характера; нормативные правовые акты, например, должностные инструкции. В приложения также включают иллюстрации, таблицы и распечатки, выполненные на листах формата А3.

Приложения оформляют как продолжение данного документа на последующих его листах после списка использованных источников.

Приложения обозначают заглавными буквами русского алфавита, начиная с А, за исключением букв Ё, З, Й, О, Ч, Ъ, Ы, Ь (ПРИЛОЖЕНИЕ А, ПРИЛОЖЕНИЕ Б, ПРИЛОЖЕНИЕ В и т.д.). Допускается обозначение приложений буквами латинского алфавита, за исключением букв I и O. В случае полного использования букв русского и латинского алфавитов допускается обозначать приложения арабскими цифрами.

Само слово «ПРИЛОЖЕНИЕ» пишется прописными (заглавными) буквами.

Если в работе одно приложение, оно обозначается «ПРИЛОЖЕНИЕ А».

Каждое приложение следует начинать с новой страницы. При этом слово «ПРИЛОЖЕНИЕ» и его буквенное обозначение пишутся с абзацного отступа.

Приложение должно иметь заголовок, который записывают на следующей строке после слова «ПРИЛОЖЕНИЕ» с абзацного отступа. Заголовок пишется с прописной буквы.

В тексте работы на все приложения должны быть даны ссылки, например: «... в приложении Б...». Приложения располагают в порядке ссылок на них в тексте работы.

Текст каждого приложения, при необходимости, может быть разделен на разделы, подразделы, пункты, подпункты, которые нумеруют в пределах каждого приложения. Перед номером ставится обозначение этого приложения.

Приложения должны иметь общую с остальной частью документа сквозную нумерацию страниц.

² Полный перечень см. в: Система стандартов по информации, библиотечному и издательскому делу. Библиографическая запись. Библиографическое описание. Общие требования и правила составления [Текст]: ГОСТ 7.1-2003.



Федеральное государственное бюджетное образовательное учреждение
 высшего образования
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 (ФГБОУ ВО «УГГУ»)
 620144, г. Екатеринбург, ул. Куйбышева, 30

НАПРАВЛЕНИЕ НА ПРАКТИКУ

Обучающийся _____
 (фамилия, имя, отчество)
 Специальности/направления подготовки _____
 (шифр и наименование специальности/направления подготовки)
 _____ курса _____ факультета
 направляется в _____
 (наименование организации, город)

_____ для прохождения _____ практики

с _____ по _____
 (прописью) (прописью)

М.П.

Декан факультета _____

Руководитель практики от университета

_____ тел. кафедры: 8(343) _____

Отметка организации

Дата прибытия обучающегося в организацию « _____ » _____ 20 _____ г.

Направлен _____
 (наименование структурного подразделения)

Практику окончил « _____ » _____ 20 _____ г.

Руководитель практики от организации

М.П.

_____ (ф. и. о.)

_____ (должность)

Прохождение инструктажа по ознакомлению с требованиями охраны труда, техники безопасности, правилами внутреннего трудового распорядка с оформлением в соответствующем журнале:

Дата проведения	Ф.И.О., должность, подпись проводившего инструктаж	Подпись обучающегося, прошедшего инструктаж

Характеристика с места практики обучающегося
(заполняется руководителем практики от организации)

(фамилия, имя, отчество)

Заключение организации о работе обучающегося за период практики (технологические навыки, деловые качества, активность, дисциплина, участие в общественной работе)

Руководитель практики от организации _____ (Фамилия И.О) _____ (подпись)

Отзыв

об отчёте о прохождении практики обучающегося
(заполняется руководителем практики от университета)

1. Выводы (характеристика отчёта в целом, соответствие содержания отчёта программе):

2. Недостатки отчёта:

Руководитель практики от университета _____
(Фамилия И.О) (подпись)

Характеристика обучающегося с места практики описывает его профессиональную подготовку, теоретические знания, практические навыки и деловые качества, которые он проявил в период прохождения практики. Писать документ нужно в официальном стиле, при этом необходимо указать в характеристике следующие сведения:

- фамилия и инициалы обучающегося;
- обязанности обучающегося в период прохождения практики;
- профессиональные качества обучающегося;
- особенности обучающегося, проявленные при общении с трудовым коллективом;
- практические навыки, освоенные обучающимся;
- оценку, выставленную обучающемуся по результатам прохождения практики.

Главная цель составления характеристики обучающегося с места практики — описание его профессиональной подготовки, а также новых знаний и навыков, которые он приобрел в процессе практической деятельности в конкретной организации. Подробная характеристика позволит руководителю практики со стороны учебного заведения объективно оценить ее эффективность и поставить обучающемуся справедливую оценку.

Образец оформления титульного листа отчета по практике



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ОТЧЕТ
о прохождении _____ практики
(название практики)

(наименование организации прохождения практики)

Направление: 20.04.02
Природообустройство и водопользование

Студент: Иванов И.И.
Группа: ПВ.м-18

Профиль:
*УРБООКОЛОГИЯ И ЦИФРОВЫЕ ПРИРОДОВОС-
ПРОИЗВОДЯЩИЕ ГЕОТЕХНОЛОГИИ*

Руководитель практики от университета:
Шерстнев В.И.

Руководитель практики от организации:
Петров И.С., главный эколог

Оценка _____

Подпись _____

Екатеринбург

Образец оформления содержания отчета по учебной практике

СОДЕРЖАНИЕ

ВВЕДЕНИЕ. (Общие сведения о содержании учебной практики и форме ее проведения).

1. Сущность и формы научно-исследовательской и педагогической работы магистрантов.
2. Направления исследований и принципы формулировки темы магистерской диссертации.
3. Образовательные, научно-исследовательские и научно-производственные технологии, используемые при подготовке магистерской диссертации.

3.1 Образовательные.

3.2 Научно-исследовательские.

3.3 Научно-производственные технологии.

ЗАКЛЮЧЕНИЕ.

СПИСК ИСПОЛЬЗОВАННЫХ ИСТОЧНИКОВ.

ПРИЛОЖЕНИЯ.