МИНИСТЕРСТВО ОБРАЗОВАНИЯ И НАУКИ
РОССИЙСКОЙ ФЕДЕРАЦИИ
ФЕДЕРАЛЬНОЕ АГЕНТСТВО ПО ОБРАЗОВАНИЮ

Государственное образовательное учреждение
высшего профессионального образования
«Оренбургский государственный университет»

Н.И. ХОХЛОВА, В.В. МИЛЛЕР

РАЗВИТИЕ СУБЪЕКТНОСТИ СТУДЕНТОВ УНИВЕРСИТЕТА ПРИ ИЗУЧЕНИИ ИНОСТРАННОГО ЯЗЫКА

ПРАКТИКУМ

Рекомендовано Ученым советом государственного образовательного учреждения высшего профессионального образования «Оренбургский государственный университет» в качестве учебного пособия для студентов, обучающихся по программе высшего профессионального образования по специальности «Инженерное дело в медико-биологической практике»

Оренбург 2009

УДК 802.0(07)
ББК 81.2 Англ я 7
Х 86

Рецензент
доцент, кандидат педагогических наук С.Г. Иванова

Х 86 **Хохлова, Н.И.**
Развитие субъектности студентов университета при изучении иностранного языка: практикум по английскому языку / Н.И. Хохлова, В.В. Миллер. - Оренбург: ГОУ ОГУ, 2009 – 183 с.

ISBN

Практикум предназначен для использования на практических занятиях по английскому языку и для самостоятельной работы студентов первого и второго курсов специальности «Инженерное дело в медико-биологической практике»

Х– 4602000000 ББК 81.2 Англ я 7

ISBN

Введение

Целью пособия является взаимосвязанное развитие у студентов коммуникативной компетенции, достаточной для осуществления общения на английском языке в письменной и устной форме (чтение и устная речь) в соответствии с программой высшего профессионального образования.

Данный практикум в рамках курса “Иностранный язык”, предназначен для студентов 1-2 курсов специальности “Инженерное дело в медико-биологической практике” очного и заочного отделений. Практикум способствует формированию навыков помогающих студенту самостоятельно принимать обоснованные решения, реагировать на их последствия и непрерывно совершенствоваться, осознавая личную ответственность за результаты профессиональной деятельности во многом зависящих от субъектности будущих профессионалов (инженеров). Пособие позволяет развивать у студента качества, характеризующие его способность к самоактуализации личностных потенциалов, регуляции целенаправленной активности, самореализации в образовательном процессе вуза.

Практикум включает 13 разделов и три приложения. Каждый раздел состоит из базового текста с тематическим словарем и упражнениями на проверку понимания и формирования навыков извлечения информации, развитие коммуникативных умений в ходе самостоятельного решения речевого задания. Каждый раздел содержит также тексты, предназначенные для аудиторного (внеаудиторного) чтения, развития навыков работы со словарем и передачи содержания на английском языке. Раздел завершается блоком кратко изложенной грамматики по обязательным темам и закрепляющими упражнениями.

Приложение А практикума предназначено для аудиторных и внеаудиторных занятий по английскому языку. Оно представляет собой самостоятельные, структурно независимые тексты для развития навыков чтения, извлечения и обработки информации по специальности. В целях универсализации пособия каждый из текстов самостоятелен.

Приложение Б предоставляет студентам богатый справочный материал по грамматике английского языка.

Приложение В позволяет студентам и преподавателям проверять знания по грамматике в форме тестов.

Содержание

1 Section 1 About myself

1.1 Text 1 Let me introduce myself

1.1.1 Read the text and translate it

Hello, friends. Let me first introduce myself. My name is Vera. My surname or last name is Voronina. I was born on the 13th of October in Sochi, Krasnodarsky Krai. This is the most beautiful city in Russia situated on the Black Sea coast**.** Now I am a first-year student at the Faculty of Economics of Rostov State University.

Now let me describe my appearance. I am tall and slim and have fair hair and blue eyes. My friends say that I am pretty. I love sports and music. I was very serious about a career in gymnastics when I was in the 4th form. But then I broke my arm and doctors didn't let me to go in for gymnastics. I love to listen to the modern music and dance. I dance a lot and I hope I am good at it. I also love swimming. I always swim in the Black sea when I visit my parents.

I would like to tell you about my family. There are five people in our family. My father's name is Mikhail Evgenyevich. He is a mathematician by education but works at a bank now. My mother's name is Natalya Yakovlevna. She works as a chief accountant at the hotel ”Zemchuzhina”. She also has much work about the house after she gets home from work. But my sister and I always help her. Yes, let me introduce my younger sister. She is still a pupil. Her name is Tanya and she is in the fifth form. She is very pretty and a great dancer. We are good friends with my sister. My grandmother, my mother's mother, lives with us. She is very kind and helps us a lot.

Our family is very friendly, we have many friends. In summer many relatives come to visit us. And of course they use a chance to spend several weeks in beautiful Sochi.

In May I have finished school №5 in Sochi. I did well in all the subjects but my favourite subjects at school were Computer Science and English. I also enjoyed Geography lessons.

I am very interested in learning English because I always wanted to become an economist or a manager at some joint venture. That is why I think it is necessary to know at least one foreign language. Besides, knowledge of foreign languages helps in everyday life.

1.1.2 Answer the following questions

1 What is your name?
2 Where and when were you born?
3 How old are you?
5 Have you got a family?
6 How many people are there in your family?
7 Do you have brothers, sisters, grandparents in your family?
8 Where do you live?

9 Did you study well at school?
10What school did you finish?
11 Did your teachers help you to choose your future profession?
12 What were your favourite subjects at school?
13 What do you like to read?
14 What sport do you go in for?
15 What are you going to be?
16 Do you still live with your parents?
17 Do you have a many friends?

1.1.3 Write the story about your friend. Describe his or her appearance, character and hobbies

1.1.4 Ask each other about

family
hobbies
friends
favourite films
favourite actor
favourite book
favourite food
places he/she visited

1.2 Revise grammar material in appendix and do the following exercises (см. приложение Б)

1.2.1 Translate from Russian into English paying particular attention to pronouns

l **Та** книга не моя. 2 **Эта** книга - **моя.** 3 **Это** моя книга, а **то** - его. 4 **Эти** - ее карандаши, а **те** - мои. 5 Возьми **те** карандаши. Они новые. 6 Я люблю **такие** ручки, они хорошие. 7 **Ваша** ручка плохая, возьмите **мою.**

1.2.2 Change the nouns into personal pronouns

1 **Peter** helped the pupils to translate the text.2 **Mother** asked Mary to wash the plates. 3 **My friend** writes a letter to his sister.4 **Jane** took 3 books from the library. 5 His **cousins** live in Moscow. 6 **Grandfather and grandmother** will come tomorrow. 7 **Mary** works in a shop.

1.2.3 Write down the sentences in plural form

1 This is my pen and that is your pencil. 2This is our office and that is yours. 3 This is his desk and that is hers. 4 This is my book and that is theirs.

5 This is my letter and that is his. 6 Is this is my book?

1.2.4 Choose the correct form of the pronoun

1 Is this (your / yours) book? 2 It's (their / theirs) door, not (our / ours). 3 They're new pupils and I don't know (their / theirs) names.4 (My / Mine) flat is bigger than (her / hers), but (her / hers) is nicer. 5 That's not (my / mine) book. (My / Mine) is new.

1.2.5 Use the correct form of the pronoun

1 I shall ask him ... .
2 They want to do it ... .
3 She washed ....
4 You will answer the letter ... .
5 I looked at ... in the mirror.
6 We shall tell her ... .
7 They have done the task ... .
8 She doesn't like to speak about ....
9 The story ... is very good, but not the translation.
10 Children, do it ... .

1.2.6 Translate from Russian into English

1 Утром я умываюсь и одеваюсь. 2 Идите домой сами. 3 Читайте книгу сами. 4 Они ходят в школу сами. 5 Причешитесь!

1.2.7 Insert the correct form of the verb to have

1 Mr. Johnson stayed at his office till late at night because he ... a lot of work.
2 We ... an examination tomorrow.
3 We ... not much time to prepare for the examination.
4 He ... many friends.
5 I hope you ... a good time at the party yesterday.

1.2.8 Insert the correct form of the verb to be

1 He ... born in 1995. 2 We ... students now. 3 We ... good friends in our group. 4 It ... an interesting book. 5 Who ... absent today? 6 He ... a student. 7 What ... he? 8 ... he a doctor ? 9 These ... my pencils. 10 Where ... this book? It ... on the table.

1.2.9 Write down the nouns in plural form

Box, sheep, place, library, photo, mouse, lady, glasses, bush, dress, country, bus, party, wife, day, knife, knowledge, month, pen, hero, goose, company, life, deer,

tomato, city, man, play, news, child, fruit, shelf, leaf, foot, fish, woman, money, information.

1.2.10 Write down the word combinations in plural form

This man, that match, this tea-cup, this egg, that wall, that picture, this foot, that mountain, this lady, that window, this knife.

1.2.11 Put the sentences into plural form paying particular attention to verbs to be and to have

1 This is my computer. 2 He has a new suit. 3 This metal is very hard. 4 A new house is in our street. 5 This story is very interesting. 6 A man, a woman, a boy and a girl are the room. 7 Put this book on that table. 8 What is your name? 9 This town is very large. 10 This man works at our office. 11 He has a new suit. 12 The plate was on the table. 13 I heard her voice. 14 Is that girl your sister? 15 I'll give you my book. 16 This story is good. 17 Is this a good match? 18 The student put his book on the desk. 19 That house is new. 20 Is this a good student? 21 The pupil put his book into the bag. 22 Is she coming with us, too? 23 The woman didn't say anything. 24 Does she speak English?

1.3 Text 2 My working day

I am a first-year student of the Orenburg State University. My parents live in Sochi and I study in Orenburg so I need some housing. There are two opportunities for me: I can live in a dormitory (a students hostel), or to rent a flat (an apartment).

I decided to rent a room. To make the rent smaller, I also decided to share my room with another girl - Olya Alyokhina. She studies at the University, too, and she is my best friend now.

Now, let me describe my usual working day. My classes begin at 8:30. So on week-days I have to get up at 7:15. I don't have an alarm clock and usually my roommate wakes me up and my working day begins. I turn on the radio and do my morning exercises while Olya takes a shower. I don't take a bath in the morning because I don't have enough time for it. I take a cool shower (that's when I completely wake up), brush my teeth. After that I go back to our room and get dressed. I brush my hair and put on a light make-up. Then we have breakfast. Olya makes breakfast every Monday, Wednesday and Friday. I have to serve breakfast on Tuesdays, Thursdays and Saturdays. I love to listen to the latest news on the radio while I am eating and Olya prefers light music. We leave the house around eight and walk to the nearest bus stop. We live rather close to the University and it usually takes us about ten-fifteen minutes to get there by bus. Sometimes when the weather is fine and we have enough time we walk to the University. It is very healthy to walk much.

Our classes begin at 8.30 in the morning and they end at 6:00 p.m. We have lectures in different subjects. As a rule we have three or four classes a day. Sometimes it is very hard to wait till they end.

Usually I don't miss my classes because I want to pass my exams successfully. But sometimes I do, especially when the weather is fine and the classes are boring.

At one o'clock we have a big break. It lasts for half an hour. That's my favourite time. That is the time to share the latest news and to gossip. My friends and I prefer not to go to the canteen and we often have lunch in a small cafe not too far from the University. At one thirty we have to be back to our classes. During the working day we also have several short breaks that last for fifteen minutes.

Occasionally I have to stay at the University till 6 or even 7 o'clock in the evening because I go to the library to get ready for my practical classes or to write a report. As a rule I have no free time on week-days. So by the end of the week I get very tired.

When we come home in the evening, we have supper together and share the news.

After supper we wash dishes, drink coffee or tea and watch TV. I prefer old comedies and Olya likes soap-operas or films about travelling. Sometimes Olya and I go for a walk in the park or visit our friends.

At about eleven at night I go to bed. I like to read something before going to bed and Olya likes to listen to some music. Sometimes I fall asleep while I am reading and Olya gets up and switches off the light and says Good night!

1.3.1 Make up your own sentences with the words given below

1 usual - usually - as usual - unusual
2 occasion - occasional - occasionally
3 to end -to finish - to be over
4 to start - to begin - to get ready for
5 on Sunday - at five o'clock - in cafeteria
6 full time student - part time student
7 freshman - second year student - school graduate

1.3.2 Translate from Russian into English

Быть студентом (студенткой) дневного отделения; рассказать вам о...; в будние дни; просыпаться - вставать в 7 часов утра; включать магнитофон; принимать душ; чистить зубы; одеваться; слушать последние новости; у меня уходит час, чтобы добраться до института; ездить на автобусе (троллейбусе, трамвае);

опаздывать на занятия, заканчиваться в 15.50 вечера; пропускать занятия; сдать экзамены успешно; время от времени; подготовиться к занятиям; как правило;

устать; приходить домой; быть дома; иметь свободное время.

1.3.3 Describe your working day using the following questions

1 Do you get up early?
2 Is it easy for you to get up early?
3 Do you wake up yourself or does your alarm clock wake you up?
4 Do you do your morning exercises?
5 What do you prefer: a hot or cold shower in the morning?
6 How long does it take you to get dressed?
7 What do you usually have for breakfast?
8 Some people look through newspapers or listen to the latest news on the radio while having breakfast. What about you?
9 When do you usually leave your house?
10 Do you work? Where do you work?
11 How long does it take you to get to your University?
12 Do you go there by bus/trolley-bus or walk?
13 Where do you usually have lunch (dinner)?
14 What time do you come home?
15 How long does it take you to do your homework?
16 How do you usually spend your evenings?
17 Do you have a lot of free time?
18 Do you play any musical instrument?
19 Are you fond of listening to music?
20 What kind of music do you prefer?
21 Do you collect anything (stamps, records, postcards, coins, matchboxes, etc.)?
22 What time do you usually go to bed?

1.3.4 Speak on

1 the working-day of your father or mother
2 the usual weekend at home
3 the best day of your life
4 a holiday spent with your friends or relatives (New Year's Day, Christmas, 8th of March)
5 the working day of famous people (writers, artists, politicians - the President, Governor, and Head of the Ministry)

1.4 Revise grammar material in appendix (см.приложение Б)

1.4.1 Read in English the following

Cardinal numerals
3, 5, 11, 12, 13, 24, 69, 325, 1005, 530425, 1.745.033.

Ordinal numerals

1, 2, 15, 23, 84, 149, 150, 208, 1000, 2.000.000.

1.4.2 Write the following dates

1 The first of March nineteen seventy-six.
2 The fifth of December two thousand.
3 The sixteenth of May nineteen five.
4 The third of July nineteen hundred.

1.4.3 Write in English

7 марта 1999 года
1 сентября 1974 года
22 апреля 1911 года
11 марта 1951 года
12 декабря 2024 года

1.4.4 Tell the time

8.05, 8.10, 8.15, 8.20, 8.25, 8.30
8.35, 8.45, 8.50, 8.55, 9.00

1 Без двадцати двенадцать.
2 Без четверти три.
3 Половина пятого.
4 Четверть седьмого.
5 Десять минут второго.
6 Ровно двенадцать часов

1.4.5 Translate into English

А 220 дней; 1500 человек; 20545 книг; около 100 страниц; почти 300 тетрадей.

В первый автобус; вторая страница; миллионный посетитель; часть первая; номер десятый.

Два миллиона человек, миллионы книг, триста восемьдесят пять страниц, двадцать первое декабря 1997г., двенадцатое марта 2003г., одна четвертая, три пятых, ноль целых двадцать пять сотых, четыре целых и пять шестых, две целых и сто пять тысячных.

1.4.6 Make up sentences

1 is, best, she, friend, my
2 learn, different, students, our, subject
3 the, is, Russia, in, country, the, largest, world

4 in, the, we, city, live, a, flat, in, of, center, the
5 of reading, is fond, my, best, son's, friend
6 computer, better, his, is, than, my
7 two, have, to, I, want, children
8 people, to, Black Sea coast, go, in, people, summer, many

1.4.7 Ask three questions to each sentences; general, special, disjunctive

1 There is a book on the table. 2 He must work hard today. 3 We are leaving for Moscow next week. 4 We were reading the whole evening. 5 They don't go to work on Sunday. 6 It is not cold today. 7 Ann has already begun to read a new book. 8 We learn English at school. 9 They will show you how to get there. 10 They finished the translation before the end of the lesson. 11 I didn't feel well that evening. 12 It wasn't difficult to do this task.

1.4.8 Translate into English

1 Вам нравится больше английский язык или французский?
2 Он живет в Москве или в Петербурге?
3 Она его младшая или старшая сестра?
4 Студенты уже сдали экзамены или нет?
5 Петровы поедут летом на юг или на север?
6 Ваш друг учится в академии или в университете?

1.4.9 Write down all questions to the following sentences

1 Our teacher knows several foreign languages. 2 He has graduated from our University last year. 3 We shall go to Samara next week. 4 They are working in our garden. 5 I have just read this book. 6 I took this book from my friend. 7 He likes reading books. 8 She has many relatives abroad. 9 They were in many countries. 10 Russia is the largest country in the world.

2 Section 2 Higher Education

2.1 Text 1 Education in Great Britain

2.1.1 Education is very important for every person. It gives information and opportunities for further life. Every country has its own, unique system of education. We can note examples of many different systems, but I think the most developed and popular are: education system in the USA, the education system in Great Britain, as the oldest, and Russian education system, the best in some qualities I think. But as many persons as many opinions, and the best way to prove something is to compare it, I consider. Read the text and compare.

There are three main systems in Britain: the Comprehensive system, the selective and the private system. The Comprehensive system was introduced in Britain in 1960s. More than 90% of children who go to state schools go to schools of comprehensive system. Children go to a primary school at the age of 5. Then they go to the upper school - usually called comprehensive - at the age of 11. Alternatively they may go to the middle school for 3 or 4 years before going to the upper school. The selective system, which still exists in some areas of Britain, is old. It was introduced in 1944. Children are selected according to their abilities. In Britain children then take an examination called 11-plus and who are successful go to the grammar school and those who fail enter the secondary modern school. And the last subsystem that is developed in Great Britain is the private education. In Britain about 7% of children go to private schools. There are three levels of private education: primary schools - age from 4 to 8, preparatory school - age from 8 to 13. At the age of 13 children take an examination. If they are successful they go on to public schools where they usually remain until the age of 18. Almost all students in Britain take examinations. The public examinations taken by British schoolchildren are called GCSEs (The General Certificate of Secondary Education). Pupils usually take their GCSEs at the age of 16. Pupils who have passed their GCSEs may remain at school for another two years and take their advanced level exams. It's interesting to mote that any student who wants to go to the university needs to pass two or three "A" level exams.

2.2 Text 2 Higher education

2.2.1 Read the text given below and say what you've learnt from it

There are 44 universities (not counting the Open University) in Britain. Although the Government is responsible for providing about 80 per cent of the universities' income, it does not control their work or teaching, nor does it have direct dealings with the universities. The grants are distributed by the University Grants Committee, a body controlled by the Secretary of State for Education and Science.

The Universities of Oxford and Cambridge date from the twelfth and thirteenth centuries and the Scottish Universities of St. Andrews, Glasgow, Aberdeen and Edinburgh from the fifteenth and sixteenth centuries. All the other universities were founded in the nineteenth or twentieth centuries.

Admission to the universities is by examination and selection. Women are admitted on equal terms with men but at Cambridge their numbers may be limited by ordinance. The general proportion of men to women students is about three to one; at Oxford it is over four to one, and at Cambridge seven to one.

Oxford is very old, having been in existence since 912, and it has great charm. The name Oxford means the part of the river Thames where the oxen (cattle) forded (crossed).

The choice of the small rural village of Oxford as a seat of learning was significant. Far removed from foreign influence, Oxford was within comparatively

easy reach of all parts of England. From the beginning the university was designed not for the aristocrats, but for the English commoners. It was established in 1249.

Oxford is international because people from all over the world come to study at its university; at one of the twenty-nine men's colleges or at one of the five women's colleges that make up the university: they join the university “family”, which has more than 8,000 members. The oldest of the colleges is University college. The colleges are scattered throughout the town and were founded at various times. In addition to the men's and the women's colleges there are five coeducational colleges.

The present facilities at Oxford include theology and oriental studies, law, English language and literature, medieval and modern history, humane letters, social studies, medicine, physics and chemistry, biology, anthropology, geology, agriculture, forestry and music.

Cambridge is world famous principally as a university city. Many of the colleges are grouped together, and with their buildings, surrounding green courts, their fine chapels, halls and libraries, and the tree-lined parks, they create a picture of Cambridge as one of the most interesting and beautiful cities in Great Britain.

The University of Cambridge may be said to have originated in the 12th century, and before the beginning of the 13th was almost certainly a recognized centre of study.

In medieval times it taught all who could live in the town and pay their lecture fees. At first there were no colleges in the modern sense of the word, nor were there professors. Lectures were delivered by licensed teachers of the university, and oral examinations for degrees were conducted in Latin.

In 1276, it was laid down that "no one shall receive a scholar who has not a fixed master within 15 days after the said scholar has entered the university", and in 1284 the first college, Peterhouse, was founded on the model of Merton College, Oxford.

In the 17th century, the reputation of the university declined a little and its educational curriculum became less liberal. By the end of that century, however, the university was the home of the Cambridge Platonists and of Sir Isaac Newton (professor of mathematics, 1642-1727, whose influence was deep and permanent). Serious tests were imposed upon candidates for degrees. During the early part of the 19th century examinations were further improved. Written examinations were more frequently employed.

The university in the mid-20th century was a body of more than 55,000 members, about 7,000 of whom were graduates.

Admission to the university may be secured only by members of the colleges and Fitzwilliam House, and as a general rule membership of these bodies is open only to persons who possess the necessary qualifications for matriculation.

There are nineteen colleges, including two for women students which were built near the end of the last century. Women students do not play a very active part in University life at Cambridge, by the way, but they work harder than men and one seldom sees them outside of the classrooms.

2.2.2 Find in the text and put down key words to speak about education in Great Britain

2.3 Text 3 Higher education in the USA

2.3.1 Read and translate the text paying particular attention on words giving after the text

There are about 3,000 colleges and universities, both private and public, in the United States. Students have to pay to go both private and State universities. Private universities are generally smaller but very expensive, which means that the tuition fees are extremely high. State colleges and universities are not so expensive and the tuition fees are lower, and if the students are State residents, they pay much less.

Every young person who enters a higher educational institution can get financial assistance. If a student is offered a loan, he should repay it (with interest) after he has left the college. Needy students are awarded grants which they do not have to repay. Scholarships are given when a student is doing exceptionally well at school.

American universities and colleges are usually built as a separate complex, called “campus”, with teaching blocks, libraries, dormitories, and many other facilities grouped together on one site, often on the outskirts of the city. Some universities are comprised of many campuses. The University of California, for example, has 9 campuses, the biggest being Berkley (founded 1868), San Francisco (1873), Los Angeles (1919), Santa Barbara (1944), Santa Cruz (1965).

All the universities are independent, offering their own choice of studies, setting their own admission standards and deciding which students meet those standards. The greater the prestige of the university, the higher the credits and grades required.

The terms “college” and “university” are often used interchangeably, as «college» is used to refer to all undergraduate education; and the four -year undergraduate program, leading to a bachelor’s degree, can be followed at either college or university. Universities tend to be larger then colleges and also have graduate schools where students can receive post -graduate education. Advanced or graduate university degrees include law and medicine.

Most college and university undergraduate courses last for four years. During the first two years students usually follow general courses in the arts or sciences and then choose a major- the subject or area of studies in which they concentrate. The other subjects are called minors. Credits (with grades) are awarded for the successful completion of each course. These credits are often transferable, so students who had not done well in high school can choose a junior college (or community college), which offers a two -year «transfer» program, preparing students for degree-granting institutions. Community colleges also offer two-year courses of a vocational nature, leading technical and semi- professional occupations, such as journalism.

There are no final examinations at colleges and universities, and students receive a degree if they have collected enough credits in a particular subject. The

traditional degree which crowns the undergraduate course is that of a Bachelor of Arts (B.A.) or a Bachelor of Science (B.S.). The lower level of graduate school is for obtaining the Master's Degree (M.A. or M.S.), and upper level is for the degree of Ph.D.

tuition fee- плата за обучение
loan - заём
interest - *зд*. процент (с суммы, взятой взаймы)
to repay- возмещать, возвращать
needy -нуждающийся
grant- субсидия, дотация
scholarship стипендия
dormitory (dorm) -студенческое общежитие
bachelor's degree степень бакалавра
graduate school- аспирантура
the arts- гуманитарные науки
the science(s)- естественные науки
major предмет специализации
"transfer" program - подготовительный курс
Bachelor of Arts (B.A.) -степень бакалавра гуманитарных наук
Bachelor of Science (B.S)- степень бакалавра естественных наук
Master's Degree (M.A. or M.S.)- степень магистра наук (гуманитарных или естественных)
Ph.D. (Doctor of Philosophy) - степень доктора наук ("доктора философии")
Credit- *зд*. зачет

2.3.2 Agree or disagree with the following statements

1 The system of university education in US is centralized.
2 There is no difference between private and State universities.
3 A University course usually lasts for four years.
4 One can obtain a bachelor's degree at any college or University.
5 There are special advanced University degrees.
6 Any University has only one campus.
7 There are no colleges which offer "transfer" programs.
8 M. A., M. S. and Ph. D. are research degrees.

2.3.3 Enlarge upon different types of colleges and Universities in the US

2.3.4 Speak about the structure of American graduate school

2.3.5 Comparing American and Russian Universities, pay special attention to the entrance standards and admission policies

2.4 Text 4 Education in the United States

2.4.1 Read and translate this text using the dictionary. Tell about higher education in the United States. Use the following text as an example

Most schools in the United States start at the kindergarten level. In addition to bilingual and bicultural programs many schools have special programs for those with learning and reading difficulties. All the education system of USA has always stressed the importance of “character” or “social skills” through extracurricular activities, including organized sports. There is usually a very broad range of such activities available. They not only give pupils a chance to be together outside normal classes, but they also help to develop a feeling of “school spirit”. And to my mind it is the one of the most striking differences between the American education system and Russian education system. And I'm sure that it is our great loss. In my opinion the weakness of the US education system is that students at early age have to choose subjects and they don't receive the beginning knowledge of all branches of sciences. The education in the USA is most provided with new technologies. In every school there are new models of computers and almost every school has a direct connect to the Internet. Internet gives an opportunity for remote education with the help of e-mail, special forums and teleconferences. Russia is on the first stage of bringing these technologies in education. But I hope we will have them too in our school.

Higher Education. There is no unified system of higher education in the United States. Basically, American higher education developed its own pattern by adaptation In the USA there is no consistent distinction between the term “college” and "university". The general tendency, however, is to call a college a higher educational institution offering mainly courses of instruction leading to the bachelor's degree; a university is a college or group of colleges or departments under one control offering courses of instruction leading not only to the bachelor's degree but also to the master's and the doctor's degrees. The term “college” is also sometimes loosely applied to institutions which are actually only secondary schools.

The oldest American universities of Harvard, Yale, Pennsylvania, Princeton, and Columbia were founded in the 17th and 18th centuries and were mostly ecclesiastic schools training clergymen. Later on the network of higher education institutions spread from the Atlantic coast to the Pacific. From the 19th century natural sciences began to occupy more and more place in the curriculum. Professors of different departments were often educated in Europe. A radical turn took place in the middle of the 20th century. The scientific revolution had some effect on the secondary schools, but it was the American higher education institutions which were most seriously affected b it both in quality, and in quantity. Now almost 10 million students study in American higher education institutions, i. e.relatively more than in other countries. American universities also became research centres in the 20th century. It is characteristic that their curricula have been expanded; for instance, psychology, sociology and other humanities are now being taught in technical and natural science higher education institutions and in humanitarian ones more attention is paid to mathematics.

American universities and colleges and also higher education institutions of different levels, which sometimes comprise a university, are only partially funded by the state government. To a much greater extent they are financially supported by philanthropic foundations and rich trustees.

That's why the latter can exercise great influence over university affairs. Universities also obtain funds from federal state organization and large companies for research work (often in the military area).of two traditions: the collegiate tradition of England and the university tradition of the Continent. The tuition fee in American higher education institutions is high and still growing. To send young people to a university is a heavy burden even for a middle class family. Consequently many American students have to work part time, especially during holidays.

Today students make more than 30 per cent of American youth.

2.4.2 Tell your friends what you've learnt about education in Great Britain and in the United States

2.4.3 Speak about the difference in education between our country and the USA

2.5 Text 5 Why I Study Foreign Languages

2.5.1 Read the text answer the question - Why do you study English?

Today it is quite evident that everyone should know at least one foreign language.

Knowing one or more foreign languages makes it possible to get acquainted with different ways of thinking, to understand a new civilization. Learning a foreign languages stimulated mental abilities and gives you a chance to appreciate a new literature, a different culture and to broaden your horizons.

Besides, knowing foreign languages has a practical value. It makes it easier to choose a profession and provides job promotion. It helps to improve the quality of your work, because it reduces the time lost on obtaining the necessary information. At present many professions, such as a pilot, a doctor, an engineer, a cosmonaut and many others, require a working knowledge of at least one foreign language. This is most commonly English, German, French or Spanish.

Languages are meant to be spoken, not simply to be conjugated or analyzed. That's why it is interesting to learn, to understand English and speak it. If you don't know any language, you will not speak with any of foreign boys or girls.

As for me, I am learning English, because in the recent years it has become not only an international language, it is now a number one language in the world. Besides, English is becoming a lingua franca. It is used a great deal by businessmen from different countries, which don't have a common language, in order to do business. It is already a lingua franca at international conferences. Besides, every person who travels in Europe, Asia or Africa, even in the South America gets around

by using English. So English is becoming more and more the language for practical use.

English has become the world's most important language in politics, science, trade and cultural relations, aviation, international sport and music.

2.6 Revise grammar material in appendix (см. приложение Б)

2.6.1 Put the verb given in brackets into Present Simple

1 My working day (to begin) at seven o'clock. 2 I (to get) up, (to switch) on the radio and (to do) my morning exercises. 3 It (to take) me fifteen minutes. 4 At half past seven we (to have) breakfast. 5 My father and I (to leave) home at eight o'clock. 6 He (to take) a bus to his factory. 7 My mother (to be) a doctor, she (to leave) home at nine o'clock. 8 In the evening we (to gather) in the living room 9 We (to watch) TV and (to talk).

2.6.2 Put the verb given in brackets into Past Simple

1 What your neighbours (to do) yesterday? 2 Mr. Smith (to fix) his car yesterday morning. 3 His wife (to water) plants in the garden. 4 Their children (to clean) the yard and then they (to play) basketball. 5 In the evening their boys (to listen) to loud music and (to watch) TV. 6 Their little girl (to cry) a little and then (to smile). 7 Her brothers (to shout) at her. 8 Mrs. Smith (to work) in the kitchen. 9 She (to bake) a delicious apple pie. 10 She (to cook) a good dinger. 11 She (to wash) the dishes and (to look) very tired. 12 The children (to brush) their teeth, (to yawn) little and (to go) to bed.

2.6.3 Put the verb given in brackets into correct form

1 His sister (to study) English every day. 2 She (to study) English two hours ago. 3 You (to come) home at six o'clock yesterday? - No, I ... . Yesterday I (to come) home from school at half past eight. I (to be) very tired. I (to have) dinner with my family. After dinner I (to be) very thirsty. I (to drink) two cups of tea. Then I (to rest). 4 I (to go) to bed at ten o'clock every day. 5 I (to go) to bed at ten o'clock yesterday. 6 My brother (to wash) his face every morning. 7 Last night he (to wash) his face with soap and water. 8 I (not to have) history lessons every day. 9 We (not to rest) yesterday. 10 My brother (not to drink) coffee yesterday. 11 My mother always (to take) a bus to get to work, but yesterday she (not to take) a bus. Yesterday she (to walk) to her office. 12 You (to talk) to the members of your family every day? - Yes, I ... . But yesterday I (not to talk) to them: I (to be) very busy yesterday.

2.6.4 Put the verb into Future Simple

1 I want to get a medical checkup. I (to go) to my doctor tomorrow. 2 He (to give) me a complete examination. 3 The nurse (to lead) me into one of the

examination rooms. 4 I (to take) off my clothes and (to put) on a hospital gown. 5 Dr. Setton (to come) in, (to shake) my hand, and (to say) “hello”. 6 I (to stand) on his scale so he can measure my height and my weight. 7 He (to take) my pulse. 8 Then he (to take) my blood pressure. 9 After he takes my blood pressure, he (to take) some blood for a blood analysis. 10 He (to examine) my eyes, ears, nose, and throat.

2.6.5 Use the verb in correct form paying particular attention on “When and If sentences”

1 If I (to stay) some more days in your town, I (to call) on you and we (to have) a good talk. 2 He (to go) to the Public Library very often when he (to be) a student. 3 As soon as I (to return) from school, I (to ring) you up. 4 You (to pass) many towns and villages on your way before you (to arrive) in Moscow. 5 (to stay) at home till she (to come). Then we (to go) to the theatre if she (to bring) tickets. 6 I (to go) to university when I (to leave) school. 7 When he (to return) to St Petersburg, he (to call) on us. 8 If I (to see) him, I (to tell) him about their letter. 9 We (to gather) at our place when my brother (to come) back from Africa. 10 I (to sing) this song with you if you (to tell) me the words.

2.6.6 Translate from Russian into English

1 Эта книга была прочитана всеми. 2 Письмо будет отправлено завтра. 3 Ее часто спрашивают? 4 На ваш вопрос ответят завтра. 5 Текст переводился вчера с двух до трех. 6 Работа только что завершена нами. 7 Эти книги уже будут опубликованы к концу года. 8 Наша контрольная работа сейчас проверяется? 9 О новой книге будут много говорить. 10 В нашем городе, сейчас строится много новых зданий. 11 Ключи были утеряны вчера. 12 Нам показали прекрасный фильм.

3 Section 3 Inventors and Inventions

3.1 Text 1 Famous Inventions

3.1.1 Read the text and make an oral summary of it

Barometer. A barometer is a device that measures air pressure. It measures the weight of the column of air that extends from the instrument to the top of the atmosphere. There are two types of barometers commonly used today, mercury and aneroid (meaning “fluidless”). Earlier water barometers (also known as “storm glasses”) date from the 17th century.

The mercury barometer was invented by the Italian physicist Evangelista Torriceili (1608 - 1647). a pupil of Galileo, in 1643. Torricelli inverted a glass tube filled with mercury into another container of mercury; the mercury in the tube "weighs" the air in the atmosphere above the tube. The aneroid barometer (using a

spring a spring balance instead of a liquid) was invented by the French scientist Lucien Yidie in 1843. It is easy to transport and easy to construct.

Compound Microscope. Zacharias Janssen was a Dutch lens-maker who invented the first compound microscope in 1595 (a compound microscope is one which has more than one lens). His microscope consisted of two tubes that slid within one another, and had a lens at each end. The microscope was focused by sliding the tubes. The lens in the eyepiece was bi-convex (bulging outwards on both sides), and the lens of the far end (the objective lens) was plano-convex (flat on one side and bulging outwards on the other side). This advanced microscope had a 3 to 9 times power of magnification. Robert Hooke used an early microscope to observe slices of cork (bark from the oak tree) using a 30X power compound microscope. He published his observations in "Microgphia" in 1665.

In 1673, Antony van Leeuwenhoek discovered bacteria, free-living and parasitic microscopic protists, blood cells using a 30X power single lens microscope.

Battery. A battery is a device that converts chemical energy into electrical energy. Each battery has two electrodes, an anode (the positive end) and a cathode (the negative end). An electrical circuit runs between these two electrodes, going through a chemical called an electrolyte (which can be either liquid or solid). This unit consisting of two electrodes is called a cell (often called a voltaic cell or pile). Batteries are used to power many devices and make the spark that starts a gasoline engine. Alessandro Volta was an Italian physicist invented the first chemical battery in 1800. The French physicist Gaston Plant (1834-1889) invented a battery made from two lead plates joined by a wire and immersed in a sulfuric acid electrolyte; this was the first storage batten:

The dry cell battery was developed in the 1870s by Georges Leclanche of France, who used an electrolyte in the form of a paste.

Edison batteries (also called alkaline batteries) are an improved type of storage battery developed by Thomas Edison. These batteries have an alkaline electrolyte, and not an acid.

3.1.2 Tell your fellow students what you've learnt about battery, compound microscope and barometer

3.1.3 Make up your own questions to each logical part of the text 1

3.2 Revise grammar material in appendix (см. приложение Б)

3.2.1 Use the verbs in brackets in the required in Continuous Tense

1 It (not to rain) any more, it (to clear) up and the sun (to shine). 2 The jazz band (to play) in the park. 3 A lot of people (to listen) to the music and they really (to have) a good time. 4 But they (not to dance) yet. 5 There is a coffee shop there. Only seven people (to sit) there, and only five people (to wait) in the queue. 6 Some people (to have) sandwiches and (to drink) coffee, tea or fruit juices. 7 Boys and girls

over there (to laugh) and (to make) a lot of noise. They (to play) games and Tom (to take) pictures. So what (to go) on?

3.2.2 Put the verbs in brackets in Present Continuous or in Present Simple

1 I (to sit) in the waiting room at the doctor's now. 2 I (not to work) in my office now. 3 Eric (to talk) about his holiday plans, but Kenny (not to listen) to him. He (to think) about his new car at the moment. 4 My friend (to live) in St Petersburg. 5 My cousin (not to live) in Moscow. 6 The children (not to sleep) now. 7 The children (to play) in the yard every day. 8 They (not to go) to the stadium on Monday. 9 She (to read) in the evening. 10 She (not to read) in the morning. 11 She (not to read) now. 12 I (to write) a composition now. 13 I (not to drink) milk now. 14 I (to go) for a walk after dinner. 15 I (not to go) to the theatre every Sunday.

3.2.3 Use the verbs in brackets in required Continuous Tense

1 I (to write) an English exercise now. 2 I (to write) an English exercise at this time yesterday. 3 My little sister (to sleep) now. 4 My little sister (to sleep) at this time yesterday. 5 My friends (not to do) their homework now. They (to play) volley-ball. 6 My friends (not to do) their homework at seven o'clock yesterday. They (to play) volleyball. 7 She (to read) the whole evening yesterday. 8 She (not to read) now. 9 Now she (to go) to school. 10 What you (to do) now? - I (to drink) tea. 11 You (to drink) tea at this time yesterday? - No, I (not to drink) tea at this time yesterday, I (to eat) a banana. 12 My sister is fond of reading. She (to read) the whole evening yesterday, and now she (to read) again. 13 Look! My cat (to play) with a ball. 14 When I went out into the garden, the sun (to shine) and birds (to sing) in the trees. 15 You (to eat) ice cream now?

3.2.4 Use the verb in Present Simple, Past Simple, Future Simple; Present Continuous, Past Continuous

1 Where your brother (to work)? - He (to work) at an institute. 2 Your grandmother (to sleep) when you (to come) home yesterday? 3 What your brother (to do) tomorrow? 4 I (not to go) to the shop yesterday. I (to go) to the shop tomorrow. 5 Where Kate (to go) when you (to meet) her yesterday? 6 Look at these children: they (to skate) very well. 7 You (to skate) last Sunday? - Yes, we (to skate) the whole day last Sunday. We (to skate) again next Sunday. 8 My brother can skate very well. He (to skate) every Sunday. 9 What you (to do) now? - I (to wash) the dishes. 10 What you (to do) at three o'clock yesterday? - I (to have) dinner. 11 You (to have) dinner now? 12 Every day the boss (to enter) the office at nine o'clock. 13 Yesterday the boss (to enter) the office at half past nine. 14 When the boss (to come) tomorrow? 15 At six o'clock yesterday we (to listen) to a very interesting lecture.

3.3 Text 2 Alexander Fleming

3.3.1 Read the text and tell a few words about Alexander Fleming

Most scientists work very neatly and carefully, but Dr. Alexander Fleming preferred working in a less organized way. In fact, if Alexander Fleming had been a tidy man, he wouldn't have discovered penicillin.

Dr. Fleming was a scientist at St. Mary's Hospital in London. One day in September 1928, a scientist called Pryce came in to Fleming's j laboratory. On the desk there were some dirty glass dishes from old experiments. Fleming picked up one of the dishes to show Pryce. On the dish there were yellow spots of bacteria. But when Fleming ' looked more closely, he saw a green mould on the dish.

Fleming noticed something unusual. The yellow bacteria near the mould had disappeared: the green mould had killed them. Fleming was seeing the effects of penicillin for the first time.

Fleming called the discovery "a chance observation". It was chance that the right kind of mould had grown. It was chance that Fleming hadn't washed his dirty dishes. It was chance that he had picked up the dish with the mould to show to Pryce.

Fleming thought it was an interesting discovery but he didn't know how important it was. Neither did the other scientists in the hospital. "When I showed it to them they thought it was just a dirty dish," Fleming said. But Alexander Fleming had discovered a drug which has saved millions of lives.

3.4 Text 3 Wilhelm Roentgen

3.4.1 Read the text, divide it into logical parts, entitle them thus making a plan

Wilhelm Conrad Roentgen (27 March 1845 - 10 February 1923) was a German physicist, who, on 8 November 1895, produced and detected electromagnetic radiation in a wavelength range today known as x-rays or Roentgen rays, an achievement that earned him the first Nobel Prize in Physics in 1901.

Roentgen in English is spelled "Roentgen", and that is the usual rendering found in English-language scientific and medical references.

Roentgen was born in Lennep (which is today a borough of Remscheid) in Rhoenish Prussia as the only child of a merchant and manufacturer of cloth. His mother was Charlotte Constanze Frowein of Amsterdam. In March 1848, the family moved to Apeldoorn and Wilhelm was raised in the Netherlands. He received his early education at the Institute of Martinus Herman van Doorn, a private school in Apeldoorn. From 1861 to 1863, he attended the Utrecht Technical School. He was expelled for refusing to reveal the identity of a classmate guilty of drawing an unflattering portrait of one of the school's teachers. Not only was he expelled, he could not subsequently be admitted into any other Dutch or German gymnasium.

In 1865, he tried to attend the University of Utrecht without having the necessary credentials required for a regular student. Hearing that he could enter the

Federal Polytechnic Institute in Zurich, today the ETH Zurich, by passing its examinations, he began studies there as a student of mechanical engineering. In 1869, he graduated with a Ph.D. from the University of Zurich.

In 1874 Roentgen became a lecturer at Strasbourg University and in 1875 he became a professor at the Academy of Agriculture at Hohenheim, Wuerttemberg. In 1876, he returned to Strasbourg as a professor of physics and in 1879, he was appointed to the chair of physics at the University of Giessen. In 1888, he obtained the physics chair at the University of Wuerzburg, and in 1900 at the University of Munich, by special request of the Bavarian government. Roentgen had family in Iowa in the United States and at one time planned to emigrate. Although he accepted an appointment at Columbia University in New York City and had actually purchased transatlantic tickets, the outbreak of World War I changed his plans and he remained in Munich for the rest of his career.

During 1895 Roentgen was investigating the external effects from the various types of vacuum tube equipment-apparatus from Heinrich Hertz, Johann Hittorf, William Crookes, Nikola Tesla and Philipp von Lenard-when an electrical discharge is passed through them. In early November he was repeating an experiment with one of Lenard's tubes in which a thin aluminium window had been added to permit the cathode rays to exit the tube but a cardboard covering was added to protect the aluminium from damage by the strong electrostatic field that is necessary to produce the cathode rays. He knew the cardboard covering prevented light from escaping, yet Roentgen observed that the invisible cathode rays caused a fluorescent effect on a small cardboard screen painted with barium platinocyanide when it was placed close to the aluminium window. It occurred to Roentgen that the Hittorf-Crookes tube, which had a much thicker glass wall than the Lenard tube, might also cause this fluorescent effect.

In the late afternoon of 8 November 1895, Roentgen determined to test his idea. He carefully constructed a black cardboard covering similar to the one he had used on the Lenard tube. He covered the Hittorf-Crookes tube with the cardboard and attached electrodes to a Ruhmkorff coil to generate an electrostatic charge. Before setting up the barium platinocyanide screen to test his idea, Roentgen darkened the room to test the opacity of his cardboard cover. As he passed the Ruhmkorff coil charge through the tube, he determined that the cover was light-tight and turned to prepare the next step of the experiment. It was at this point that Roentgen noticed a faint shimmering from a bench a meter away from the tube. To be sure, he tried several more discharges and saw the same shimmering each time. Striking a match, he discovered the shimmering had come from the location of the barium platinocyanide screen he had been intending to use next.

Roentgen speculated that a new kind of ray might be responsible. 8 November was a Friday, so he took advantage of the weekend to repeat his experiments and make his first notes. In the following weeks he ate and slept in his laboratory as he investigated many properties of the new rays he temporarily termed X-rays, using the mathematical designation for something unknown. Although the new rays would eventually come to bear his name in many languages where they became known as Roentgen Rays, he always preferred the term X-rays. Nearly two weeks after his

discovery, he took the very first picture using x-rays of his wife's hand, Anna Bertha. When she saw her skeleton she exclaimed “I have seen my death!”

The idea that Roentgen happened to notice the barium platinocyanide screen misrepresents his investigative powers; he had planned to use the screen in the next step of his experiment and would therefore have made the discovery a few moments later.

At one point while he was investigating the ability of various materials to stop the rays, Roentgen brought a small piece of lead into position while a discharge was occurring. Roentgen thus saw the first radiographic image, his own flickering ghostly skeleton on the barium platinocyanide screen. He later reported that it was at this point that he determined to continue his experiments in secrecy, because he feared for his professional reputation if his observations were in error.

Roentgen's original paper, “On A New Kind Of Rays” (Ueber eine neue Art von Strahlen), was published 50 days later on 28 December 1895. On 5 January 1896, an Austrian newspaper reported Roentgen's discovery of a new type of radiation. Roentgen was awarded an honorary Doctor of Medicine degree from the University of Wuerzburg after his discovery. He published a total of 3 papers on X-rays between 1895 and 1897. Today, Roentgen is considered the father of diagnostic radiology, the medical specialty which uses imaging to diagnose disease.

Roentgen died on 10 February 1923 from carcinoma of the intestine. It is not believed his carcinoma was a result of his work with ionizing radiation because of the brief time spent on those investigations and because he was one of the few pioneers in the field who used protective lead shields routinely.

Roentgen was nearly bankrupt when he died. In keeping with his will all his personal and scientific correspondence were destroyed upon his death. He was married to Anna Bertha Ludwig (m. 1872, d. 1919) and had one child, Josephine Bertha Ludwig. Adopted at age 6, in 1887, she was the daughter of Anna's brother.

In 1901 Roentgen was awarded the very first Nobel Prize in Physics. The award was officially "in recognition of the extraordinary services he has rendered by the discovery of the remarkable rays subsequently named after him". Roentgen donated the monetary reward from his Nobel Prize to his university. Like Pierre Curie several years later, Roentgen refused to take out patents related to his discovery. He did not even want the rays to be named after him.

Rumford Medal (1896)

Matteucci Medal (1896)

Nobel Prize for Physics (1901)

In November 2004 IUPAC named element number 111 roentgenium (Rg) in his honour.

Today, in Remscheid - Lennep, 40 kilometers east of Dusseldorf, is the house in which Roentgen was born in 1845 and, above all, the Deutsches Roentgen-Museum.

3.4.2 Read the text again and write out the sentences expressing the main ideas of each part of your plan

3.4.3 Retell the text according to your plan

3.4.4 Translate from Russian into English

Разработка рентгеновских микроскопов сопряжена с рядом серьёзных трудностей. Рентгеновские лучи практически невозможно фокусировать обычными линзами. Дело в том, что показатель преломления рентгеновских лучей в различных прозрачных для них средах примерно одинаков и очень мало отличается от единицы. Колебания составляют порядка 10-4 -10 -5. Для сравнения, показатель преломления видимого света в воде при 20 °C примерно равен 1,33. Рентгеновские лучи также не отклоняются электрическими и магнитным полям, что не позволяет использовать для фокусировки электрические или магнитные линзы. Однако, в современной рентгеновской оптике в последнее время появились и уже нашли большое применении линзы, действующие на основе эффекта обратного лучепреломления (основано на различии коэффициентов преломления в конденсированном веществе по отношению к воздуху). Функцию линзы выполняет линзообразная полость внутри материала, получившие название линзы Снигирёва.

Рентгеновские лучи напрямую не воспринимаются человеческим глазом. По этому для наблюдения и фиксации результатов приходится применять технические средства (фототехнику или Электронно-оптические преобразователи).

Первый коммерческий рентгеновский микроскоп был создан в 50 годах XX века американским инженером Стерлингом Ньюбери, сотрудником General Electric. Он представлял собой проекционный микроскоп, для получения изображения в нём применялись фотопластинки.

3.5 Revise grammar material from appendix (см. приложение Б)

3.5.1 Change the tense of the verbs into Present Perfect. Translate them into Russian

1 The pupils are writing a dictation. 2 My friend is helping me to solve a difficult problem. 3 I am learning a poem. 4 She is telling them an interesting story. 5 Kate is sweeping the floor. 6 The waiter is putting a bottle of lemonade in front of him. 7 I am eating my breakfast. 8 We are drinking water. 9 He is bringing them some meat and vegetables. 10 You are putting the dishes on the table. 11 They are having tea. 12 She is taking the dirty plates from the table. 13 The children are putting on their coats. 14 Susan is making a new dress for her birthday party. 15 She is opening a box of chocolates.

3.5.2 Put the verbs in brackets in Present Continuous или Present Perfect

1 What's the matter? Why he (to stop)? 2 My cousin (to look) for a job, but he (not to find) a job yet. 3 It (to be) impossible for her to feel at home here. 4 What you

(to study) now? 5 They just (to give) you a pay rise. 6 Sophie is busy. She (to knit) a sweater for her grandson. 7 You only (to have) a piece of cake? You (not to eat) much. 8 People (to plant) carrots and tomatoes now. 9 You (to go) to plant tomatoes this year? 10 Johnny, who finally (to find) a new job, (to give) a big party. 11 How long you (to be) sick? 12 You (to see) any good movies recently? 13 What you (to look) forward to? 14 Nancy (to look) forward to this weekend.

3.5.3 Put the verbs in brackets into Present Perfect or Past Simple

1 I (not yet to eat) today. 2 He (not to eat) yesterday. 3 You (to play) the piano yesterday? 4 You (to play) the piano today? 5 What you (to prepare) for today? 6 Look at this birdhouse. Mike (to make) it himself. He (to make) it last Sunday. 7 Where you (to put) my pen? I cannot find it. 8 You (to see) Mary today? 9 When you (to see) Mary? - I (to see) her last week. 10 Your mother (to promise) to take you to the theatre? 11 Look at my new dress! I (to make) it myself. 12 He is not at school today, he (to fall) ill. - When he (to fall) ill? - He (to fall) ill yesterday. 13 I already (to do) my homework. Now I can go for a walk. 14 I (to do) my homework yesterday. 15 He just (to come) home.

3.5.4 Put the verbs in brackets into Past Simple, Past Continuous or Past Perfect

1 By eight o'clock yesterday I (to do) my homework and at eight I (to play) the piano. 2 By six o'clock father (to come) home and at six he (to have) dinner. 3 By nine o'clock yesterday grandmother (to wash) the dishes and at nine she (to watch) TV. 4 When I (to meet) Tom, he (to eat) an ice cream which he (to buy) at the corner of the street. 5 When father (to come) home, we (to cook) the mushrooms which we (to gather) in the wood. 6 When I (to see) Ann, she (to sort) the flowers which she (to pick) in the field. 7 When I (to come) home yesterday, I (to see) that my little brother (to break) my pen and (to play) with its pieces. 8 When I (to open) the door of the classroom, I (to see) that the teacher already (to come) and the pupils (to write) a dictation. 9 When I (to come) home, my sister (to read) a book which she (to bring)i from the library.

3.5.5 Put the verbs into correct form

1 She is very happy: her son (to finish) school. 2 My brother (to train) at the stadium from six till eight yesterday. 3 My sister (to buy) a pair of nice model shoes this month. 4 I (not to dance) for ages. 5 When Nick (to come) from school, his friends (to play) hockey on ice. 6 When your sister (to go) to London? 7 My friend just (to recover) after a serious illness. 8 I never (to be) to the Bahamas. 9 At this time yesterday we (to talk) about you. 10 I (to speak) to my friend yesterday. 11 Look! Kate (to wash) all the dishes. 12 Your mother (to return) from work? Can 1 speak to her? 13 She (to do) her flat the whole day on Saturday. 14 The cat (to drink) all the milk which I (to give) it. 15 You ever (to be) to Piccadilly Circus? 16 He (not to read)

Turgenev since he was a pupil. 17 They (to reach) the river by sunset. 18 I (not yet to receive) an answer to my letter. 19 Only when she was going to bed, she remembered that she (to forget) to ring up her friend. 20 We already (to study) seven English tenses. 21 He (to spend) two weeks in Scotland two years ago. 22 I (to buy) a lovely fashionable dress. Now I shall look smart at the party. 23 He (to learn) English before he (to go) to the USA. 24 When she (to spend) all her money, she (to go) home.

4 Section 4 English speaking countries

4.1 Text 1 The United Kingdom

4.1.1 Read and translate the text with the help of the words below the text

The United Kingdom of Great Britain and Northern Ireland is situated on the British Isles. The British Isles consist of two large islands, Great Britain and Ireland, and about five thousands small islands. Their total area is over 244 000 square kilometers.

The United Kingdom is one of the world's smaller countries. Its population is over 57 million. About 80 percent of the population is urban.

The United Kingdom is made up of four countries: England, Wales, Scotland and Northern Ireland. Their capitals are London, Cardiff, Edinburgh and Belfast respectively. Great Britain consists of England, Scotland and Wales and do not include Northern Ireland. But in everyday speech Great Britain is used in the meaning of the United Kingdom of Great Britain and Northern Ireland. The capital of the UK is London.

The British Isles are separated from the Continent by the North Sea and the British Channel. The western coast of Great Britain is washed by the Atlantic Ocean and the Irish Sea.

The surface of the British Isles varies very much. The north of Scotland is mountainous and is called the Highlands. The South, which has beautiful valleys and plains, is called the Lowlands. The north and west of England are mountainous, but the eastern, central and south- eastern parts of England are a vast plain. Mountains are not very high. Ben Nevis in Scotland is the highest mountain (1343m). There are a lot of rivers in Great Britain, but they are not very long. The Severn is the longest river, while the Thames is the deepest and the most important one. The mountains, the Atlantic Ocean and the warm waters of the Gulf Stream influence the climate of the British Isles. It is mild the whole year round.

The UK is a highly developed industrial country. It produces and exports machinery, electronics, and textile. One of the chief industries of the country is shipbuilding.

The UK is a constitutional monarchy with a parliament and the Queen as Head of State.

the United Kingdom of Great Britain and Northern Ireland -
соединенное Королевство Великобритании и Северной Ирландии

to be situated on - быть расположенным на
to consist of - состоять из
the total area - общая площадь
population - население
urban - городской
to be made up of - состоять из
to include - включать
to be separated from … by - отделяться от
to be washed by - омываться
surface - поверхность
to vary - варьировать, меняться
mountainous - гористый
a valley - долина
a plain - равнина
to influence smth - оказывать влияние на
mild - умеренный
a highly developed industrial country - высоко развитая промышленная страна
to produce smth - производить что- либо
to export smth - экспортировать что- либо
machinery - станки
electronics - электроника
textile - текстиль
a chief industry - ведущая отрасль промышленности
shipbuilding - судостроение
a constitutional monarchy - конституционная монархия
Head of the State - глава государства

4.1.2 Answer the following questions

1 What islands is the United Kingdom situated on?
2 What is the country's population?
3 What is the UK made up of?
4 What is the UK washed by?
5 How can you characterize the surface of the British Isles?
6 What is the climate of Great Britain?
7 What are Britain's chief industries?
8 What is Britain's political system?

4.1.3 Translate the following sentences into English

1 Соединенное Королевство Великобритании и Северной Ирландии расположено на Британских островах, состоящих из двух больших и тысяч малых островов.

2 Население Великобритании в основном (mostly) городское и составляет более 57 миллионов человек.

3 Соединенное Королевство состоит из четырех частей; в Великобританию входят Англия, Шотландия и Уэльс.

4 Британские острова омываются Атлантическим океаном, Ирландским морем, Северным морем и проливом Па - де - Кале.

5 Британские острова состоят из гористой части и низин.

6 Реки в Великобритании не очень длинные.

7 На климат Великобритании оказывает влияние Гольфстрим.

8 Великобритания производит и экспортирует станки, электронику, текстиль, суда.

9 Великобритания - конституционная монархия.

4.2 Text 2 London

4.2.1 Read and translate the text using the words

London is the capital of the United Kingdom, its economic, political and cultural centre. It is one of the world's most important ports and one of the largest cities in the world. London with its suburbs has a population of about 11 million people.

London has been a capital for nearly a thousand years. Many of its ancient buildings still stand. The most famous of them are the Tower of London, where the crown jewels are kept, Westminster Abby and St. Paul's Cathedral. Most visitors also want to see the House of Parliament, Buckingham Palace (the Queen's home with its Changing of the Guards) and the many magnificent museums.

Once London was a small Roman town on the north bank of the Thames. Slowly it grew into one of the world's major cities.

Different areas of London seem like different cities. The West End is a rich man's world of shops, offices and theatres. The City of London is the district where most offices and banks are concentrated; the Royal Exchange and the Bank of England are here, too. The East End is the district where mostly working people live. The old port area is now called "Docklands ". There are now new office building in Docklands, and thousands of new flats and houses.

By the day the whole of London is busy. At night, offices are quiet and empty, but the West End stays alive, because this is where Londoners come to enjoy themselves. There are two opera houses here, several concert halls and many theatres, as well as cinemas. In nearby Soho the pubs, restaurants and night clubs are busy half the night.

Like all big cities, London has streets and concrete buildings, but it also has many big parks, full of trees, flowers and grass. In the middle of Hyde Park or Kensington Gardens you will think that you are in the country, miles away.

Many people live outside the centre of London in the suburbs, and they travel to work in shops and offices by train, bus or underground ("The Tube").

an economic, political and cultural centre - экономический, политический и культурный центр
a suburb - пригород
to have a population of - иметь население
an ancient building - древнее здание
the crown jewels - королевские драгоценности
Changing of the Guards - смена караула
a magnificent museum - великолепный музей
a Roman town - римский город
on the north bank of the Thames - на северном берегу Темзы
one of the world's major cities - один из крупнейших городов мира
an area - район
a rich man's world of shops, offices and theatres - мир богатых - мир магазинов, офисов и театров
a district - район (города)
to be concentrated - быть сконцентрированным
the Royal Exchang - Королевская Биржа
the Bank of England - Банк Англии
working people - рабочий класс
a port area - портовый район
to be quiet and empty - быть тихим и пустынным
to stay alive - зд. быть оживленным
to come to enjoy oneself - приходить отдыхать, развлекаться
an opera house - оперный театр
nearby - близлежащий
a pub - кабачок, пивная
a restaurant - ресторан
a night club - ночной клуб
a concrete building - бетонное здание
to be full of trees, flowers and grass - быть полным деревьев, цветов и травы
to live outside the centre - жить вне центра
to travel to work by train, bus or -ездить на работу на поезде, автобусе или

4.2.2 Answer the questions

1 What part does London play in the life of the United Kingdom?
2 What are the most famous ancient buildings of London?
3 What are different districts of London famous for?
4 Why do some districts of London stay alive at night?
5 What has London except concrete buildings?
6 Where do many people live?

4.2.3 Translate into English

1 Лондон - экономический, политический и культурный центр, один из

крупнейших портов страны и крупнейших городов в мире.

2 Самые знаменитые древние здания - Лондонский Тауэр,

Вестминстерское аббатство, собор Святого Павла, Парламент, Букингемский дворец.

3 Лондон был небольшим римским городом.

4 Вест-Энд - район магазинов, офисов и театров, район богатых людей.

5 В Сити сконцентрированы банки, офисы, в том числе Королевская Биржа и Банк Англии.

6 В Ист-Энде живут рабочие.

7 В Докланде, бывшем районе портов, сейчас много новых офисов.

8 В Вест-Энд лондонцы приезжают развлекаться.

9 В соседнем Сохо жизнь идет и ночью.

4.3 Text 3 A Glimpse of London

4.3.1 Read and translate the text about glimpse of London

London is the capital of Great Britain. It is situated on both sides of the Thames and stretches for nearly 30 miles from east to west and for 30 miles from north to south. London is one of the largest cities in the world. Its population is more than eight million.

London is a very old city. It is more than 20 centuries old. The history of London goes back to Roman times. Traditionally London is divided into several parts: the City, Westminster, the West End and the East End. They are very different from each other.

The heart of London is the City - its commercial and business centre. The Stock Exchange, the Royal Exchange, and the Bank of England are all there. The centre of the country's judicial system - the Old Bailey is also in the City. Few people live in the City, but over a million come to work here.

Two famous historic buildings are located in the City - the Tower of London and St Paul's Cathedral. The Tower of London was built in the 11th century. It was used as a fortress, a royal residence and a prison. Now it is a museum of armour and also the place where Crown Jewels are kept.

A twenty minutes' walk from the Tower will take you to another historic building - St Paul's Cathedral. It was built in the 17th century by the famous architect Sir Christopher Wren. Wellington, Nelson and other great men of England are buried in the Cathedral.

Westminster is the centre of government and justice. Here we can see the Houses of Parliament with the famous clock "Big Ben" on one of the towers. All government offices are in Whitehall. The official residence of the Queen is Buckingham Palace. The residence of the Prime Minister is at 10 Downing Street.

Opposite the Houses of Parliament stands Westminster Abbey. From Norman times British monarchs have been crowned here and since the 13th century they have been buried here. Many other famous people are also buried in Westminster Abbey including statesmen, musicians and writers.

The West End is the name given to the area of Central London north from The Mall to Oxford Street, Regent Street and Bond Street, and the entertainment centers of Soho, Piccadilly Circus, Leicester Square and Shaftsbury Avenue. Its name is associated with glamour and bright lights.

Trafalgar Square was built early in the last century to commemorate the Battle of Trafalgar. Admiral Lord Nelson's statue stands on top of a column in the middle of Trafalgar Square. The square makes a good place for people to meet - coaches pick up parties of visitors, marchers unite for protest meetings, and at Christmas time carol singers gather round a huge Christmas tree which is sent to Britain from Norway every year. Behind Nelson's Column is the National Gallery, an art gallery in which you can find many old masters. Not far from the National Gallery is the British Museum. It contains a priceless collection of different things (ancient manuscripts, coins sculptures, etc.) The British Museum is famous for its library - one of the richest in the world.

Most of London's big department stores are in Oxford Street and Regent Street. Piccadilly Circus is the centre of nightlife in the West End. To the north of Piccadilly Circus is Soho, which has been the foreign quarter of London since the 17th century. Now it has restaurants offering food from a variety of different countries, as well as "adult" entertainment.

London is famous for its live theatre within a square mile. Naturally there is a great variety of shows to choose from: opera, musicals, drama and so on. If you want to know what is on in London, the best place to look is in a newspaper.

The East End is an industrial district of London. it is especially famous as the centre of the clothing industry. The Port of London is also in the East End.

4.3.2 Answer the following questions

1 What is the population of London?
2 What is the City?
3 When was the Tower of London built? What was it used for?
4 When was St Paul's Cathedral built?
5 What famous men are buried in the Cathedral?
6 In what district of London are most of the Government buildings located?
7 What is Big Ben?
8 What famous building stands opposite the House of Parliament?
9 In whose memory was the monument in the middle of Trafalgar Square set up?
10 What kind of museums is in the British Museum?
11 Where are most of London's big department stores located?
12 In what part of London is the Port located?

4.3.3 Speak about London, the capital of Great Britain

1 Have you ever been to London?
2 What did you do?

3 Did you like the city?

4.4 Text 4 The United States of America

4.4.1 Read the text and write down a plan of the text

The USA is the most powerful and highly developed country of the world. It is situated in the central part of the North American continent. Its western coast is washed by the Pacific Ocean and its eastern coast is washed by the Atlantic Ocean and the Gulf of Mexico.

The USA is separated from Canada in the north by the 49th parallel and the Great Lakes, and from Mexico in the south by a line following the Rio Grande River and continuing across the highlands to the Pacific Ocean.

The total area of the USA is over 9 million square kilometres.

The continental part of the USA consists of the highland regions and two lowland regions. The highland regions are the Appalachia mountains in the east and the Cordillera in the west.

Between the Cordillera and the Appalachian Mountains are the central lowlands which are called the prairie, and eastern lowlands called the Mississippi valley.

The principal rivers of the USA are the Mississippi, the longest river in the world (7,330 km) and the Hudson River.

The climate of the USA differs greatly from one part of the country to another. The coldest climate is in the northern part, where there is heavy snow in winter and the temperature may go down to 40 degrees below zero. The south has a subtropical climate, with temperature as high as 49 degrees in summer.

The population of the United States of America is about 250 million people, who are called Americans. In America there are representatives of practically all racial and national groups. There are about 25 million Negroes in the country and a little over half a million Indians.

The capital of the USA is Washington. It is situated in the District of Columbia. Washington is a beautiful administrative city with practically no industry.

The USA is a highly developed industrial state. Its agriculture is also highly mechanized.

There are coal-mines in the Cordillera Mountains, in the Kansas City region. Iron is mined near the Great Lakes. The USA has rich oil-fields in California, Texas and some other regions. It occupies one of the first places among the countries of the world for production of coal, iron and oil.

The USA has a highly developed motor-car industry. Ship-building is developed along the Atlantic coast and in San Francisco. The textile industry is to be found in the north-east and in the south of the country.

The USA has a highly developed railway system. It also has the best network of roads in the world. They are called highways.

The USA is a federal country of 60 states and the District of Columbia. The political life of the country has always been dominated by the two major parties: the

Democratic party and the Republican party. At an election time they contest presidency and the majority of seats in the Congress. The Congress is the highest legislative body of the country. It consists of two chambers — the House of Representatives and the Senate.

The President, elected by the whole nation for four years, is head of the state and the Government.

4.4.2 Answer the following questions

1 What kind of state is the USA?
2 Where is it situated?
3 What is the USA washed by in the east and in the west?
4 What is the USA separated from Canada by?
5 What is the total area of the country?
6 What are the principal rivers of the USA?
7 What is the population of the country?
8 Where do most people live?
9 What did many people seek in the USA?
10 Why are there representatives of all racial and national groups in America?
11 Where is the capital of the country situated?
12 Is the agriculture in America highly mechanized?
13 What raw materials is America rich in?
14 What has become the symbol of American way of life?
15 Where is the motor-car industry situated?
16 Where is the textile industry to be found?
17 Has the USA a highly developed railway system?
18 How many states are there in the USA?
19 By what party has the political life in America been dominated?
20 What do the two parties contest at an election time?
21 What is the highest legislative body of the country?

4.4.3 You are going to visit the USA and are making a detailed schedule for the tour of the country

4.4.4 Speak about the population of the USA, look at the map and describe the large cities of the country

4.4.5 Discuss the political situation in the USA and its role in modern world

4.5 Text 5 Washington

4.5.1 Read and translate the text

Washington, D.C. (District of Columbia) is the capital of the United States. It became the capital on December 1, 1880. It was named after George Washington, the first president, and Christopher Columbus (America was discovered by Columbus in 1492).

Spring is the best season in Washington, and it is the most popular with tourists. In the spring you can see the flowers on hundreds of cherry trees. The trees were given to the United States in 1912. They were a gift of friendship from Japan.

Washington has something for everyone - historic monuments, interesting museums, beautiful parks, and excellent hotels and restaurants. Some of the most important and most interesting sights are:

The Jefferson Memorial. This monument is dedicated to the third president, Thomas Jefferson. It was designed by John Russell, and it was built in 1943. Inside there is a statue of Jefferson by sculptor Rudolf Evans.

The Lincoln Memorial. This beautiful monument is dedicated to Abraham Lincoln, the 16th president of the United Sates. It is made of marble, and it was built in 1922. In the great hall there is a huge statue by Daniel Chester French.

The National Gallery of Art. The National Gallery contains one of the world's best collections of European and American painting and sculpture. The newest building, the East Building, is made of pink marble and glass. It was designed by I.M. Pei, and it was opened in 1978.

The Washington Monument. The Washington Monument was completed in 1884. it is dedicated to the first president, George Washington, and it is 555 feet high. You can take an elevator to the top or you can climb the 898 steps!

The White House. The White House is the official home of the president. It was designed by James Hoban. The first building was burned by the British in the War of 1812, but it was rebuilt in 1818. It was also first painted white at that time.

4.5.2 Answer the following questions

1 Who was Washington, D.C. named after?
2 Where did the cherry trees come from?
3 How tall is the Washington Monument?
4 When was the White House painted white?
5 Who is the Jefferson Memorial dedicated to?
6 Who designed it?
7 What is the Lincoln Memorial made of?
8 Who designed the statue of Lincoln?
9 What does the National Gallery of Art contain?
10 What is the East Building made of?

4.5.3 Speak about the most interesting sights in Washington

1 Have you ever been to Washington?

2 What do you think of it?
3 Answer your friends' questions about the city.

4.6 Text 6 Wall Street

4.6.1 Read and translate

Wall Street itself is a short street in Lower Manhattan, New York City, which takes its name from the town wall built in 1653 across Manhattan Island to protect the Dutch colonists of New Amsterdam from both the Native American Indians and English. Symbolically, however, "Wall Street" means the financial center of the United States (just as the "City" of London is the financial center of the United Kingdom) because of the concentration of business institutions in the area: stock-brokerage companies, banks, trusts, insurance corporations, commodity exchanges (coffee, cotton, metal, corn) and , of course, the New York Stock Exchange.

The Exchange - sometimes called "the nation's market place" - was founded on May 17, 1792, when Alexander Hamilton, the first US Secretary of the Treasury, decided to issue government bonds to consolidate and refund the debts incurred during the War for American Independence; a "market place" for the selling and buying of these bonds become necessary.

The Exchange deals only in "listed" stocks, i.e. stocks which are on the official trading list of the Exchange. In order to be listed, a company must have at least 2,000 stockholders, with at least 1 million shares distributed among them, and an annual turnover of at least $ 2.5 million. In 1998, there were more than 2,500 listed stocks

Institution- учреждение, организация
stock - brokerage company- брокерская фирма
commodity exchange- товарная биржа
bond -фондовая биржа
to refund the debts - возмещать
to incur (debts) - влезть в долги, наделать долгов
"listed" stock - "зарегистрированная" акция
Stockholder акционер
Annual - годовой, ежегодный
Turnover - оборот

4.6.2 Supply answers to the following questions

1 What does the name of the street come from?
2 Where is situated in Wall Street?
3 When did Wall Street begin gaining popularity?

4.6.3 Give a detailed description of the financial "heart" of the USA

4.7 Revise grammar material in appendix (см. приложение Б)

4.7.1 Analyze the use of modal verbs and translate the following sentences

1 Who can answer my question?
2 Nobody could translate this text.
3 He ought to do this task at once.
4 Must I attend this meeting? - No, you needn't.
5 You should have shown your notes to the teacher,
6 I asked him, but he wouldn't listen to me.
7 They should visit her, she is in the hospital.
8 Last summer we would often go to the country,
9 Your son can do this work himself.
10 Would you tell me the way to the station?
11 Your friend might have informed us.
12 May I leave for a while? - Yes, you may.
13 She should be more attentive at the lessons,
14 You needn't come so early.

4.7.2 Insert necessary modal verbs

1 I… not go to the theatre with them last night, I... revise the grammar rules and the words for the test. 2 My friend lives a long way from his office and... get up early. 3 All of us... be in time for classes. 4 When my friend has his English, he... stay at the office after work. He (not)... stay at the office on Tuesday, Thursday and Saturday and... get home early. 5 ... you... work hard to do well in your English? 6 "... we discuss this question now?" "No, we.... We... do it tomorrow afternoon." 7 I'm glad you... come. 8 "... you... come and have dinner with us tomorrow?" "I'd love to." 9 "Please send them this article." "Oh,... I do it now?"

4.7.3 Translate into English using modal verbs

1 Мы обязательно должны писать диктант сегодня? - Да, завтра мы будем учить новые слова. 2 Вчера мне пришлось ответить на все эти письма. 3 Виктора тоже пригласить на обед? - Да, сделайте это, пожалуйста. 4 Вам пришлось остаться дома, потому что была плохая погода? 5 Вы обязательно должны прийти и посмотреть нашу новую квартиру.- С удовольствием. 6 Я рад, что мне не пришлось заканчивать эту работу вчера. 7 Я не люблю поздно ложиться спать, но иногда мне приходится. 8 Можно мне пойти погулять сейчас? - Нет, нельзя. Ты должен скоро ложиться спать. 9 Вам следует навестить вашего друга. Он вчера не пришел на урок. 10 Почему ты не пришла? - Я не могла, я должна была помочь маме по дому. 11 Вам не нужно идти в библиотеку, у нас много книг дома, и вы можете взять любую, какую хотите.

4.8 Text 7 Moscow

4.8.1 Read the text and tell what you've learnt about Moscow

Moscow is the capital of Russia, its political, economic, commercial and cultural centre. It was founded 8 centuries ago by Prince Yuri Dolgoruky. Historians have accepted the year of 1147 as the start of Moscow's history. Gradually the city became more and more powerful.

In the 13th century Moscow was the centre of the struggle of Russian lands for the liberation from the tartar yoke. In the 16th century under Ivan the Terrible Moscow became the capital of the new united state. Though Peter the Great moved the capital to St Petersburg in 1712, Moscow remained the heart of Russia. That is why it became the main target of Napoleon's attack. The most territory of the city was destroyed by the great fire, but by the mid-19th century Moscow had been completely restored. And after the Revolution Moscow became the capital again.

Now Moscow is one of the largest cities in Europe. Its total area is about 9 hundred square kilometers. The population of the city is over 8 million.

Moscow is one of the most beautiful cities in the world. The heart of Moscow is Red Square. It has more historical association than any other place in Moscow.

There are a lot of beautiful places, old mansions, cathedrals, churches and monuments in Moscow. Now Moscow is being reconstructed and we all hope that in few years the city will become even more beautiful.

There are more than 80 museums in Moscow. The largest museums are the Pushkin Museum of the Fine Arts and the State Tretyakov Gallery. Other unique museums in Moscow include the All-Russia museum of Folk Arts, the Andrey Rublev Museum of early Russian Art and many others.

Moscow is famous for its theatres. The best-known of them in The Bolshoi Opera House. Drama theatres and studios are very popular.

Moscow is a city of students. There are over 80 higher educational institutions in it, including several universities.

Moscow is the seat of the Russian Parliament and the centre of political life of the country.

4.8.2 Answer the following questions

1 Have you ever been to Moscow?
2 What do you think of it?
3 Do you like the city?
4 What part does Moscow play in the life of Russia?
5 What are the most famous ancient buildings in Moscow?

4.8.3 Ask your own questions to the text Moscow

4.8.4 Look through the text again and tell what you have learnt about Moscow

4.9 Revise grammar material in appendix (см. приложение Б)

4.9.1 Make up comparative and superlative forms of the listed below adjectives and adverbs

1 large, tall, long, easy, hot, big, cold, nice, bad, strong, short, wide, good, happy, high, low, busy, well, little, many, far.

2 wonderful, necessary, quickly, interesting, comfortable, popular, active, famous, pleasant, beautiful, slowly, clearly.

4.9.2 Open the brackets using the right form of adjectives

1 Winter is (cold) season of the year. 2 Moscow is (large) than St. Petersburg. 3 Which is (long) day of the year? 4 The Alps are (high) mountains in Europe. 5 Even (long) day has an end. 6 It is one of (important) questions of our conference. 7 Your English is (good) now. 8 Who knows him (well) than you? 9 We have (little) interest in this work than you. 10 Health is (good) than wealth. 11 Your son worked (well) of all. 12 Today you worked (slowly) than usually.

4.9.3 Translate the sentences

1 This book is not so interesting as that one. 2 The Baltic Sea is not so warm as the Black Sea. 3 The more you read, the more you know. 4 My brother is not as tall as you are. 5 The earlier you get up, the more you can do. 6 Today the wind is as strong as it was yesterday. 7 Your room is as light as mine. 8 John knows Russian as well as English. 9 Mary is not so lazy as her brother. 10 The longer the night is, the shorter the day. 11 The less people think, the more they talk.

4.9.4 Translate the sentences from Russian into English

1 Лев Толстой - один из самых популярных писателей в мире.
2 Этот роман интереснее, чем тот.
3 Ваш дом выше нашего? Нет, он такой же высокий, как и ваш.
4 Это - самая прекрасная картина во всей коллекции.
5 Население Российской Федерации больше населения Великобритании.
6 Он выполнил работу быстрее, чем вы.
7 Австралия - одна из наименее населенных стран.
8 Его работа лучше вашей, но работа Анны - самая лучшая.
9 Россия - самая большая страна в мире.
10 Я живу не так далеко от института, как мой друг
11 В июле столько же дней, сколько и в августе.
12 Самолет быстрее, чем поезд.

4.10 Revise grammar material from Appendix (см. приложение Б)

4.10.1 Translate into English, using the Passive Voice where possible

1 Его нигде не видели в течение всей недели. Он болен? 2 Пожар начался ночью, и пламя было видно издалека. 3 Когда я приехала в Ленинград, этот дом еще строился. 4 Этот дом был построен до того, как началась война. 5 Я уверена, что вам помогут в вашей работе. 6 Город, в котором родился Низами, был основан в IX веке. 7 Московский университет назван именем Ломоносова. 8 Павлову была присвоена почетная степень доктора Кембриджского университета 9 Эта книга уже распродана. 10 Телеграмму послали поздно вечером, так что она будет получена только утром.

4.10.2 State where the combination *to be* + Participle II is a simple predicate and where it is a compound nominal predicate

1 Mr. Dorrit's rooms were reached. Candles were lighted. The attendants withdrew. 2 The door was instantly opened. 3 I have been treated and respected as a gentleman universally. 4 About noon, I was summoned to dress Madame. 5 My boxes are locked, strapped and labelled; I hate being hurried. 6 This brisk little affair was all settled before breakfast. 7 He was like a man who had been separated from one he loved for many years... 8 I stopped at a barber shop and was shaved and went home to the 'hospital. 9 We shall have time to-morrow, when my packing is finished 10 My wife and daughters were charmed with her. 11 The purchase was completed within a month. 12 You are deceived. 13 The door was opened by a girl. 14 I'll be dressed in a minute15 The small room was lit only by a dying fire and one candle with a shade over it.

4.10.3 Insert the required tenses of Passive Voice

1 After a few routine questions … and … Dr. Lord leant back in his chair and smiled at his patient, (to ask, to answer)

2 Ettore was twenty-three. He … by an uncle in San Francisco and was visiting his father and mother in Torino when war ... (to bring up, to declare)

3 He strode up to the front door of the forlorn house and rang the bell like one who … there for weeks, (to expect)

4 After lunch, we heard that Charles Lenton … for. (to send)

5 Breakfast … scarcely … when a waiter brought in Mr. Dowler's card,
(to clear away)

6 One could not walk or drive about Philadelphia without seeing or being impressed with the general tendency toward a more cultivated and selective social
life. Many excellent and expensive houses … (to erect)

7 I … constantly … in the street. I like it. It gives an amusement to the dullest walk, (to follow)

8 A minute earlier, a small boy with a partly deflated red balloon had run out into the cleared forbidden street. He … just …; and … back
to the curb by his father... (to capture, to drag)

9 The railway ... at all at that time, (to use - negative)

10 Thank you. Thank you. Martin: What … I … for? (to thank)

11 The gentleman was so startled that he took the night train for the Continent and … never … of since, (to hear)

4.10.4 Translate into Russian

1 That day she was seen little of. 2 At that moment hasty steps were heard in the entry. 3 A man who is much talked about is always very attractive. 4 I was told, too, that neither masters nor teachers were found fault with in that establishment. 5 I shall be quite safe, quite well taken care of. 6 I've been sent for urgently, to get at the truth. 7 A sound of a piano is heard in the adjoining room. 8 He could see that the bed was empty, and that it had not been slept in. 9 The gate was opened by one of the maids. 10 Nothing more was said on either side. 11 I don't suppose there's anybody who isn't cared for by someone or other. 12 With old and young great sorrow is followed by a sleepless night... 13 He was forbidden to receive either letters or telegrams. 14 The visitor was allowed to come forward and seat himself. 15 The match was looked upon as made by her father and mother.

5 Section 5 Environmental Protection

5.1 Text 1 Pollution

5.1.1 One of the greatest problems of all modern cities is the environment pollution. Read the text and tell which of the problems are typical for the city you live in

The British, like many other Europeans, are becoming more and more worried (беспокоится) about their environment. Here are some of the environmental problems that they face.

As the population of large cities like London, Birmingham and Manchester continues to grow, pollution problems become worse.

The air in many towns and cities is being polluted by traffic (транспорт, движение) and industry. The number of cars and lorries is growing all the time. On the one hand, they bring mobility to millions of people, but on the other hand, they need bigger, better and more expensive roads, which often ruin the countryside (сельская местность). Traffic in cities is getting worse and worse. Water pollution has become a serious problem in many British rivers. People living near airports suffer from the noise of increasingly larger and more powerful jet airliners taking off and landing.

5.1.2 Discuss these problems in groups of 3-5 students

5.1.3 Give your own opinion on this subject

5.2 Revise grammar material in appendix (см. приложение Б)

5.2.1 Translate the following Participles into Russian

developing industry, developed industry; changing distances, changed distances; a controlling device, a controlled device; an increasing speed, an increased speed; a transmitting signal, a transmitted signal; a reducing noise, a reduced noise; a moving object, a moved object; heating parts, heated parts.

5.2.2 Find Participles I, II and translate the sentences

1 We need highly developed electronics and new materials to make supercomputers. 2 New alloys have appeared during the last decades, among them a magnesium-lithium alloy developed by our scientists. 3 We are carried by airplanes, trains and cars with built-in electronic devices. 4 Computer components produced should be very clean. 5 Many countries have cable TV, a system using wires for transmitting TV programs. 6 The fifth-generation computers performing 100 billion operations a second will become available in the near future. 7 A video phone has a device which allows us to see a room and the face of the person speaking. 8 New technologies reduce the number of workers needed.

1 Driving a car a man tries to keep steady speed and watch the car in front of him. 2 Having stated the laws of gravity, Newton was able to explain the structure of the Universe. 3 Being more efficient than human beings, computers are used more and more extensively. 4 Having graduated from Cambridge, Newton worked there as a tutor. 5 Having been published in 1687, Newton's laws of motion are still the basis for research. 6 Being invented the digital technology solved the old problems of noise in signal transmission. 7 Having published his book about space exploration in 1895, Tsiolkovsky became known all over the world. 8 Built in the middle of the last century, the British Museum is situated in central London.

5.2.3 Translate the sentences paying particular attention on the absolute participle construction

1 The room being dark, we couldn't see anything. 2 The book being translated into many languages, everybody will be able to read it. 3 Peter having passed his exams, we decided to have a rest in the country. 4 We went for a walk, our dog running in front of us. 5 The test having been written, he gave it to the teacher and left the room. 6 They having arrived at the station early, all of us went to the cafe. 7 My friends decided to go to the park, the weather being warm and sunny. 8 Our library buying all the new books, we needn't buy them ourselves. 9 The fuel burnt out, the engine stopped. 10 Many scientists worked in the field of mechanics before Newton, the most outstanding being Galileo.

5.2.4 Translate the sentences in written form

1 Numerous experiments having been carried out at the orbital stations, it became possible to develop new methods of industrial production of new materials. 2 President Jefferson having offered his personal library, the foundation of the Library of Congress was laid. 3 Anthony Panizzi designed the Reading Room of the British Museum, the Reading Room being a perfect circle. 4 A beam of light being transmitted forwards, it is possible to measure the distance between the car and the other cars in front of it. 5 The distance having been measured, the computer adjusts the car's speed. 6 Two metallurgists produced a new superplastic metal, the new steel showing properties identical to Damascus steel. 7 The young physicist having discovered Newton's error, other scientists confirmed it. 8 The first TV sets having been shown in New York, the news about it spread throughout the world.

5.3 Text 2 The Problem of Environmental Protection in Great Britain

5.3.1 Read the text and tell about problem of environmental protection in Russia using this text as example

Environmental protection is an international issue of great importance and Great Britain pays much attention to it. There are nearly 500 000 protected buildings and 7000 conservation areas of architecture of historical interest in Britain. The Government supports the work of the voluntary sector in preserving the national heritage.

Total emissions of smoke in the air have fallen by 85 per cent since 1960. Most petrol stations in Britain stock unleaded petrol. The Government is committed to the control of gases emission, which damage the ozone layer. They also contribute to the greenhouse effect, which leads to global warming and a rise in sea levels. Britain stresses the need for studying the science of climate change.

Green belts are areas where land should be open and free from urban sprawl. The Government attaches great importance to their protection. National parks cover 9 per cent of the total land area of England and Wales. The National Rivers Authority protects island waters in England and Wales. In Scotland the River purification authorities are responsible for water pollution control. Great Britain takes care of its environment for themselves and next generations.

5.3.2 Answer the following questions

1 What is an international issue of great importance?

2 What are green belts?

3 Who is responsible for water pollution control in Scotland?

4 What is the total emission of smoke in the air? 6. Is it easy to buy unleaded petrol in Britain?

5.4 Text 3 Britain's Ecological Activity

5.4.1 Translate the text with the help of dictionary

Mankind long believed that, whatever we did, the Earth would remain much the same. We know now that is untrue. Nature is under threat. One country's pollution can be every country's problem. So we all need to work together to safeguard our environment.

We have a moral duty to look after our planet and hand it on in good order to future generation. That does not mean trying to halt economic growth. We need growth to give us the means to live better and healthier lives. We must not sacrifice our future well-being for short-term gains, nor pile up environmental debts which will burden our children. Where there are real threats to our planet we have to take great care. Prevention can often be better and cheaper than cure. But action in Britain is not enough. The Government will play a full part in working out international solutions through bodies like the United Nations, the World Bank, the Organization for Economic Co-operation and Development, and the European Community.

The British Government will aim:

to preserve and enhance Britain's natural and cultural inheritance;

to encourage the more prudent and efficient use of energy and other resources;

to make sure that Britain's air and water are clean and safe, and that controls over wastes and pollution are maintained and strengthened where necessary.

The world's population doubled between 1950 and 1987. More people means more mouths to feed, and that demands more agricultural land. That in turn can lead to deforestation and soil erosion.

By burning forests, draining wet lands, polluting water courses and overfishing mankind is rapidly driving many species to extinction.

The Government is supporting international efforts for a global agreement to protect species of plant and animal life. The Government is also supporting projects to conserve endangered species of wild life such as the black rhino and the African elephants.

Action Taken

Britain attaches particular importance to the environmental policy of the European Community.

Much has already been achieved: since Britain joined, the Community has adopted some 280 environmental measures, including far-reaching-legislation to combat acid rain, curb pollution from cars and industry, conserve wildlife and ensure public access to information about the environment.

5.4.2 Find the answers the following questions in the text

1 What do we know about threat of nature?
2 What do we all need to do?
3 What moral duty do we have?
4 Why do we need economic growth?

5 What will the Britain's Government aim to do?
6 What demands more agricultural land?
7 What does Britain attach particular importance to?
8 What has already been achieved?

5.4.3 Make an oral summary of the text

5.4.4 Speak about ecological activities in different countries

5.5 Text 1 Global warming

5.5.1 What comes to your mind when you see or hear the word «global warming»?

5.5.2 Read and translate the text. Put down 10-12 words or word combinations which can be used to speak about global worming

Global warming is sometimes referred to as the greenhouse effect. The greenhouse effect is the absorption of energy radiated from the Earth's surface by carbon dioxide and other gases in the atmosphere, causing the atmosphere to become warmer. Each time we burn gasoline, oil, coal, or even natural gas, more carbon dioxide is added to the atmosphere. The greenhouse effect is what is causing the temperature on the Earth to rise, and creating many problems that will begin to take place in the coming decades.

Today, however, major changes are taking place. People are conducting an unplanned global experiment by changing the face of the entire planet. We are destroying the ozone layer, which allows life to exist on the Earth's surface. All of these activities are unfavourably changing the composition of the biosphere and the Earth's heat balance. If we do not slow down our use of fossil fuels and stop destroying the forests, the world could become hotter than it has been in the past million years. Average global temperatures have risen 1 degree over the last century. If carbon dioxide and other greenhouse gases continue to spill into the atmosphere, global temperatures could rise five to 10 degrees by the middle of the next century. Some areas, particularly in the Northern Hemisphere, will dry out and a greater occurrence of forest fires will take place. At the present rate of destruction, most of the rain forests will be gone by the middle of the century. This will allow man-made deserts to invade on once lush areas. Evaporation rates will also increase and water circulation patterns will change. Decreased rainfall in some areas will result in increased rainfall in others. In some regions, river flow will be reduced or stopped all together completely. Other areas will experience sudden downpours that create massive floods.

If the present arctic ice melting continues, the sea could rise as much as 2 meters by the middle of the next century.

Large areas of coastal land would disappear. Plants and other wildlife habitats might not have enough time to adjust to the rapidly changing climate. The warming

will rearrange entire biological communities and cause many species to become died out.

The greenhouse effect and global warming both correspond with each other. The green house effect is recalled as incoming solar radiation that passes through the Earth's atmosphere but prevents much of the outgoing infrared radiation from escaping into outer space. It causes the overheat of the air and as a result, we have the global warming effect. As you see, greenhouse effect and global warming correspond with each other, because without one, the other doesn't exist.

5.5.3 Answer the following questions

1 What is global warming?
2 What is greenhouse effect?
3 What activities are unfavorable and change the composition of the biosphere and the Earth's heat balance?
4 What can prevent the developing of greenhouse effect?
5 Why are water circulation patterns changing?
6 What might cause disappearing of large areas of coastal land?
7 Does the warming affect biological communities?
8 Is there a correspondence between greenhouse effect and global warming?

5.5.4 Make up your own communication about the problems of environmental protection in the world. And speak in front of your fellow students bearing in mind the information you have got from Section 5

6 Section 6 My speciality

6.1 Text 1 My speciality

6.1.1 Read and translate this text

I am a second year student of Medical-Biological Engineering department of the Orenburg State University. It is one of the largest higher educational establishments in our town. The department was organized in 1995 on the base of Orenburg Eye Microsurgery branch. The chairman of the department is the Academician of Russian Academy of Medical-Technical Sciences, Kanukov Vladimir Nicolaevich.

The main research trend of the department is using the modern developments in electronics in medical and biological practice. During the years of activity the department has trained many highly-qualified engineers in a new unoccupied field, which borders on medicine, biology and technology. Such specialists are in great demand nowadays. Future engineers are supposed to check work capacity, carry out many repairing work with bio-medical equipment.

The academic program offers a 5-years course of study, where the students are provided with general scientific and general engineering education.

The junior students are taught mathematics, physics, chemistry, a foreign language (English, German, French), Latin, philosophy. We attend lectures, do laboratory works and tests. We have quite a number of well quipped laboratories at our disposal. Mastering one of the foreign languages enables us to read foreign literature and learn about the latest scientific and technical achievements abroad.

The senior students study special subjects such as Electronic Circuits, Optical Methods in Informatics, Methods of Medical and Biological Researches.

The fourth-year students combine their studies with their research work. We write course papers and graduation thesis on the scientific problems of our research work. Many highly - qualified teachers work at the departments of our faculty, some of them have candidate's degrees and scientific ranks.

We shall work as engineers, managers, designers in clinics, designing bureaus or may carry out the pedagogical activity.

6.1.2 Answer the questions

l When was the department of Medical-Biological Engineering organized?
2 It was organized on the base of Orenburg Eye Microsurgery branch, wasn't it?
3 What kind of modern developments is the main research trend of the department?
4 What is the main purpose of the academic program?
5 What do the students combine their studies with?
6 What kind of education are the students provided with during the 5-years course of study?
7 What does the current curriculum consist of?
8 What do the students do?
Do they take lectures?
Do they do laboratory and practical work?
9 What are the students supposed to work as after the graduation?
10 Do the students supposed to work as managers?

6.1.3 Learn the new words

academician -	академик
chairman -	председатель
to border (on) -	граничить (с)
capacity -	мощность
to be eager to do smth -	быть готовым делать ч/л.
Investigate -	исследовать
Electronics -	электроника
to carry out -	выполнять, проводить
on completion -	по окончании
scientific -	научный
to do calculations -	производить вычисления

bureau - бюро, отдел
current - текущий
means - средства
technique - техника; средства
to create - творить; создавать
trend - направление
to combine - совмещать
curriculum - курс обучения; учебный план
circuit - цепь

6.1.4 Explain in Russian the meaning of the following word combinations

Medical-Biological Engineering
Eye Microsurgery Branch
Modern developments
Unoccupied field
Repairing work
Bio-medical technics
Non-standard equipment
Electronic Circuits
Optical Methods in Informatics of Medical and Biological Researches
Term papers

6.1.5 Put in the prepositions

1 The students are provided … general scientific and general engineering education.
2 The current curriculum consist… many special disciplines.
3 The chairman … the department is V.N. Kanukov.
4 The students write a gradation thesis… the problems of their research work.

6.1.6 Translate into English

1 Я студент второго курса Оренбургского Государственного Университета.
2 Некоторые студенты занимаются исследовательской работой.
3 Будучи инженером, я смогу создавать новые методы и средства производства нестандартного оборудования.
4 Я думаю, что знание английского языка пригодится мне в будущем.

6.1.7 Creative work

A group of foreign students visits our university. They are interested in your faculty. Tell them about:
-the history of department of Medical-Biological Engineering;

-the sciences you are taught;
-students scientific research work;
-your future speciality.

6.1.8 Agree or disagree with the following statements

1 The department of Medical-Biological Engineering is the largest and the oldest faculty.

2 Future engineers are supposed to check work capacity, carry out any repairing work with bio-medical techniques.

3 After the gradation the students of our department will work only as engineers.

4 All students combine their studies with their research work.

6.1.9 Summarize all the information about your future speciality and speak about it

6.2 Text 2 My speciality

6.2.1 Speak about your speciality using the following text as an example

The engineer on a direction of preparation of the qualified expert “Medical-Biological Engineering” can borrow directly after the ending of high school the following posts: the engineer; the engineer - designer; the engineer - laboratorian; the engineer -electronic, the engineer on repair, the engineer on preparation of manufacture, the engineer on a complete set of the equipment; the engineer on preservation of the environment and other.

The Medical-Biological Engineering concerns to area of technical equipment and the scientific knowledge including set of means, ways and the methods of human activity directed on creation and service of tool means for diagnostics, treatment, rehabilitation and preventive maintenance of diseases of the person, for biological experiment, development of the software .

Objects of professional work of the engineer on a direction of preparation of the qualified expert “Medical-Biological Engineering” are devices, systems, complexes and the basic medical technologies, and also methods of researches, medical influences, processings of the information in practical public health services and various areas of biomedical researches.

The engineer on a direction “Medical-Biological Engineering” according to fundamental and special preparation can carry out in conditions of the scientific and technical and industrial organizations connected to development and manufacture of Bio-medical technics, the medical centers and treatment-and-prophylactic establishments of a various structure (hospitals, ambulance stations, polyclinics and other.), sports complexes, the курортно-sanatorium organizations, biological research stations, biological research laboratories, the ecological centers the following kinds of professional work:

-Design;
-Repair and service;
-Research;
-Organizational administrative;
-It industrial technological;
-Operational and service.

Qualifying requirements

For the decision of professional tasks the engineer

-Creates the tool means based on physical and physical and chemical methods of studying of characteristics of biological objects, for diagnostics, treatment, rehabilitation and preventive maintenance of diseases of the person, biological experiments;

-Develops the non-standard equipment and adaptations for medical and biological research laboratories;

-Develops technologies of designing and manufacture of Medical-Biological Engineering and the organization of manufacture, provides serial release of industrial devices, devices, systems and complexes of medical and biologic purpose

-Carries out development of the software for the decision of practical tasks of medical and biologic practice, processing of the biomedical information, creation and operation of medical databases, expert, monitor systems, use of modern packages of applied programs of information support of diagnostic and medical processes;

-Carries out repair and service of professional and household Medical-Biological Engineering;

-Participates in the organization and carrying out of diagnostic researches, medical procedures (including during rehabilitation during the regenerative period) and biological experiment with application of tool and hardware-software means, in development of new methods of research of a condition of biological objects and managements of this condition, and also new medical technologies with application of technical and computer means;

-Organizes work of collective of executors and makes administrative decisions.

The engineer who has mastered the basic educational program of the supreme vocational training within the framework of a direction of preparation of the qualified expert “Medical-Biological Engineering”, is prepared for continuation of education in postgraduate study.

6.2.2 Read the text about the famous Russian ophthalmologists Svyatoslav Fyodorov and Ernest Muldashev

6.3 Revise grammar material in Appendix (см. приложение Б)

6.3.1 Put the verbs giving in brackets into correct form. Use the Simple Present or Present Continuous

1 Alice (not take) the bus to school every day. She usually (walk) instead. (Take, you) the bus to get to school every day, or (walk, you)?

2 This morning it (rain). I can see Janet from my window. She (stand) at the corner of 5th and Pine. She (hold) her umbrella over her head. She (wait) for the bus.

3 I (need) to call my parents today and tell them about my new apartment. They can't call me because they (know, not) my new telephone number.

4 The tea is good. I (like) it. What kind is it? I (prefer) tea to coffee. How about you?

5 Right now the children (be) at the beach. They (have) a good time. They (have) a beach ball and they (play) with it. They (like) to play catch. Their parents (sunbathe). They (try) to get a tan. They (listen) to some music on a transistor radio. They also (hear) the sound of sea gulls and the sound of the waves.

6 Right now I (think) about sea gulls and waves. I (think) that sea gulls are beautiful birds.

7 Sam is at the library. He (sit) at a table. He (write) a composition. He (use) a dictionary to look up the spelling of some words. The dictionary (belong, not) to him. It (belong) to his roommate. Sam (look) up words in the dictionary because he (want) to make sure that he doesn't have any misspelled words in his paper.

8 Why you (walk) so fast today? You (walk, usually) quite slowly. - I (hurry) because I (meet) my mother at 4 o'clock and she (not like) to be kept waiting.

9 You (recognize) that man? - I (think) I have seen him before but I (not remember) his name.

10 Look at the crowed. I (wonder) what they (wait) for.

11 I (think) it is a pity. You don't take more exercise. You (get) fat.

12 Tom never (do) any work in the garden; he always (work) on his car - What he (do) in his car now? - I (think) he (polish) it.

13 Who (own) this umbrella? - I (not know). Everybody (use) it but nobody (know) who (own) it.

14 The last train (leave) the station at 11. 30.

15 These workmen are never satisfied; they always (complain).

6.3.2 Put the verbs giving in brackets into correct form. Use the Simple Past or the Past Continuous Tense

1 I (hear, not) the thunder during the storm last night because I (sleep).

2 It was beautiful yesterday when we went for a walk in the park. The sun (shine). A cool breeze (blow). The birds (sing).

3 My brother and my sister (argue) about something when I (walk) into the room.

4 I (get) a package in the mail. When I (open) it, I (find) a surprise.

5 He suddenly (realize) that he (travel) in the wrong direction.

6 It was my first day of class. I (find, finally) the right room. The room (be, already) full of students. On one side of the room, students (talk, busily) to each other in Spanish. Other students (speak) Japanese and some (converse) in Arabic. It (sound) like the United Nations. Some of the students, however, (sit, just) quietly by themselves. I (choose) an empty seat in the last row and (sit) down. In a few minutes, the teacher (walk) into the room and all the multilingual conversation (stop).

7 He (say) that he (build) himself a house and that he (think) it would be ready in two years.

8 We (not get) much sleep last night because the people next door (have) a noisy party. I (ring) up the landlord and (say) that his tenants (make) too much noise. He (point out) that it (be) Saturday and that people in his house often (have) parties on Saturday nights.

6.3.3 Put the verbs in brackets into the Future Continuous or the Simple Future

1 I'll call for her at 7. - No, don't; she still (have) breakfast then.

2 You've just missed the last train! - Never mind. I (walk).

3 He says he (meet) us at the bus stop, but I'm sure he (forget) to do it.

4 Don't ring now; she (watch) her favourite TV programme. - All right. I (ring) at 8.30.

5 I want to post this letter but I don't want to go out in the rain. - I (post) it for you. I (go) out anyway as I have to take the dog for a walk.

6 This time next Monday I (sit) in Paris cafe reading Le Figaro. - You (not read). You (look) at all the pretty girls.

7 I (cook) any fish you catch, but I (not clean) them. You'll have to do that yourself.

8 I (work) for Mr. Pitt next week as his own secretary (be) away.

9 You (use) your typewriter tomorrow evening? - No you can take it.

10 I'm going to Switzerland next week. - You're lucky. The wild flowers just (come) out.

11 You (see) Tom this afternoon. I'd like you to give him a message.

12 I (tell) her what you say but she (not believe) it.

13 This time tomorrow everyone (read) of your success and all sorts of people (ring) up to congratulate you.

6.3.4 Put the verbs in brackets into correct tense: Present Perfect or Simple Past

1 I (buy) a new house last year, but I (not sell) my old house yet, so at the moment I have two houses.

2 When Ann (be) on her way to the station it (begin) to rain. Ann (run) back to her flat for her umbrella, but this (make) her late for her train.

3 At 7 a.m. Charles (ring) Peter and (say), “I'm going fishing, Peter. Would you like to come?” “But it's so early,” (say) Peter. “I (not have) breakfast yet. Why you (not tell) me last night?”

4 Ann (go) to Canada six months ago. She (work) in Canada for a while and then (go) to the United States.

5 Bill usually has breakfast at 8.00. Yesterday at 8.30. Peter (meet) Bill and (offer) him an apple. "No, thanks," (say) Bill. “I just (have) breakfast.”

6 I (read) his books when I was at school. I (enjoy) them very much.

7 The clock is slow. - It isn't slow, it (stop).

8 It (be) cold this year. I wonder when it is going to get warmer.

9 You (lock) the door before you (leave) the house?

10 We (miss) the bus. Now, we will have to walk,

11 He (break) his leg in a skiing accident last year.

12 How long you (know) your new assistant? - I (know) him for two years. - What he (do) before he (come) here? - I think he (be) in prison.

13 I (not see) your aunt recently. - No. She (not be) out of her house since she (buy) her colour TV.

14 He (lose) his job last month and since then he (be) out of work. - Why he (lose) his job? - He (be) rude to Mr. Pitt.

15 Ann Jones is one of the most interesting people I (meet): she is only 25, but she (travel) to over 50 different countries. Five years ago, she (be) a typist in Birmingham, but she (decide) to give up her job and see the world. Since then her life (change) completely. The first time she (go) abroad was seven years ago, when she (be) just 18. She (take) a boat to France and then (hitch- hike) around Europe for five weeks. She (visit) Europe many times since that first trip, of course, but this holiday (be) the one which (make) her start traveling. She (never forget) the excitement of those five weeks - although it was not all enjoyable. When she (be) in Munich, somebody (steal) her purse; she (lose) all her money, and (have) to work in a restaurant for a fortnight. She (make) some good friends there, however, and (return) several times since then.

How did she find the money for her travels? After her first trip abroad, she (go) home and (work) for two years, saving all the time. Now she travels continually, finding work when her money gets low. She (make) a lot of friends, she says, and (learn) quite a few languages. Although she (have) occasional difficulties and (often/ be) sick, she (never/ think) about giving up her travels. “The first time I (go) abroad (change) my life,” she says, “and I (want) to travel ever since.”

6.3.5 Translate from Russian into English

1 Как только я приеду в Лондон, я напишу тебе письмо.

2 Если погода будет хорошая, мы сможем сходить в лес за грибами.

3 Если ты поедешь на юг, то закажи билет туда и обратно.

4 Если он будет спать, когда я приду, я разбужу его.

5 Я пойду прогуляться прежде, чем я лягу спать.

6 Я просмотрю газеты после того, как мы поужинаем.

7 Пока я буду убирать квартиру, ты будешь готовить обед.

8 Я приду, если не заболею.

9 Я не знаю, придет ли Алиса.

10 Он будет наказан, если не сдержит своё обещание.

11 Тебе не придется идти в кассу. Я уже заказал билеты по телефону.

12 Где ваш брат? Я давно не вижу его. - Он сейчас во Франции. Они эмигрировали три года назад.

13 Я давно видела эту пьесу. Я уже забыла её.

14 Ты уже перевел текст? - Нет ещё. В нем слишком много незнакомых слов.

15 Вы хорошо знаете город? Как долго вы живете в Лондоне? - С 1985 года.

16 Могу я поговорить с мистером Смитом? - Он только, что вышел.

6.3.6 Put the verbs in brackets into the Simple Future, the Present Continuous or the Simple Present

1 I am sure that I (recognize) him.

2 Look! I've broken the teapot. What Mrs. Pitt (say)? - She (not mind); she never liked that one.

3 There (be) a big meeting here tomorrow.

4 We (have) a party next Saturday. Would you like to come?

5 The concert this evening (start) at 7.30.

6 I (not go) away for my holidays next month because I haven't got enough money. You (go) away?

7 He has cut my hair too short. - Don't worry; it (grow) again very quickly.

8 Ann, we (go) to town. You (come) with us?

9 What time the next train (leave)?

10 Where you (meet) them? - I (meet) them at midnight in the middle of the wood.

6.3 Text 3 Slit illumination system

6.3.1 Read and translate the text

A description of the slit illumination system and the stereomicroscope alone does by no means include all the special features of the slit lamp instrument. More are to be found in the mechanical system. The mechanical system of the modern slit lamp has developed over more than 50 years and compromises the desires for operating comfort and universal application.

The illumination system and the microscope can both be swung round a vertical axis independent of each other, hi this axis the slit is normally imaged and can be observed sharply defined with the microscope. The axis in question is the virtual extension of the mechanical instrument axis and bearing located below the eye. For examination the axis is moved to the site of the object to be observed. This is achieved with the aid of a mechanical base which includes a cross-slide system and on which the mechanical holding axis of the illumination system and the microscope is mounted. The base is moved horizontally with a single control element - the control level. The instrument base also comprises a unit for vertical adjustment of the slit lamp and field-of-view center of the microscope on the above-mentioned axis. In some slit lamps operation of this vertical adjustment system is also possible by rotating the control level so that the instrument can be adjusted to the object in all three coordinates.

The light sources used in slit lamps are low-voltage lamps or gas discharge lamps and may have the following specifications for example:

power: 25 W
rated voltage: 6 V
luminance: B=1200 sb
color temperature: 2800° K
average life: 70 hours

Every incandescent lamp can be overloaded. Then the luminance and the color temperature are increased, but at the same time the life of the lamp is drastically reduced. A comparison of different makes of lamp is correct only if the lamps can be operated at the same color temperature. Then the operating-to-rated voltage ratio may well be different. When operated at rated voltage, halogen lamps have a higher luminance and color temperature than conventional incandescent lamps. Their luminance and color temperature correspond to the luminance and color temperature of an overloaded incandescent lamp, but they offer the advantage of a considerably longer life. For slit lamp microscopy a high color temperature of the light source, i.e. a greater blue portion, is highly desirable. According to the relevant physical laws the scattering and fluorescence of transparent media are much greater for such light, and diagnostically important changes in color to yellow are much more easily recognized. Modern slit lamps are therefore equipped with halogen lamps.

6.3.2 Learn the new words

description - описание
feature(s) - вид
to define - определять, обозначать
to observe - наблюдать, замечать
to achieve - выполнять, достигать
to mount - монтировать, устанавливать
adjustment - приспособление
to adjust - прилаживать, регулировать
to overload - перегружать
to increase - возрастать; повышаться
drastically - резко
to reduce - уменьшать; понижать
conventional - обусловленный, условный
considerable - значительный
to recognize - узнавать
axis - ось
therefore - поэтому

6.3.3 Find in the text Russian equivalents to the following English word combinations

slit illumination system

stereomicroscope
mechanical system
operating comfort
universal application
microscope
virtual extension
bearing located
cross-slide system
control level
field-of-view center
low-voltage lamp
gas discharge lamp
incandescent lamp
hologen lamp
relevant physical laws
scattering and fluorescence of transparent media

6.3.4 Give good translation of the last paragraph of the text in the written form

6.3.5 Put questions to the following sentences

1 The mechanical system of the modern slit lamp has developed over more than 50 years.

2 The instrument base comprises a unit for vertical adjustment of the slit lamp and field-of-view center.

3 A comparison of different makes of lamp is correct only if the lamps can be operated at the same color temperature.

6 3.6 Find the equivalents

include	different
modern	less
more	heavily
sharp	below
horizontally	dark
above	impenetrable
correct	exclude
light	wrong
easily	blunt
transparent	ancient
same	

6.3.7 What do you know about:

1 the history of slit illumination system
2 using of slit illumination system

6.3.8 Retell the text “Slit illumination system”

6.4 Text 4 General applications of a slit lamp

6.4.1 Read and translate the following text

Today the slit lamp is the ophthalmologist's most frequently used and universally applicable examination instrument. The most important field of application is the examination of-the anterior media of the eye including the crystalline lens and the anterior section of the vitreous. Supplementary optics such as contact lenses and additional lenses permit observation of the posterior media and the chamber angle which would not be visible in the direct optical beam. A number of accessory instruments have been developed extending the slit lamp as a pure observation instrument to a measuring instrument. There are for example attachments for measuring the intraocular pressure, the curvature of the cornea, the thickness of the cornea, the distance between the cornea and the crystalline lens, the anterior chamber volume, the opacity, etc. Finally, there is the photo slit lamp, a special version which serves both observation and documentation. Special mention should be made of the use of the slit lamp in connection with contact lens fitting. The instrument thus has applications beyond the ophthalmologist's practice.

The standard slit lamp comprises three elements:

1 the slit illumination system - hence the name;

2 the stereomicroscope; it is used in a similar version in other ophthalmological instruments, for example, operation microscopes;

3 the special mechanical system; it combines the microscope and the illumination system and serves to keep the patient in position.

6.4.2 Answer the questions

1 What is the most frequently used ophthalmologist's examination instrument?
2 What is the most important field of application?
3 What do the contact lenses and additional lenses permit to observe?
4 What kind of accessory instruments have been developed extending the slit lamp to a measuring instrument?
5 What does the photo slit lamp serve for?
6 What are the standard slit lamp three elements?

6.4.3 Words to be remembered

applicable
to measure
pure

to permit observation
beam
attachment
to serve
cornea
accessory
to pressure
ophthalmologist
optic

6.4.4 Translate the following word combinations

examination instrument
anterior media of the eye
chamber angle
contact lenses
ophthalmologist practice
operation microscope
to keep the patient in position
crystalline lens
intraocular pressure
accessory instruments
curvature of the cornea
thickness of the cornea
photo slip lamp

6.4. 5Make up as many sentences as possible with the word combinations form ex. 5.4.4

6.4.6 Give antonyms

Frequently, to permit, finally, important, visible, beyond, direct, fitting, thickness, to develop.

6.4.7 Are the following statements true or false?

1 The photo slit lamp is a version, which serves both observation and documentation.

2 The ophthalmologists don't use the slit lamp for the examination of the anterior media of the eye.

3 The slit lamp has some attachments.

4 Supplementary optics permit observation of the posterior media and the chamber angle.

5 The slit lamp is used as a measuring instrument.

6.4.8 Give good translation of the text «General applications of a slit lamp» in written form.

6.4.9 Make up the plan of the text. Retell the text

6.5 Text 5 Examination methods - types of illumination

6.5.1 Read and translate the following text

All efforts made to use the slit lamp not only for observation but, with suitable accessories, also as a measuring instrument are of particular interest and special importance. These efforts are based on the following considerations:

As the slit lamp is such a widely used instrument, measuring accessories are bound to be welcomed, and new instruments and techniques stand a better chance of being introduced into practice. Moreover, by using the mechanical and optical elements of the slit lamp, the cost of a measuring instrument is reduced considerably. The most popular example is the Goldmann applanation tonometer which is used to measure the intraocular pressure. Further example are instruments for measuring the thickness of the cornea, the depth of the anterior chamber, the radius of curvature of the cornea, and the axis position of toric contact lenses. It should be mentioned that accessories are being developed for measuring the anterior chamber volume, the extent of opacity, etc.

For some slit lamp models accessories are offered for survey photography of the outer surface of the eye. However, these are not specially designed for the slit lamp. The slit lamp is taken only because it is the most widely used ophthalmological examination instrument.

6.5.2 Answer the questions

1 Are all efforts made to use the slit lamp as a measuring instrument of particular interest?

2 Why do the new instruments and techniques stand a better chance of being introduced into practice?

3 Why do the cost of a measuring instrument is reduced considerably?

4 What is the Goldmann applanation tonometer used for?

5 What kind of accessories are being developed?

6.5.3 Translate the following text in written form

The most important and most widely used accessory for the slit lamp is the Goldmann applanation tonometer. It serves for measuring the intraocular pressure. Today is regarded as a method which in comparison with other techniques is characterized by high-accuracy, reliability and simplicity.

The following criteria may be set for optimal adaptation of an applanation tonometer to a slit lamp:

1 The tonometer must be stably connected with the microscope and its focusing system.

2 Arrangement of the tonometer probe must be possible in front of the right or left microscope beam path.

3 When the tonometer is in working position, it should be possible for the slit illumination system to be swung from left to right.

4 The tonometer holder should be designed so as to permit a measuring or working position of the tonometer as well as a storage or idle position. In the latter it must be possible for the slit lamp to be used without any obstruction. Unhindered vision of the patient's eye and freedom of movement are specially important.

Movement of the tonometer from the measuring position to the idle position should be possible quickly and easily.

5 The tonometer should be easily removable from the holder without any tools.

6 The use of the tonometer must not take the use of further important accessories impossible.

6.6 Text 6 Mechanical system of a slit lamp

6.6.1 Read and translate the following text

Almost all series-produced slit lamps have a mechanical axis of rotation which is arranged below the patient's eye or the microscope body. The various makes then differ by the arrangement of the illumination beam, either below the microscope body or above it. In the various makes the illumination beam is bent once or twice by prisms or mirrors. The location of the mechanical axis of rotation below the patient's eye has the disadvantage that the patient whose head is held by the head rest may be disturbed by the front elements of the instrument. It should therefore be mentioned that an instrument has just been introduced in which the mechanical axis of rotation is arranged above the patient's head. The instrument is held by a stand arm arranged at the side. The instrument base with the cross-slide system is designed as a table top. The instrument is operated with a control level integrated in a small control panel. As compared with the conventional design, this new design offers the surgeon exceptional freedom of movement and manipulation, and there are no instrument parts to disturb the patient.

An interesting special version of the slit lamp is the bedside or surgical slit lamp designed for the examination of recumbent patients. For this reason there is no real axis of rotation of the illumination system but rather a curved mechanical guide with virtual axis.

6.6.2 Answer the following questions

1 Is there an instrument in which the mechanical axis of rotation is arranged above the patient’s head?

2 Where is the instrument base designed?
3 What does the new design offer the surgeon?

6.6.3 Words to be remembered

Integrated -	интегрируемый
rotation -	вращение
surgeon -	хирург
to disturb -	беспокоить
exceptional -	исключительный
recumbent -	лежащий, откинувшийся

6.6.4 Skim the text “Observation in optical section - focal illumination” trying to understand what it is about

It is well known that the structure of transparent objects can be recognized only unclearly in transmitted or reflected light, as the relative amplitude modulation of light is too weak and the phase modulation is not perceived by the eye. However, such objects can be observed well in scattered light or in fluorescent light when direct illumination is avoided. The situation is easily understood also by the layman, when he is reminded of the following phenomenon which he has often observed in everyday life: an intense beam of light enters a dark room through a window slit. In this beam a multitude of dust particles becomes visible which could never be seen if the room were brightly illuminated. This is also the principle of focal illumination. A slit is imaged in the transparent system of the anterior ocular media in such a way that the observation and illumination axes form as large an angle as possible and ocular fundus remains dark. With a narrow slit and a sufficiently small aperture angle the illumination beam has the shape of two knife blades placed end to end. Only in the "optical section" is there scattered light which is more or less intense dependent on the object structures. The intensity of the scattered light increases with increasing slit illuminance and increasing portion of short-wave light which also means increased color temperature.

6.6.5 Read the text «Slit lamp microscope» and make the summary of it

The user expects the slit lamp microscope to give optimum stereoscopic observation with selectable magnification. The field-of-view diameter and the depth of field are expected to be large, and there should be enough space in front of the microscope for the manipulation on the eye. In practical work with the slit lamp, magnifications between 5x and 50x are required, the most commonly used magnifications being10x, 16x, and 25x.

Besides the magnification, the user is also interested in the following optical data: resolution, brightness, depth of field and convergence angle. Among the specifications of the slit lamp microscope there is also the back focal distance S which is of special interest. The back focal distance is the distance of the object plane

from the front lens surface of the microscope. The back focal distance must have a certain minimum size to give the surgeon sufficient space for manipulation. If it is too long, however, manipulations on the eye are also rendered difficult, because of the ensuing uncomfortable position of the arms. Moreover, with a given objective aperture, the numerical aperture is reduced and thus the brightness. The back focal distance of the slit lamp should range between 90 mm and 120 mm.

6.7 Text 7 Laser propulsion

6.7.1 Read the text and try to understand the meaning of the word combination «off-the-shelf item» in given context. Explain the meaning of this combination

Another approach is to absorb laser light in a plasma “flame” sustained by laser light focused in the center of a flowing stream of propellant gas. Thrust levels as high as 10,000N with a specific impulse (удельный импульс) of 1,000 sec. appear achievable using hydrogen as the propellant gas. Laser powers as low as 1 MW would be useful for low Earth orbit launching without relay optics. 10-100 MW lasers can launch small payloads from the ground. With up to 100 launches a day, a 20 MW launcher weighing 20 kg could place several hundred tons in orbit per year. Low - gigawatt lasers could launch multiton spacecraft with the same ease that present multi - gigawatt chemical rockets do. Laser rockets will have much better payload fraction since the heavy power plant is left on the ground and the higher specific impulse results in lower propellant fraction. Although gigawatt lasers are not off-the-shelf items, there is no doubt they could be built if the need were strong enough.

6.7.2 Choose the right definition of the following words

1 approach
1.1 coming near to
1.2 a way to solve a problem
1.3 way, path, road

2 sustain
2.1 enable to keep up, maintain
2.2 suffer, undergo
2.3 keep from falling

3 relay
3.1 supply of fresh horses to take the place of tired ones
3.2 device which receives signals and transmits them with greater strength, thus increasing the distance over which they are carried
3.3 place from which radio programs are broadcast after being received from another station

4 payload
4.1 passengers and cargo, but not fuel
4.2 bomb in a missile
4.3 crew and instruments of a spaceship

5 item
5.1 each single thing, part or object in a list
5.2 detail or paragraph (of news)
5.3 number of a program

6 off-the-shelf
6.1 commercially available
6.2 ready to use
6.3 possible or likely

6.7.3 Fill the blankets with following words

Capacity, as well, laser, information, light, existing, advantage, space , doubt, amplified, cost, conventional.

Optical fibres are made of glass and use ... (usually from a ...) to transmit messages. There is no ... optical fibre systems have enormous ... over ... transmission systems. They have a much higher ... than copper wires, can carry much more ... and have a potentially lower material .... Besides, optical fibres occupy far less ... The quality of transmission is high.... The signal does not need to be ... as often as with ... cables. Optical fibres do not suffer from interference.

Heat, treatment, distance, melt, identify, beams, vaporize, displays, light, communication.

Nowadays, lasers are used to ... targets in military uses. In engineering, powerful laser ... can be focused on a small area. They can ..., ..., or ... material in a very precise way. Lasers are ideal for ... in space. Laser light can travel long ... without losing signal strength. In medicine, laser beams can be used for the ... of damaged tissue (ткань) in a fraction of a second without causing harm (вреда) to healthy tissue. In the arts, lasers can provide fantastic displays of .... Pop concerts are often accompanied by laser....

6.7.4 Give 15 - 20 key words and word combinations to the text “Laser application”

6.7.5 Speak about: Laser as a means of propulsion

6.8 Revise grammar material in appendix (см. приложение Б)

6.8.1 Use the appropriate form of the verb

1 I am just passing through Chicago and I thought you … tell me a little about the city from an investment point of view. (may) 2 He said he … be obliged to run on to Pittsburg for thirty six hours but he … back on the third day. (may, to be) 3 It had not yet occurred to her that she … get money for the locket and ear-rings which she … with her. (may, to carry) 4 I thought you … better sense. (to have) 5 Sir Wilfred knew, from the frequency with which she used her handkerchief, that the tears … down her cheeks. (to run) 6 She hesitated no longer, but opening her own door gently, went out and tapped at Betty's. "I knew you … not in bed, my dear," she said. (to be) 7 We came to this part of the country in the hope that the bracing air ... …good effect upon him. (to have) 8 The door opened suddenly, and a young fellow came in, with the air of one who … the master. (to be) 9 She clung to the belief that he… so fond of her that he … never … happy without her; and she still hugged her secret that a great gentleman … her. (to be, to be, to love) 10 At ten o'clock he telephoned again, saying that he … his mind. (to change) 11 Mr. Jackson departed upstairs on his errand, and immediately returned with a message that Mr. Fogg … Mr. Pickwick in five minutes. (to see) 12 It chanced... that Mr. Bennett received a letter from a fellow-student in Prague, who said he … glad to have seen Professor Sudbury then. (to be)) 13 I thought I … well, being tired. (to sleep) 14 We asked if there … anything further that we … do for him. (to be, can) 15 I hailed them and asked if they … tell me the way to Wallingford Lock; and I explained that I … for it for the last two hours. (can, to look)

6.8.2 Comment on the Sequence of Tenses and translate into Russian

1 He was informed that both his father and mother were out, but that Miss Dinny had come up that morning from Codeword. 2 "I see what I see,"" Matilda said. "I see that this is how a leading citizen elects to spend his afternoons, sitting on a rock and." 3 And for an instant, Isaac didn't know whether he was really asking her, the mother that last question over and over or whether he was just asking it over and over in-208 side his head. 4 If only I could sleep, thought Hunter. Then in the morning I might know what to do.) 5 He spoke as one who does not propose to say any more 6 Celia Hornby asserted that it was a good thing they had got out of the house.) 7 Then she knew what she must do. 8 Penelope stretched herself luxuriously, with the poised expression of one who has said her last word for the evening.

6.8.3 Translate into English

1 Он был уверен, что они работают вместе. 2 Он думал, что его товарищи работают с утра. 3 Он думал, что его товарищи работают, и не хотел им мешать. 4 Он знал, что они никогда не работали прежде. 5 Он полагал, что они будут работать вместе. 6. Она знала, что они обычно встают в 8 часов. 7 Она не знала, что они ее ждут. 8 Она не знала, что он уже купил словарь. 9 Она знала, что мальчик интересуется историей. 10 Она сказала, что этот профессор читает

лекции по истории. 11 Он сказал, что профессор читает лекцию. 12 Мне сказали, что лекция начнется в 5 часов. 13 Я не знала, что вы тоже любите музыку. 14 Я думала, что они знают друг друга с детства. 15 Она сказала, что идет дождь и что нам лучше сидеть дома.

7 Section 7 Medical engineering

7.1 Text 1 Biomedical engineering

7.1.1. Read the text and divide it into logical parts and make a plan of it

Biomedical engineering (BME) is the application of engineering principles and techniques to the medical field. It combines the design and problem solving skills of engineering with medical and biological sciences to help improve patient health care and the quality of life of individuals.

As a relatively new discipline, much of the work in biomedical engineering consists of research and development, covering an array of fields: bioinformatics, medical imaging, image processing, physiological signal processing, biomechanics, biomaterials and bioengineering, systems analysis, 3-D modeling, etc. Examples of concrete applications of biomedical engineering are the development and manufacture of biocompatible prostheses, medical devices, diagnostic devices and imaging equipment such as MRIs and EEGs, and pharmaceutical drugs.

Disciplines in biomedical engineering

Biomedical engineering is an interdisciplinary field, influenced by various fields and sources. Due to the extreme diversity, it is typical for a biomedical engineer to focus on a particular emphasis within this field. There are many different taxonomic breakdowns of BME, one such listing defines the aspects of the field as such:

- Bioelectrical and neural engineering
- Biomedical imaging and biomedical optics
- Biomaterials
- Biomechanics and biotransport
- Biomedical devices and instrumentation
- Molecular, cellular and tissue engineering
- Systems and integrative engineering

In other cases, disciplines within BME are broken down based on the closest association to another, more established engineering field, which typically include:

- Chemical engineering - often associated with biochemical, cellular, molecular and tissue engineering, biomaterials, and biotransport.
- Electrical engineering - often associated with bioelectrical and neural engineering, bioinstrumentation, biomedical imaging, and medical devices.
- Mechanical engineering - often associated with biomechanics, biotransport, medical devices, and modeling of biological systems.
- Optics and Optical engineering - biomedical optics, imaging and medical devices.

7.1.2 Make up your own questions to the text given above

7.1.3 Retell the text according to your plan

7.2 Text 2 Clinical engineering

7.2.1 Read and translate the text

Clinical engineering is a branch of biomedical engineering related to the operation of medical equipment in a hospital setting. The tasks of a clinical engineer are typically the acquisition and management of medical device inventory, supervising biomedical engineering technicians (BMETs), ensuring that safety and regulatory issues are taken into consideration and serving as a technological consultant for any issues in a hospital where medical devices are concerned. Clinical engineers work closely with the IT department and medical physicists.

A typical biomedical engineering department does the corrective and preventive maintenance on the medical devices used by the hospital, except for those covered by a warranty or maintenance agreement with an external company. All newly acquired equipment is also fully tested. That is, every line of software is executed, or every possible setting is exercised and verified. Most devices are intentionally simplified in some way to make the testing process less expensive, yet accurate. Many biomedical devices need to be sterilized. This creates a unique set of problems, since most sterilization techniques can cause damage to machinery and materials. Most medical devices are either inherently safe, or have added devices and systems so that they can sense their failure and shut down into an unusable, thus very safe state. A typical, basic requirement is that no single failure should cause the therapy to become unsafe at any point during its life-cycle.

A Clinical engineer is “a professional who supports and advances patient care by applying engineering and managerial skills to healthcare technology.” Cross-disciplinary activities are the norm, often involving physicians, nurses, medical technologists, information technology professionals, pharmacists, administrators, medical device manufacturer sales and engineering, and local and national regulatory authorities. Clinical engineers generally team with Biomedical Equipment Technicians (BMETs) to support and maintain the medical devices used at the point of delivery of care. This definition was first adopted by the ACCE Board of Directors on May 13, 1991.

There are at least two issues that this definition does not address that continue to cause some confusion. First, what is the difference between a “clinical engineer” and a "biomedical engineer?" Many times the terms are used interchangeably. Some hospitals refer to their medical equipment maintenance departments as a “clinical engineering department,” while others call them a “biomedical engineering department.” Indeed, as noted above, technicians are almost universally referred to as “biomedical equipment” technicians, regardless of the name of the department that they might work for. However, the term “biomedical engineer” is generally thought to be more all-encompassing, including engineers who work directly in the design of

medical devices for manufacturers, while clinical engineers generally work in hospitals solving problems that are very close to where equipment is actually used in a patient care setting.

The second issue that is not addressed by this definition is the appropriate education background for a clinical engineer. Generally, the expectation of the certification programs is that an applicant for certification as a clinical engineer will hold an accredited bachelor's degree in engineering or engineering technology.

Tissue engineering is the use of a combination of cells, engineering and materials methods, and suitable biochemical and physio-chemical factors to improve or replace biological functions. While most definitions of tissue engineering cover a broad range of applications, in practice the term is closely associated with applications that repair or replace portions of or whole tissues (i.e., bone, cartilage, blood vessels, bladder, etc.). Often, the tissues involved require certain mechanical and structural properties for proper functioning. The term has also been applied to efforts to perform specific biochemical functions using cells within an artificially-created support system (e.g. an artificial pancreas, or a bioartificial liver). The term regenerative medicine is often used synonymously with tissue engineering, although those involved in regenerative medicine place more emphasis on the use of stem cells to produce tissues.

A commonly applied definition of tissue engineering, as stated by Langer and Vacanti, is “an interdisciplinary field that applies the principles of engineering and life sciences toward the development of biological substitutes that restore, maintain, or improve tissue function or a whole organ"” Tissue engineering has also been defined as "understanding the principles of tissue growth, and applying this to produce functional replacement tissue for clinical use."”A further description goes on to say that an “underlying supposition of tissue engineering is that the employment of natural biology of the system will allow for greater success in developing therapeutic strategies aimed at the replacement, repair, maintenance, and/or enhancement of tissue function.”

Powerful developments in the multidisciplinary field of tissue engineering have yielded a novel set of tissue replacement parts and implementation strategies. Scientific advances in biomaterials, stem cells, growth and differentiation factors, and biomimetic environments have created unique opportunities to fabricate tissues in the laboratory from combinations of engineered extracellular matrices (“scaffolds”), cells, and biologically active molecules. Among the major challenges now facing tissue engineering is the need for more complex functionality, as well as both functional and biomechanical stability in laboratory-grown tissues destined for transplantation. The continued success of tissue engineering, and the eventual development of true human replacement parts, will grow from the convergence of engineering and basic research advances in tissue, matrix, growth factor, stem cell, and developmental biology, as well as materials science and bioinformatics.

In 2003, the NSF published a report entitled “The Emergence of Tissue Engineering as a Research Field”, which gives a thorough description of the history of this field.

7.2.2 Look through the text again and make a plan

7.2.3Write out the sentences expressing the main ideas of each paragraph of your plan

7.2.4 Discuss the main ideas of the text

7.3 Text 3 Medical devices

7.3.1 Read and translate the text

A medical device is intended for use in:

- the diagnosis of disease or other conditions, or
- in the cure, mitigation, treatment, or prevention of disease,
- intended to affect the structure or any function of the body of man or other animals, and which does not achieve any of its primary intended purposes through chemical action and which is not dependent upon being metabolized for the achievement of any of its primary intended purposes.

Some examples include pacemakers, infusion pumps, the heart-lung machine, dialysis machines, artificial organs, implants, artificial limbs, corrective lenses, cochlear implants, ocular prosthetics, facial prosthetics, somato prosthetics, and dental implants.

Medical devices can be regulated and classified (in the US) as shown below:

1 Class I devices present minimal potential for harm to the user and are often simpler in design than Class II or Class III devices. Devices in this category include tongue depressors, bedpans, elastic bandages, examination gloves, and hand-held surgical instruments and other similar types of common equipment.

2 Class II devices are subject to special controls in addition to the general controls of Class I devices. Special controls may include special labeling requirements, mandatory performance standards, and postmarket surveillance. Devices in this class are typically non-invasive and include x-ray machines, PACS, powered wheelchairs, infusion pumps, and surgical drapes.

3 Class III devices require premarket approval, a scientific review to ensure the device's safety and effectiveness, in addition to the general controls of Class I. Examples include replacement heart valves, silicone gel-filled breast implants, implanted cerebellar stimulators, implantable pacemaker pulse generators and endosseous (intra-bone) implants.

7.3.2 Find in the text the terms of medical devices and write them down. Learn these words by heart

7.3.3 Translate the following text from Russian into English

Оборудование поддержки жизни предназначено для поддержания работы тела пациента. Оно включает в себя медицинские вентиляторы (аппарат ИВЛ), сердечно-легочные аппараты, и аппараты для диализа.

Терапевтическое оборудование включает в себя инфузионные насосы (самые известные), аппараты ультразвуковой терапии.

Медицинские мониторы позволяют медицинскому персоналу отслеживать состояние пациента, включая ЭКГ, ЭЭГ, давление крови и растворение газов в крови.

Диагностическое оборудование, включая медицинские оборудование для получения изображений. Например, аппараты для УЗИ, ядерного магнитного резонанса, компьютерные томографы, эмиссионные томографы, и рентгеновские аппараты.

Хирургическое оборудование включает в себя: операционный стол, операционный светильник, подвесные потолочные консоли, медицинский аспиратор.

Эндохирургические лапароскопические видеокомплексы и оборудование, предназначенное для диагностики, лечения внутриполостных, внутриартериальных и др. областей организма.

Медицинское лабораторное оборудование автоматизирует анализы крови, мочи, и генов.

Оборудование для транспортировки пациента включается в себя: медицинскую каталку, перекладчики пациентов.

Оборудование для вызова медицинского персонала (палатная сигнализация/система вызова персонала) осуществляет передачу вызовов из больничных палат на дежурные посты медицинского персонала с текстовой, оптической и акустической идентификацией точек вызова и типов вызывных сигналов.

7.4 Text 4 Biomedical engineering training

7.4.1 Read and translate the text

Biomedical engineers combine sound knowledge of engineering and biological science, and therefore tend to have a bachelors of science and advanced degrees from major universities, who are now improving their biomedical engineering curriculum because interest in the field is increasing. Many colleges of engineering now have a biomedical engineering program or department from the undergraduate to the doctoral level. Traditionally, biomedical engineering has been an interdisciplinary field to specialize in after completing an undergraduate degree in a more traditional discipline of engineering or science, the reason for this being the requirement for biomedical engineers to be equally knowledgeable in engineering and the biological sciences. However, undergraduate programs of study combining these two fields of knowledge are becoming more widespread, including programs for a Bachelor of Science in Biomedical Engineering. As such, many students also pursue an undergraduate degree in biomedical engineering as a foundation for a continuing

education in medical school. Though the number of biomedical engineers is currently low (as of 2004, under 10,000 in the U.S.), the number is expected to rise as modern medicine and technology improves.

In the U.S., an increasing number of undergraduate programs are also becoming recognized by ABET as accredited bioengineering/biomedical engineering programs. Over 40 programs are currently accredited by ABET.

As with many degrees, the reputation and ranking of a program may factor into the desirability of a degree holder for either employment or graduate admission. The reputation of many undergraduate degrees are also linked to the institution's graduate or research programs, which have some tangible factors for rating, such as research funding and volume, publications and citations.

Graduate education is also an important aspect in BME. Although many engineering professions do not require graduate level training, BME professions often recommend or require them. Since many BME professions often involve scientific research, such as in the pharmaceutical and medical device industries, graduate education may be highly desirable as undergraduate degrees typically do not provide substantial research training and experience.

Graduate programs in BME, like in other scientific fields, are highly varied and particular programs may emphasize certain aspects within the field. They may also feature extensive collaborative efforts with programs in other fields, owing again to the interdisciplinary nature of BME.

Education in BME also varies greatly around the world. By virtue of its extensive biotechnology sector, numerous major universities, and few internal barriers, the U.S. has progressed a great deal in the development of BME education and training. Europe, which also has a large biotechnology sector and an impressive education system, has encountered trouble in creating uniform standards as the European community attempts to bring down some of the national barriers that exist. Recently, initiatives such as BIOMEDEA have sprung up to develop BME-related education and professional standards. Other countries, such as Australia, are recognizing and moving to correct deficiencies in their BME education. Also, as high technology endeavors are usually marks of developed nations, some areas of the world are prone to slower development in education, including in BME.

ABET, Inc., formerly the Accreditation Board for Engineering and Technology, is a non-profit organization that serves the public by accrediting United States postsecondary degree programs in applied science, computing, engineering, and technology. Accreditation is intended to certify the quality of these programs. There are over 2,800 programs accredited at over 600 colleges and universities in the U.S.

ABET is the recognized U.S. accreditor of college and university programs in applied science, computing, engineering, and technology. ABET also provides leadership internationally through workshops, consultancies, memoranda of understanding, and mutual recognition agreements, such as the Washington Accord. ABET has been recognized by the Council for Higher Education Accreditation (CHEA) since 1997.

7.4.2 Write out of the text all sentences expressing the main ideas of the text; condense them in any possible way

7.4.3 Give the short content of the text

7.5 Revise grammar material in appendix (см.приложение Б)

7.5.1 Insert the appropriate form of the Infinitive

1 But there was nothing now … for. (to wait) 2 She put on the cape, and turned round … (to admire) 3 He appeared … (to listen) 4 He appeared … plenty of money, which was said … in the Californian goldfields. (to have, to gain) 5 When I seemed … a long while, the Master of Salem House unscrewed his. flute into the three pieces, put them up as before, and took me away, (to doze) 6 Every feature seemed … since he saw he last, (to sharpen) 7 This fellow seemed … a famous explorer or something of that sort, (to be) 8 The house appeared … recently... (to repair) 9 Nobody seemed …, his entry, but there he certainly was. (to perceive) 10 Paula would be the first concentration camp… by American troops, (to liberate) 11 Willoughby was not the man … the lessons of his predecessor.(to overlook) 12 A twelve year old girl, Patience Barlow, was the first … his attention or … by him. (to attract, to attract) 13 One might guess Mr. George … a trooper once upon a time, (to be) 14 I suppose Mr. Jelleby had been more talkative and lively once; but he seemed … long before. 1 knew him. (to exhaust). 15 Dave seemed … Stephanie, waiting for her to make the first move. (to watch)

7.5.2 Insert to before the Infinitive where required. Translate these sentences into Russian

1 Do you think I plan … spend the rest of my life in the same situation? 1 Would rather … die 2 She could not help but … feel a little choked for breath. 3 Why not … come down to my place? 4 He gave a quick grin that made his lean twisted face … look more lean and twisted than ever. 5 Ever since I came into this silly house I have been made … look like a fool. 6 He did nothing from morning till night but … wander at random. 7 I'm the cook, and I won't have anyone … come interfering in my kitchen. 8 Abe let the hammer … drop out of his hands and … fall on the step. 9You'd better … take me back to Oxford. 10 They ought. … have asked my advice. They ought … have. 11 The poor boy was absolutely broken up. It made my heart … bleed. I couldn't …let him … go without a word of comfort. 12 I've got nothing … do but … talk, talk. 13 I would …die sooner than … ask him for another penny. 14 Your mother's gone to some friends - they do nothing but … play bridge. 15 I know... there's nobody in the world I would rather …work with or … have greater respect for.

7.5.3 Translate into English, using the to-infinitive or the bare Infinitive

1 Я чувствовал, что его рассказ правдив. 2 Я почувствовал, что кто-то тронул меня за плечо. 3 “Вы выглядите утомленным, вы бы лучше пошли домой”. “Нет, я бы предпочел закончить работу”. 4 Почему бы не поговорить с деканом? 5 Ему ничего не оставалось делать, как признать свою вину (to admit one's fault). 6 Она только и делает, что ворчит. 7 Я не могу не согласиться с вами. 7 Степан Аркадьевич тонко (subtly) улыбался. Левин тоже не мог не улыбнуться. 8 Надевайте же коньки, и давайте кататься вместе. 9 Что ж, он прекрасный жених (match)... Зачем не выйти за него?... 10 .Я три дня занимался только тем, что... наслаждался чтением какого-нибудь романа... 11 Ты опять заснешь, Николенька? - говорит мне мама. - Ты бы лучше шел наверх. 12 Я никогда не видел (to know), чтобы ты сказал неправду. 13. Я не мог не подивиться странному сцеплению (chain) обстоятельств.

7.5.4 State the Junction or the Infinitive. Translate these sentences into Russian

1 A man must have something bigger than himself to believe in. 2 It was impossible not to invite the Smiths for both afternoon and evening. 3 The heat and dust were enough to strangle you. 4 To cut a long story short, the infant that's just gone out of the room is not your son. 5 The next thing to be done is to move away from this house. 6 All the deep maternity in her awoke, never to sleep again. 7 He paused as if to find a way to phrase his next thoughts. 8 Nobody asked you to come out here. 1 didn't ask you to stay. I told you to go while it was daylight. 9 It was too hot to go out into the town. 10 The prospective buyer is someone who is not, to put it mildly, a supporter of female emancipation. To consent to this sale would be to consent to change the character of the newspaper altogether.

7.5.5 Define the functions of the Infinitive in these sentences and translate them

1 To develop a new submersible craft with a manipulator is not an easy task.

2 To develop the supercomputer, highly developed electronics and new materials were required.

3 One of the best ways to keep the car speed steady is to use a computer.

4 Experiments helped Mendeleev to discover the properties of new chemical elements.

5 Francis Chichester was the first to sail round the world by himself.

6 Some materials with new useful properties may be produced in space.

7 A special electronic device signals the engine to stop.

8 Radar may control the brakes to avoid collisions with other cars.

9 High temperature alloys make it possible for jet engines to be operating under severe conditions for a long period of time.

10 Recently a radar to be mounted on cars has been developed.

11 In a new Japanese car the information to be received by the driver will come through a navigation earth satellite.

12 To help helicopters and aircraft find the capsule, its upper part is covered with special paint which can be detected by radar.

13 To detect objects at a distance such as ships, aircrafts, buildings, mountains, etc. is of great importance for navigation both at sea and in air.

7.5.6 Find the Infinitive and translate the sentences

1 Hundreds of radio navigation stations watch the airplanes find their destination and land safely.

2 Twice a year people see birds fly south and north, but we don't know how they find their way.

3 At the Paris Exhibition people watched the cargo airplane “Ruslan” carry a great amount of cargo.

4 When you stand near a working engine you feel it vibrate.

5 Making experiments with electric telegraph Morse noticed a pencil make a wavy line when connected to an electric wire.

6 Nowadays people watch on television cosmonauts work in space, “Lunokhod” move on the surface of the Moon and Olympic games take place on the other side of the globe.

7.5.7 Translate the sentences in written form

1 A force applied to a body causes it to move in a straight line.

2 The unsatisfactory results of Bell's experiments forced him to change the method of testing.

3 The excellent properties of Damascus steel made metallurgists of the whole world look for the lost secret of the steel.

4 Very high temperatures often cause certain materials to break.

5. Bad weather conditions make pilots switch over to automatic control.

7.5.8Translate the sentences paying attention on the Infinitive + for

1 It was the only thing for us to do.

2 The students were waiting for the lecturer to describe the properties of a new composite material.

3 It is for you to decide which of the two methods to use.

4 It is necessary for the students to know the properties of various alloys.

5 A system of satellites is provided for people to watch the central TV program.

8 Section 8 Different types of health care institutions in Europe

8.1 Text 1 Health care

8.1.1 Read and translate the following text

Health care in the United States is provided by many separate legal entities. Including private and public spending, more is spent per person on health care in the United States than in any other nation in the world. A study of international health care spending levels published in the health policy journal Health Affairs in the year 2000, found that while the U.S. spends more on health care than other countries in the Organization for Economic Co-operation and Development (OECD), the use of health care services in the U.S. is below the OECD median by most measures. The authors of the study conclude that the prices paid for health care services are much higher in the U.S. In 1996, 5% of the population accounted for more than half of all costs.

Active debate over health care reform in the United States concerns questions of a right to health care, access, fairness, efficiency, cost, and quality. The World Health Organization (WHO), in 2000, ranked the U.S. health care system as the highest in cost, first in responsiveness, 37th in overall performance, and 72nd by overall level of health (among 191 member nations included in the study). The WHO study has been criticized in a study published in Health Affairs for its methodology and lack of correlation with user satisfaction ratings. A 2008 report by the Commonwealth Fund ranked the United States last in the quality of health care among the 19 compared countries. However, the U.S. is a leader in medical innovation, with three times higher per-capita spending than Europe. The U.S. also has higher survival rates than most other countries for certain conditions, such as some less common cancers.

As a proportion of GDP, public health care spending in the United States is larger than in most other large Western countries. On top of that, there is substantial expenditure paid from private insurances. According to the Institute of Medicine of the National Academy of Sciences, the United States is the "only wealthy, industrialized nation that does not ensure that all citizens have coverage" (i.e. some kind of insurance).

8.1.2 Write out key words from this text which can be used to speak about Health care in the USA

8.2 Text 2 Health care providers

8.2.1 Read and translate this text

In the United States, ownership of the health care system is mainly in private hands, though federal, state, county, and city governments also own certain facilities.

The non-profit hospital's share of total hospital capacity has remained relatively stable (about 70%) for decades. There are also privately owned for-profit hospital as well as government hospitals in some locations, mainly owned by county and city governments.

There is no nationwide system of government-owned medical facilities that is open to the general public. The federal Department of Defense operates field

hospitals as well as permanent hospitals (the Military Health System), to provide military-funded care to active military personnel. The federal Veterans Health Administration operates VA hospitals open only to veterans, though veterans who seek medical care for conditions they did not receive while serving in the military are charged for services. The Indian Health Service operates facilities open only to Native Americans from recognized tribes. These facilities, plus tribal facilities and privately contracted services funded by IHS to increase system capacity and capabilities, provide medical care to tribes people beyond what can be paid for by any private insurance or other government programs.

Hospitals provide some outpatient care in their emergency rooms and specialty clinics, but primarily exist to provide inpatient care. Hospital emergency departments and urgent care centers are sources of sporadic problem-focused care. “Surgicenters” are examples of specialty clinics. Hospice services for the terminally ill who are expected to live six months or less are most commonly subsidized by charities and government. Prenatal, family planning, and “dysplasia” clinics are government-funded obstetric and gynecologic specialty clinics respectively, and are usually staffed by nurse practitioners.

In the United States, doctors and hospitals are generally funded by payments from patients and insurance plans in return for services rendered.

Around 84.7% of citizens have some form of health insurance; either through their employer or the employer of their spouse or parent (59.3%), purchased individually (8.9%), or provided by government programs (27.8%; there is some overlap in these figures). All government health care programs have restricted eligibility, and there is no national system of health insurance which guarantees that all citizens have access to health care. Americans without health insurance coverage at some time during 2007 totaled about 15.3% of the population, or 45.7 million people.

Among those whose employer pays for health insurance, the employee also usually contributes part of the cost of this insurance, while the employer usually chooses the plan and, for large groups, negotiates with the insurance company. In 2004, private insurance paid for 36% of personal health expenditures, private out-of-pocket 15%, federal government 34%, state and local governments 11%, and other private funds 4%.Insurance for dental and vision care is usually sold separately, and prescription drugs are often handled differently than medical services, including by the government programs. Major federal laws regulating the insurance industry include COBRA and HIPAA.

Individuals with private or government insurance must generally find a medical facility which accepts the particular type of medical insurance they carry. Visits to facilities outside the insurance program's "network" are usually either not covered or the patient must bear more of the cost (usually waived for emergencies). Hospitals and doctors negotiate with insurance programs to set reimbursement rates; some rates for government insurance programs are set by law. The sum paid to a doctor for a service rendered to an insured patient is generally less than that paid "out of pocket" by an uninsured patient. In return for this discount, the insurance company includes the doctor as part of their “network”, which means more patients are eligible for

lowest-cost treatment there. The negotiated rate may not cover the cost of the service, but hospitals and doctors can refuse to accept a given type of insurance, including Medicare and Medicaid. Low reimbursement rates have generated complaints from providers, and some patients with government insurance have difficulty finding nearby providers for certain types of medical services.

Charity care for those who cannot pay is sometimes available from any given medical facility, and is usually funded by non-profit foundations, religious orders, government subsidies, or services donated by the employees. Massachusetts and New Jersey have programs where the state will pay for health care when the patient cannot afford to do so. The City of San Francisco is also implementing a citywide health care program for all uninsured residents, initially available to those whose incomes are below an eligibility threshold. Some cities and counties operate or provide subsidies to private facilities open to all regardless of the ability to pay, but even here patients who can afford to pay or who have insurance are generally charged for the services they use.

The Emergency Medical Treatment and Active Labor Act requires virtually all hospitals to accept all patients, regardless of the ability to pay, for emergency room care. This does not provide patients who cannot afford to pay for health care access to non-emergency care, nor does it provide the benefit of preventive care and the continuity of a primary care physician. This is also generally more expensive than an urgent care clinic or a doctor's office visit, especially if an condition has worsened due to putting off needed care. Emergency rooms are typically at, near, or over capacity. Long wait times have become a problem nationally, and in urban areas some ERs are put on "diversion" on a regular basis, meaning that ambulances are directed to bring patients elsewhere.

The government subsidizes employer-paid health care by exempting employer contributions from taxation as income. The value of this tax subsidy is an estimated $150 billion a year. Government programs directly cover 27.8% of the population (83 million), including the elderly, disabled, children, veterans, and some of the poor, and federal law mandates public access to emergency services regardless of ability to pay. U.S. government programs accounted for over 45% of health care expenditures, making the U.S. government the largest insurer in the nation. Per-capita spending on health care by the U.S. government placed it among the top ten highest spenders among United Nations member countries in 2004.

Federally funded programs include:

-Medicare, generally covering citizens and long-term residents 65 years and older.

-Medicaid, generally covering low income people in certain categories, including children, pregnant women, and the disabled. (Administered by the states).

-State Children's Health Insurance Program, which provides health insurance for low-income children who do not qualify for Medicaid. (Administered by the states, with matching state funds).

-Various programs for federal employees, including TRICARE for military personnel (for use in civilian facilities)

-The Veterans Administration, which provides care to veterans, their families, and survivors through medical centers and clinics.

There are also various state and local programs for the poor. In 2007, Medicaid provided health care coverage for 39.6 million low-income Americans (although Medicaid covers approximately only 40% of America's poor), and Medicare provided health care coverage for 41.4 million elderly and disabled Americans. Enrollment in Medicare is expected to reach 77 million by 2031, when the baby boom generation is fully enrolled.

It has been reported that the number of physicians accepting Medicaid has decreased in recent years due to relatively high administrative costs and low reimbursements. In 1997, the federal government also created the State Children's Health Insurance Program (SCHIP), a joint federal-state program to insure children in families that earn too much to qualify for Medicaid but cannot afford health insurance. SCHIP covered 6.6 million children in 2006, but the program is already facing funding shortfalls in many states. The government has also mandated access to emergency care regardless of insurance status and ability to pay through the Emergency Medical Treatment and Labor Act (EMTALA), passed in 1986, but EMTALA is an unfunded mandate.

8.2.2 Write out of the text all sentences expressing the main ideas of each logical part

8.2.3 Retell each part of the text using the sentences from exercise

8.2.4 Discuss with your friends the modern problems of health care in the USA

8.3 Text 3 Health care institutions in Russia

8.3.1 Read and translate this text

In Russia general practitioners are prevalent in the thinly populated rural areas. Pediatricians deal with children up to about age 15.Internists look after the medical ills of adults, and occupational physician deal with the workers, sharing care with internists Teams of physicians with experience in varying specialties work from polyclinics or outpatient units, where many types of diseases are treated. Small towns usually have one polyclinic to serve all purposes. Large cities commonly have separate polyclinics for children and adults, as well as clinics with specializations such as women's health care, mental illnesses, and sexually transmitted diseases. Polyclinics usually have X-ray apparatus and facilities for examination of tissue specimens, facilities associated with the departments of the district hospital. Beginning in the late 1970swas a trend toward the development of more large, multipurpose treatment centres, first-aid hospitals, and specialized medicine and health care centres. Home visits have traditionally been common, and much of the physician's time is spent in performing routine checkups for preventive purposes.

Some patients in sparsely populated rural areas may be seen first by feldshers (auxiliary health workers), nurses, or midwives who work under the supervision of a polyclinic or hospital physician. The feldsher was once a lower-grade physician in the army or peasant communities, but feldshers are now regarded as paramedical workers.

8.3.2 Express the main ideas of the text

8.3 3 Compare the health care problems in the USA and Russia

8.4 Text 4 Family health care

8.4.1 Read and translate the text

In many societies special facilities are provided for the health care of pregnant women mothers, and their young children. The healthcare needs of these three groups, are generally recognized to be so closely related as to require a highly integrated service that includes prenatal care, the birth of the baby. The postnatal period, and the needs of the infant. Such a continuum should be followed by a service attentive to the needs of young children and then by a school health service. Family clinics are common in countries that have state-sponsored health services, such as those in the United Kingdom and elsewhere in Europe. Family health care in some developed countries, such as the United States, is provided for low-income groups by state subsidized facilities, but other groups defer to private physicians or privately run clinics.

Prenatal clinics provide a number of elements. There is first, the care of the pregnant woman, especially if she is in a vulnerable group likely to develop some complication during the last few weeks of pregnancy and subsequent delivery. Many potential hazards, such as diabetes and high blood pressure, can be identified and measures taken to minimize their effects. In developing countries pregnant women are especially susceptible to many kinds of disorders, particularly infections such as malaria. Local conditions determine what special precautions should he taken to ensure a healthy child. Most pregnant women, in their concern to have a healthy child, are receptive to simple health education. The prenatal clinic provides an excellent opportunity to teach the mother how to look after herself during pregnancy, what to expect at delivery, and how to care for her baby. If the clinic is attended regularly, the woman's record will be available to the staff that will later supervise the delivery of the baby: this is particularly important for someone who has been determined to be at risk. The same clinical unit should be responsible for prenatal, natal, and postnatal care as well as for the care of the newborn infants.

Most pregnant women can be safely delivered in simple circumstances without an elaborately trained staff or sophisticated technical facilities, provided that these can be called upon in emergencies. In developed countries it was customary in premodern times for the delivery to take place in the woman's home supervised by a qualified midwife or by the family doctor. By the mid - 20th century women,

especially in urban areas, usually preferred to have their babies in a hospital, either in a general hospital or in a more specialized maternity hospital. In many developing countries traditional birth attendants supervise the delivery. They are women, for the most part without formal training, who have acquired skill by working with others and from their own experience. Normally they belong to the local community where they have the confidence of the family, where they are content to live and serve, and where their services are of great value. In many developing countries the better training of him attendants has a high priority. In developed Western countries there has been a trend toward delivery by natural childbirth, including delivery in a hospital without anesthesia, and home delivery.

Postnatal care services are designed to supervise the return to normal of the mother. They are usually given by the staff of the same unit that was responsible for the delivery. Important considerations are the mailer of breast- or artificial feeding and the care of the infant. Today the prospects for survival of babies born prematurely or after a difficult and complicated labour, as well as for neonates (recently born babies) with some physical abnormality, are vastly improved. This is due to technical advances, including those that can determine defects in the prenatal stage, as well as to the growth of neonatology as a specialty. A vital part of the family health-care service is the child welfare clinic, which undertakes the care of the newborn. The first step is the thorough physical examination of the child on one or more occasions to determine whether or not it is normal both physically and, if possible, mentally. Later periodic examinations serve to decide if the infant is growing satisfactorily. Arrangements can be made for the child to be protected from major hazards by, for example, immunization and dietary supplements. Any in the current condition, such as a chest infection or skin disorder, can be detected early and treated. Throughout the whole of this period mother and child are together, and particular attention is paid to the education of the mother for the care of the child. A pan of the health service available to children in the developed countries is that devoted to child guidance. This provides psychiatric guidance to maladjusted children usually through the cooperative work of a child psychiatrist, educational psychologist, and schoolteacher.

8.4.2 Give your own opinion about family health care

8.4 3 What do you know about the health care in Russia?

8.4.4 Compare family health care in our country and in the USA

8.4.5 Translate the following text from Russian into English

Санкт-Петербургский медико-технический колледж Федерального агентства по здравоохранению и социальному развитию имеет лицензию на право ведения образовательной деятельности в сфере профессионального образования от 25 октября 1999 г., № 4070-К87 и проводит обучение по специальности 060111 “Медицинская оптика”, квалификации - техник-оптик

(срок обучения - 2 года 10 месяцев), оптик-оптометрист (срок обучения - 3 года 10 месяцев).

Колледж осуществляет повышение квалификации и переподготовку по данной специальности с выдачей удостоверения, свидетельства или диплома государственного образца.

8.5 Text 5 Moorfields Eye Hospital NHS Foundation Trust

8.5.1 Read and translate the text

Moorf ields Eye Hospital NHS Foundation Trust is a National Health Service eye hospital in central London. It is in the London Borough of Islington, on City Road, and is close to Old Street station. Together with the University College London (UCL) Institute of Ophthalmology, which is adjacent to the Hospital, it forms the world's largest site for eye care and research. Moorfields Eye Hospital NHS Foundation Trust is a member of the UCL Partners academic health science centre.

The Trust employs over 1200 people across its eleven sites of operation. 24,000 ophthalmic operations are carried out yearly and over 260,000 patients are seen at the hospital annually.

The hospital is the oldest and largest eye hospital in the world and is internationally renowned for its comprehensive clinical and research activities. The hospital is a major international tertiary care and training centre in ophthalmology, with over half of ophthalmologists in the UK having received specialist training at the hospital. In addition, scores of leading ophthalmologists world-wide have trained at Moorfields.

The hospital was founded on the Moorfields in 1805 as the London Dispensary for curing diseases of the Eye and Ear, by John Cunningham Saunders, assisted by John Richard Farre. It moved to its present site in 1899, and was nationalised in 1948. These anniversaries gave it the unusual ability to celebrate a centenary in 1999 and a bicentenary in 2005.

The hospital also runs 10 outreach clinics in other parts of London including Ealing, Tooting, Mile End and Tottenham.

In February 2007, the new Richard Desmond Children's Eye Centre (RDCEC) (Also known as the International children's eye centre), built adjacent to the main city road site was opened.

Today Moorfields Eye Hospital is a major centre for postgraduate training of ophthalmologists, optometrists, and nurses. It has also played a pivotal role in ophthalmic research. Sir Stewart Duke-Elder founded the Institute of Ophthalmology (now an integral part of University College London), and many key individuals, such as Sir Harold Ridley, Charles Schepens, Norman Ashton, Shomi S. Bhattacharya, Allen Foster, Gordon Johnson and Raymond Lund have carried out their research at Moorfields and the Institute. As of 2005, major ophthalmic research programmes at Moorfields were led by Professors Robin Ali, Shomi S. Bhattacharya, Alan C Bird, Fred Fitzke, John Greenwood, Roger Hitchings, Peng T. Khaw, Phil Luthert, Susan Lightman, Tony Moore, Steve Moss, Santa J. Ono and Gary 5. Rubin.

8.5.2 Explain in Russian the meaning of the following words

National Health
Service Eye Hospital;
London Borough of Islington;
University College London;
London Dispensary;
Richard Desmond Children's Eye Center;
International Children's Eye Center.

8.5.3 Read the text again and say what you have learned from it

8.6 Revise grammar material in appendix (см.приложение Б)

8.6.1 Put the verbs in brackets into correct forms

1 If I see him I (give) him a lift. 2 The table will collapse if you (stand) on it. 3 If he (eat) all that he will be ill. 4 If I find your passport I (telephone) you at once. 5 The police (arrest) him if they catch him. 6 If he (read) in bad light he will ruin his eyes.7 Someone (steal) your car if you leave it unlocked. 8 What will happen if my parachute (not open)? 9 If he (wash) my car I'll give him $10. 10 If she (need) a radio she can borrow mine. 11 If you (not go) away I'll send for the police. 12 I'll be very angry if he (make) any more mistakes. 13 If he (be) late we'll go without him. 14 She will be absolutely furious if she (hear) about this. 15 If you put on the kettle I (make) the tea.

8.6.2 Put the verbs in brackets into the correct forms

1 If I had a typewriter I (type) it myself. 2 If I (know) his address I'd give it to you.3 He (look) a lot better if he shaved more often. 4 If he worked more slowly he (not make) so many mistakes. 5 I shouldn't drink that wine if I (be) you .6 More tourists would come to this country if it (have) a better climate. 7 If I were sent to prison you (visit) me? 8 If someone (give) you a helicopter what would you do with it? 9 I (buy) shares in that company if I had some money. 10 If you drove your car into the river you (be able) to get out? 11If I (win) a big prize in a lottery I'd give up my job. 12 What you (do) if you found a burglar in your house? 13 I could tell you what this means if I (know) Greek. 14 If everybody (give) J1 we would have enough. 15 He might get fat if he (stop) smoking.

8.6.3 Put the verbs in brackets into the correct forms

1 If I had known that you were at hospital I (visit) you. 2 If you (arrive) ten minutes earlier you would have got a seat. 3 You would have seen my garden at its best if you (be) here last week. 4 I shouldn't have believed it if I (not see) it with my own eyes. 5 If he had slipped he (fall) 500 meters. 6 If he had asked you, you

(accept)? 7 If I (have) a map I would have been all right. 8 If I (know) that you were coming I'd have baked a cake. 9 I (offer) to help him if I had realized that he was ill. 10 If you had told me that he never paid his debts I (not lend) him the money. 11 If you (put) some mustard in the sandwiches they would have tasted better. 12 If he had known that the river was dangerous he (not try) to swim across it. 13 If you (speak) more slowly he might have understood you. 14 If he had known the whole story he (not be) so angry. 15 If I (try) again I think that I would have succeeded.

8.6.4 Put the verbs in brackets into the correct forms

1 If you pass your examination we (have) a celebration. 2 What (happen) if I press this button? 3 You would play better bridge if you (not talk) so much. 4 If I had known that you couldn't eat meat I (not buy) it. 5 If you go to Paris where you (stay)? 6 If someone offered to buy you one of those rings, which you (choose)? 7 The flight may be cancelled if the fog (get) thick. 8 If you (read) the instructions carefully you wouldn't have answered the wrong question. 9 If the milkman (come), tell him to leave two pints. 10 If you were made redundant what you do? 11 Someone (sit) on your glasses if you leave them there. 12 You (not have) so many accidents if you drove more slowly. 13 If you (wear) a false beard nobody would have recognize you. 14 I could repair the roof myself if I (have) a long ladder. 15 I'll probably get lost unless he (come) with me.

8.6.5 Translate from Russian into English

1 Если завтра будет сильный мороз, мы не пойдем на лыжах.2 Интересно придет ли он. Если он придет, он будет очень удивлен.3 Она будет волноваться, если ты не позвонишь ей. 4 Если я найду ее адрес, я напишу ей. 5 Они получат письмо в понедельник, если оно будет отослано сегодня.6 Он с удовольствием придет, если его пригласят. 7 Если я буду свободен завтра вечером, я навещу своих родителей. 8 Если он будет работать, когда вы вернетесь, посоветуйте ему лечь спать.9 Если он не приедет завтра, пошлите ему телеграмму.10 Она рассердится, если ты сделаешь это.11 Если у тебя есть время, позвони Ане.12 Я думаю, если ей предложат эту работу, она согласится.13Если вы будете усердно работать, то к концу дня закончите работу.14 Ты не станешь хорошим спортсменом, если не будешь много тренироваться.15 Его родители будут рады, если он женится на ней.

8.6.6 Translate from Russian into English

1 Если бы вы знали грамматику лучше, вы бы не делали столько ошибок в ваших упражнениях. 2 Если бы он сейчас был здесь, он, конечно, помог бы нам. 3 Если бы не было так поздно, я бы позвонил ей сейчас. 4 Если бы она была более терпеливой, с ней легче было бы иметь дело. 5 Я бы зашел к тебе на следующей неделе, если бы у меня было время. 6 На вашем месте я бы провел отпуск на юге. Я уверен, это пошло бы вам на пользу. 7 Вы бы чувствовали

себя лучше, если бы проводили больше времени на свежем воздухе. 8 Если бы ты действительно любил читать, ты бы всегда нашел время для чтения . 9 Если бы у него сейчас были занятия, нам пришлось бы долго ждать. 10 Вы бы не опаздывали на занятия, если бы выходили из дома на 10 минут раньше. 11 Не будь он таким ленивым, он был бы одним из первых учеников класса. 12 Если бы у нас было меньше багажа, мы могли бы пойти пешком на вокзал, так как у нас достаточно времени, чтобы успеть на поезд. 13 Она бы не теряла вещи так часто, если бы не была такой рассеянной. 14 На твоем месте я бы приняла это предложение. 15 Если бы вы знали его лучше, вы бы не думали о нем так плохо.

8.6.7 Translate from Russian into English

1 Если бы ты мне оставил записку, я бы зашел к тебе вчера. 2 Мы бы не опоздали на поезд, если бы взяли такси. 3 Если бы я не был так занят на прошлой неделе, я бы тоже присоединился к вашей экскурсии. 4 Если бы он не отказался помочь нам, мы бы уже закончили работу. 5 Если бы ее попросили, она давно прислала бы эти книги. 6 Если бы вчера не было так холодно, мы, возможно, пошли бы на каток. 7 Мы, возможно, не заблудились бы, если бы ночь не была такой темной. 8 Если бы ты пришел вчера на собрание, ты бы услышал интересный доклад. 9 Если бы я знал, что тебе нужна эта книга, я бы захватил ее с собой. 10 Я бы не сделал эту ошибку, если бы был более внимателен, когда писал диктант. 11 Даже если бы ты позвонил мне вчера, я бы не смог придти. 12 Я бы не упал, если бы не было так скользко. 13 Он бы не пришел, если бы ты его не пригласил. 14 Мне потребовалось много времени, чтобы перевести эту статью. Если бы вы дали мне хороший словарь, я бы потратил меньше времени. 15 Я был бы очень рад, если бы вы зашли к нам вчера.

9 Section 9 Optical technologies

9.1 Text 1 Optical technology

9.1.1 Read and translate the text

One of the most interesting developments in telecommunication is the rapid progress of optical communication where optical fibers are replacing conventional telephone wires and cables. Just as digital technologies greatly improved the telephone system, optical communication promises a considerable increase in capacity, quality, performance and reliability of the global telecommunication network. New technologies such as optical fibers will increase the speed of telecommunication and provide new, specialized in-information service. Voice, computer data, even video images, will be increasingly integrated into a single digital communication network capable of processing and transmitting virtually any kind of information.

It is a result of combining two technologies: the laser first demonstrated in I960, and the fabrication 10 years later of ultra-thin silicon fibres which can serve as lightwave conductors. With the further development of very efficient lasers plus continually improved techniques to produce thin silica fibres of incredible transparency, optical systems can transmit pulses of light as far as 135 kilometers without the need for amplification or regeneration.

At present high-capacity optical transmission systems are being installed between many major US cities at a rapid rate. The system most widely used now operates at 147 megabits (thousand bits) per second and accommodates 6,000 circuits over a single pair of glass fibres (one for each direction of transmission). This system will soon be improved to operate at 1.7 gigabits (thousand million bits) per second and handle 24,000 telephone channels simultaneously.

A revolution in information storage is underway with optical disk technology.

The first digital optical disks were produced in 1982 as compact disks for music. They were further developed as a storage medium for computers. The disks are made of plastics coated with aluminium. The information is recorded by using a powerful laser to imprint bubbles on the surface of the disk. A less powerful laser reads back the pictures, sound or information. An optical disk is almost indestructible and can store about 1000 times more information than a plastic disk of the same size.

One CD-ROM disk (650 MB) can replace 300,000 pages of text (about 500 floppies), which represents a lot of savings in databases.

The future of optical storage is called DVD (digital versatile disk). A DVD-ROM can hold up to 17 GB, about 25 times an ordinary CD-ROM. For this reason, it can store a large amount of multimedia software and complete full-screen Hollywood movies in different languages. However, DVD-ROMs are “read-only” devices. To avoid this limitation, companies also produce DVD rewritable drives.

Besides, it is reported that an optical equivalent of a transistor has been produced and intensive research on optical electronic computers is underway at a number of US companies as well as in countries around the world.

It is found that optical technology is cost-effective and versatile. It finds new applications every day - from connecting communication equipment or computers within the same building or room to long-distance transcontinental, transoceanic and space communications.

9.1.2 Find in the text information about the advantages of optical fibers

9.1.3 Speak about the practical usage of optical technologies

9.1.4 Compare the facts in the text with the following dates: 1960, 1970, and 1982. Tell about it in English

9.2 Text 2 Optics

9.2.1 Read and translate the text

Optics is the study of the behavior and properties of light including its interactions with matter and its detection by instruments. The word “optics” means appearance or look in ancient Greek.

Optics usually describes the behavior of visible, infrared, and ultraviolet light; however because light is an electromagnetic wave, similar phenomena occur in X-rays, microwaves, radio waves, and other forms of electromagnetic radiation and analogous phenomena occur with charged particle beams. Since the discovery by James Clerk Maxwell that light is electromagnetic radiation, optics has largely been regarded in theoretical physics as a sub-field of electromagnetism. Some optical phenomena depend on the quantum nature of light relating some areas of optics to quantum mechanics. In practice, the vast majority of optical phenomena can be accounted for using the classical electromagnetic description of light, as described by Maxwell's equations, resorting to phenomenological rules (e.g. Beer's Law, constitutive equations) to describe the interaction of light with matter. Even when still completely classical, complete electromagnetic descriptions of optical behavior are often difficult to apply to practical problems. This is why particular simplified models are used instead, notably those of geometrical optics and physical optics. These limited models adequately describe large subsets of optical phenomena while ignoring behavior that is insignificant for the system of interest.

The pure science of optics is called optical science or optical physics to distinguish it from applied optical sciences, which are referred to as optical engineering. Prominent subfields of optical engineering include illumination engineering, photonics, and optoelectronics. Some of these fields overlap, with nebulous boundaries between the subjects’ terms that mean slightly different things in different parts of the world and in different areas of industry. A professional community of researchers in nonlinear optics has developed in the last several decades due to advances in laser technology.

Optical science is relevant to and studied in many related disciplines including electrical engineering, psychology, and medicine (particularly ophthalmology and optometry).

Before quantum optics became important, optics consisted mainly of the application of classical electromagnetism and its high frequency approximations to light. Classical optics divides into two main branches: geometric optics and physical optics.

Geometric optics, or ray optics, describes light propagation in terms of “rays”. Rays are bent at the interface between two dissimilar media, and may be curved in a medium in which the refractive index is a function of position. The “ray” in geometric optics is an abstract object, or “instrument,” which is perpendicular to the wavefronts of the actual optical waves (therefore collinear with the wave vector). Geometric optics provides rules for propagating these rays through an optical system, which indicates how the actual wavefront will propagate. This is a significant simplification of optics, and fails to account for many important optical effects such as diffraction and polarization. It is a good approximation, however, when the

wavelength is very small compared with the size of structures with which the light interacts. Geometric optics can be used to describe the geometrical aspects of imaging, including optical aberrations.

Geometric optics is often simplified even further by making the paraxial approximation, or “small angle approximation.” The mathematical behavior then becomes linear, allowing optical components and systems to be described by simple matrices. This leads to the techniques of Gaussian optics and paraxial raytracing, which are used to find first-order properties of optical systems, such as approximate image and object positions and magnifications. Gaussian beam propagation is an expansion of paraxial optics that provides a more accurate model of coherent radiation like laser beams. While still using the paraxial approximation, this technique partially accounts for diffraction, allowing accurate calculations of the rate at which a laser beam expands with distance, and the minimum size to which the beam can be focused. Gaussian beam propagation thus bridges the gap between geometric and physical optics.

Physical optics or wave optics builds on Huygens's principle and models the propagation of complex wavefronts through optical systems, including both the amplitude and the phase of the wave. This technique, which is usually applied numerically on a computer, can account for diffraction, interference, and polarization effects, as well as other complex effects. Approximations are still generally used, however, so this is not a full electromagnetic wave theory model of the propagation of light. Such a full model is much more computationally demanding, but can be used to solve small-scale problems that require this more accurate treatment.

Modern optics encompasses the areas of optical science and engineering that became popular in the 20th century. These areas of optical science typically relate to the electromagnetic or quantum properties of light but do include other topics.

Quantum optics deals with specifically quantum mechanical properties of light. Quantum optics is not just theoretical; it can be intensely practical. Some modern devices have principles of operation that depend on quantum mechanics. For example, lasers use stimulated emission of radiation to amplify light. Light detectors, such as photomultipliers and channeltrons, respond to individual photons. Electronic image sensors, such as CCbs, exhibit shot noise corresponding to the statistics of individual photon events. Light-emitting diodes and photovoltaic cells also cannot be understood without quantum mechanics. In the study of these devices, quantum optics often overlaps with quantum electronics.

Optics is part of everyday life. Rainbows and mirages are examples of optical phenomena. Many people benefit from eyeglasses or contact lenses, and optics are used in many consumer goods including cameras. Superimposition of periodic structures, for example transparent tissues with a grid structure, produces shapes known as moire patterns. Superimposition of periodic transparent patterns comprising parallel opaque lines or curves produces line moire patterns.

9.2.2 Find in the text and put down 10 - 12 words or word combinations which can be used to speak about optics

9.2.3 Try to find in the text sentences about main types of optics

9.2.4 Read the text again and tell abaut the main concerns of optics and types of optics. Discuss them with your partner

9.2.5 Translate the text in written form

Optical engineering is the field of study that focuses on applications of optics.

Optical engineers design components of optical instruments such as lenses, microscopes, telescopes, and other equipment that utilize the properties of light. Other devices include optical sensors and measurement systems, lasers, fiber optic communication systems, optical disc systems (e.g. CD, DVD), etc.

Since optical engineers want to design and build devices that make light do something useful, they must understand and apply the science of optics in substantial detail, in order to know what is physically possible to achieve (physics and chemistry). However, they also must know what is practical in terms of available technology, materials, costs, design methods, etc. As with other fields of engineering, computers are important to many (perhaps most) optical engineers. They are used with instruments, for simulation, in design, and for many other applications. Engineers often use general computer tools such as spreadsheets and programming languages, and they make frequent use of specialized optical software designed specifically for their field.

Optical engineering metrology uses optical methods to measure micro-vibrations with instruments like the laser speckle interferometer or to measure the properties of the various masses with instruments measuring refraction.

9.3 Text 3 James Clerk Maxwell

9.3.1 Read the text and translate it in written form

James Clerk Maxwell (13 June 1831 - 5 November 1879) was a Scottish theoretical physicist and mathematician. His most significant achievement was the development of the classical electromagnetic theory, synthesizing all previous unrelated observations, experiments and equations of electricity, magnetism and even optics into a consistent theory. His set of equations-Maxwell's equations-demonstrated that electricity, magnetism and even light are all manifestations of the same phenomenon: the electromagnetic field. From that moment on, all other classical laws or equations of these disciplines became simplified *cases* of Maxwell's equations. Maxwell's work in electromagnetism has been called the "second great unification in physics", after the first one carried out by Isaac Newton.

Maxwell demonstrated that electric and magnetic fields travel through space in the form of waves, and at the constant speed of light. Finally, in 1864 Maxwell wrote A Dynamical Theory of the Electromagnetic Field where he first proposed that light was in fact undulations in the same medium that is the cause of electric and magnetic

phenomena. His work in producing a unified model of electromagnetism is considered to be one of the greatest advances in physics.

Maxwell also developed the Maxwell distribution, a statistical means to describe aspects of the kinetic theory of gases. These two discoveries helped usher in the era of modern physics, laying the foundation for future work in such fields as special relativity and quantum mechanics. He is also known for creating the first true colour photograph in 1861.

Maxwell is considered by many physicists to be the nineteenth century scientist with the greatest influence on twentieth century physics. His contributions to the science are considered by many to be of the same magnitude *as* those of Newton and Albert Einstein. In 1931, on the centennial of Maxwell's birthday, Einstein himself described Maxwell's work as the most profound and the most fruitful that physics has experienced since the time of Newton. Einstein kept a photograph of Maxwell on his study wall, alongside pictures of Michael Faraday and Newton.

9.4 Revise grammar material in appendix (см. приложение Б)

9.4.1 Insert the appropriate form of the Gerund

1 Stark sat down without …. (to speak) 2 He did not go without … by Amy. (to congratulate) 3 After …more closely than usual and … his hair, he (Herzog) took the bus uptown. (to shave, to brush) 4 At South Square, on … that Michael and Fleur were out, he did not dress for dinner, but went to the nursery. (to discover) 5 I had to sound as if I didn't mind …, as though I had no temper of my own. (to insult) 6 She kept on …, her voice low and controlled. (to talk) 7 In the morning light, she was ashamed of herself for … so … the night before. (to elate) 8 The house wanted … (to do up) 9 Even a criminal must be told the nature of his crime before …. (to convict) 10 She showed none of the usual feminine pleasure at … hard to understand, inscrutable, mysterious. (to be) 11 I still reproached myself for not … open with Douglas from the start, when he had invited me to do so. (to be) 12 No woman looks her best after … up all night, (to sit) 13His legs were somewhat stiff from not … or … for days. (to hike, to climb) 14 I'm tired of … like a silly fat lamb. (to treat) 15 I know everyone who's worth …. (to know) .

9.4.2 Point out the Gerundial Construction and comment on the way the nominal element is expressed. Translate into Russian

1 You must excuse my being so breathless, I'm not really breathless, and it’s just the excitement. 2 These happy events occurred without any recommendation having been made by Rain-borough, and indeed without his having been officially informed 3 The maid said something about the American lady's having come back to Rodnik. 4 It was easy to imagine Cave sitting silent. 5 She was interrupted by her father's voice and by her father's hat being heavily flung from his hand and striking her face 6 He brought in a portmanteau with him, which he doubted its being worth while to unpack. 7 Besides, there's no danger of it happening again. 8 “It's no good

you staying," Jack Burton said. 9 Jack laughed. Their being bothered amused him. 10 He was wakened by someone knocking at the door. 11 There is something so inexpressibly absurd to me in the idea of Caddy being married. 12 I was not surprised by Caddy's being in low spirits. 13 You knew young Pyle well didn't you? I can't get over a thing like that happening to him. 14 She laughed at the thought of her husband and Johnny looking after the house. 15 He felt almost a gloomy satisfaction at the thought of all these disasters happening at once.

9.4.3 Translate into English using the Gerund where possible

1 Увидев карикатуры, все рассмеялись. 2 Вы ничего не имеете против того, чтобы я открыл окно? 3 Врач приказал больному бросить курить. 4 Мальчик не отрицал, что потерял книгу, взятую в библиотеке. 5 Извините, что я заставил вас ждать. 6 Детям доставляло удовольствие играть в саду. 7 Эту книгу стоит почитать. 8 Читая этот рассказ, мы не могли не смеяться. 9 Я предпочитаю сделать эту работу сегодня. 10 Я надеюсь, что ничего не помешает мне пойти на концерт. 11 Преподаватель возражал против того, чтобы студенты пользовались словарем, переводя этот текст. 12 Преподаватель настаивал, чтобы новые выражения записывались. 13 Преподаватель настаивал, чтобы студенты записывали новые выражения. 14 Я устала от того, что со мной обращаются как с ребенком. 15 Я не возражаю против того, чтобы помочь вам, но я возражаю против того, чтобы мне мешали, когда я занят.

9.4.4 Insert the correct preposition before the Gerund where required

1 "1 hated the idea … your going," he said simply. 2 She said: "Excuse me … coming in … knocking." 3The others insisted … accompanying them 4 I am tired … being old and wise. 5 We'll look forward … seeing you. 6 Why were you so anxious to prevent anybody … leaving the house. 7 I'm afraid 1 shan't succeed … being as sympathetic as you have the right to expect. 8 I was afraid … saying the wrong thing. 9 Look here, it may sound funny, but I'm terrifically grateful to you … saying it. 10 Both windows needed … cleaning. 11 I've paid very heavily … being a romantic girl. 12 She could not bear … lying. 13 I suppose nothing is gained … delaying. 14 They were in the habit … coming up to London for the season. 15 We wouldn't mind … being poor again.

9.4.5 Insert *not* Participle or *without* Gerund

1 Dr. Wallace filled a pipe from the bowl on his desk, then put it down … it. (to light) 2 … what he wanted, he looked slowly about the room. (to find) 3 Zee drew a breath and leaned against the birch for a moment … anything. (to say) 4 I won't go abroad … you. (to see) 5 … what to reply, I remained silent, (to know) 6 ... on the street he would look directly at friends … them. (to see) 7 Only then, …what further to say, had he become silent, (to know) 8 We walked … for a short while. (to speak) 9 Would she have gone away … you if she loved you? (to see)

10 Section 10 Ophthalmic instruments and equipments

10.1 Text 1 A brief history of scanning electron microscopy

10.1.1 Read and translate the text

The first, true scanning electron microscope (SEM) was developed and described in 1942 by Zworykin. The instrument described eventually consisted of an inverted column (electron gun at the bottom), three electrostatic lenses and electromagnetic scan coils placed between the second and third lenses. A photomultiplier tube detected the scintillations on a phosphor screen caused by the secondary electron emissions. A previous instrument utilizing a scanning electron beam and described by M. von Ardenne in 1938 was actually the first scanning transmission electron microscope (STEM), using the electrons passing through a thin sample for imaging.

At Cambridge University in 1948, C. W. Oatley began construction of an SEM based on Zworykin's. Graduate student D. McMullan described this work in a doctoral dissertation where they had claimed a resolution of 500 Angstroms. Further work, reported by K. C A. Smith, made large changes to the electron optics. The electrostatic lenses were replaced with electromagnetic coils, a double deflection scanning system was added as were stigmator coils. Additionally, Smith utilized non-linear signal processing (gamma processing) to help improve imaging.

The next major improvements were made to the signal collection process. The original phosphor screen / photomultiplier used by Zworykin was improved by the addition of a light pipe. The light pipe allowed for direct optical coupling between the scintillator and the photomultiplier tube, greatly improving efficiency[6]. This was accomplished by T. E. Everhart and R. F. M. Thornley, and the detector arrangement carries their names as the Everhart-Thornley detector.

All of these improvements were combined in one instrument. Once again at Cambridge University, R. F. W. Pease and W. C. Nixon created the SEM V, utilizing the inverted column, electromagnetic lenses, double deflection scan system, stigmation coils and the Everhart-Thornley detector. This instrument became the basis for the first commercial SEM, the Cambridge Scientific Instruments Mark I, first available in 1965.

10.1 2 Read the text again and ask some questions to the text

10.1.3Try to give the brief history of scanning electron microscopy

10.2 Text 2 The Scanning Electron Microscope

10.2.1 Read and translate the text

A scanning electron microscope, like the TEM. consists of an electron optical column, a vacuum system and electronics. The column is considerably shorter

because there are only three lenses to focus the electrons into a fine spot onto the specimen; in addition there are no lenses below the specimen. The specimen chamber, on the other hand, is larger because the SEM technique does not impose any restriction on specimen size other than that set by the size of the specimen chamber. The electronics unit is more compact: although it now contains scanning and display electronics which the basic TEM did not, the lens supplies and the high voltage supplies are considerably more compact. All the components of a SEM are usually housed in one unit. On the right is the electronoptical column mounted on top of the specimen chamber. In the cabinet below this is the vacuum system. On the left is the display monitor, the keyboard and a "mouse" for controlling the microscope and the camera. All the rest is below the desk top which gives the whole instrument its clean appearance. The electron gun at the top of the column produces and electron beam which is focused into a fine spot less than 4 nm in diameter on the specimen. This beam is scanned in a rectangular raster over the specimen. Apart from other interactions at the specimen, secondary electrons are produced and these are detected by a suitable detector. The amplitude of the secondary electron signal varies with time according to the topography of the specimen surface. The signal is amplified and used to cause the brightness of the electron beam in a cathode ray tube (CRT) to vary in sympathy. Both the beam in the microscope and the one in the CRT are scanned at the same rate and there is a one to one relationship between each point on the CRT screen and a corresponding point on the specimen. Thus a picture is built up. The ratio of the size of the screen of the viewing monitor (CRT) to the size of the area scanned on the specimen is the magnification. Increasing the magnification is achieved by reducing the size of the area scanned on the specimen. Recording is done by photographing the monitor screen (or. more usually, a separate high resolution screen), making videoprints or storing a digital image.

10.2.2 Find in the text information about the main components of the scanning electron microscopy and write them down

10.2.3 Speak on the scanning electron microscopy

10.3 Revise grammar material in appendix (см. приложение Б)

10.3.1 Point out the subject and say by what it is expressed. Translate these sentences into Russian

1 At that moment the postman, looking like a German army officer, came in with the mail. 2 The clock struck eight. There was no sign of any of the other guests. 3 Now, there is something peculiarly intimate in sharing an umbrella. 4Together we walked through the mud and slush. 5 Something impersonal and humble in that action seemed to reassure the Consul. 6 The sight of them, so intent and so quick, gave Bertha a curious shiver. 7 Eight o'clock in the morning. Miss Ada Moss Jay in a black iron bedstead, staring up at the ceiling. 8 Still, the good of mankind was worth

working for. 9 Sometimes the past injects itself into the present with a peculiar force. 10 Forgetting some things is a difficult matter.

10.3.2 State the nature of *it.* Translate these sentences into Russian

1 It was dusky in the dining room and quite chilly. 2 The bell rang. It was lean, pale Eddie Warren in a state of acute distress. 3 Oh! It was a little house. It was a little pink house .4 But in her bosom there was still that bright glowing place. It was almost unbearable. 5 She sat up, but she felt quite dizzy, quite drunk. It must have been the spring. 6 It was marvelous to be made love to like that. 7 It is the moon that makes you talk to yourself in that silly way. 8 It is very distressing to me, Sir, to give this information. 9 He took the path through the fields: it was pleasanter than the road. 10 If this is liberty, it isn't going to mean a thing. 11 It was now almost four-thirty in the afternoon.

11 Section 11 Telemedicine

11.1 Text 1 Telemedicine

11.1.1 Read and translate the text

Telemedicine is a rapidly developing application of clinical medicine where medical information is transferred via telephone, the Internet or other networks for the purpose of consulting, and sometimes remote medical procedures or examinations. Telemedicine may be as simple as two health professionals discussing a case over the telephone, or as complex as using satellite technology and video-conferencing equipment to conduct a real-time consultation between medical specialists in two different countries. Telemedicine generally refers to the use of communications and information technologies for the delivery of clinical care. Care at a distance (also called “in absentia” care), is an old practice which was often conducted via post; there has been a long and successful history of in absentia health care, which - thanks to modern communication technology - has metamorphosed into what we know as modern telemedicine. In its early manifestations, African villagers used smoke signals to warn people to stay away from the village in case of serious disease. In the early 1900s, people living in remote areas in Australia used two-way radios, powered by a dynamo driven by a set of bicycle pedals, to communicate with the Royal Flying Doctor Service of Australia. The terms e-health and telehealth are at times wrongly interchanged with telemedicine. Like the terms "medicine" and "health care", telemedicine often refers only to the provision of clinical services while the term telehealth can refer to clinical and non-clinical services such as medical education, administration, and research. The term e-health is often, particularly in the UK and Europe, used as an umbrella term that includes telehealth, electronic medical records, and other components of health IT.

Telemedicine is practiced on the basis of two concepts: real time (synchronous) and store-and-forward (asynchronous).

Real time telemedicine could be as simple as a telephone call or as complex as robotic surgery. It requires the presence of both parties at the same time and a communications link between them that allows a real-time interaction to take place. Video-conferencing equipment is one of the most common forms of technologies used in synchronous telemedicine. There are also peripheral devices which can be attached to computers or the video-conferencing equipment which can aid in an interactive examination. For instance, a tele-otoscope allows a remote physician to 'see' inside a patient's ear; a tele-stethoscope allows the consulting remote physician to hear the patient's heartbeat. Medical specialties conducive to this kind of consultation include psychiatry, family practice, internal medicine, rehabilitation, cardiology, pediatrics, obstetrics, gynecology, neurology, and pharmacy.

Store-and-forward telemedicine involves acquiring medical data (like medical images, biosignals etc) and then transmitting this data to a doctor or medical specialist at a convenient time for assessment offline. It does not require the presence of both parties at the same time. Dermatology, radiology, and pathology are common specialties that are conducive to asynchronous telemedicine. A properly structured Medical Record preferably in electronic form should be a component of this transfer.

Telemedicine is most beneficial for populations living in isolated communities and remote regions and is currently being applied in virtually all medical domains. Specialties that use telemedicine often use a “tele-“ prefix; for example, telemedicine as applied by radiologists is called Teleradiology. Similarly telemedicine as applied by cardiologists is termed as telecardiology, etc.

Telemedicine is also useful as a communication tool between a general practitioner and a specialist available at a remote location.

Monitoring a patient at home using known devices like blood pressure monitors and transferring the information to a caregiver is a fast growing emerging service. These remote monitoring solutions have a focus on current high morbidity chronic diseases and are mainly deployed for the First World. In developing countries a new way of practicing telemedicine is emerging better known as Primary Remote Diagnostic Visits whereby a doctor uses devices to remotely examine and treat a patient. This new technology and principle of practicing medicine holds big promises to solving major health care delivery problems in for instance Southern Africa because Primary Remote Diagnostic Consultations not only monitors an already diagnosed chronic disease, but has the promise to diagnosing and managing the diseases a patient will typically visit a general practitioner for.

Teleradiology is the ability to send radiographic images (x-rays) from one location to another. For this process to be implemented, three essential components are required, an image sending station, a transmission network, and a receiving or image review station. The most typical implementation is two computers connected via Internet. The computer at the receiving end will need to have a high-quality display screen that has been tested and cleared for clinical purposes. Sometimes the receiving computer will have a printer so that images can be printed for convenience.

The teleradiology process begins at the image sending station. The radiographic image and a modem or other connections are required for this first step.

The image is scanned and then sent via the network connection to the receiving computer.

11.1.2 Say what you've learnt about: telemedicine, types of telemedicine and teleradiology

11.1.3 Translate the following text from Russian into English

Телемедицина - использования профессиональных знаний врача, мануальных знаний врача и знаний воплощенных медицинской аппаратуре, базах данных разнесенных в пространстве и времени. Интеллектуальной основой технологии телемедицины является стандарт медицинских знаний HL7. Данный стандарт позволит передавать объем медицинской информации на 2-3 порядка больше современных медицинских электронных историях болезни, и постоянно наращивать объем и глубину (смыслов и мануального мастерства) информации. В стратегическом видении телемедицина существенно опирается на глобальные спутниковые сети, и национальный уровень медицины будут определяться успехами в явных и неявных, холодных и горячих космических войнах. Космические войны будут основываться на компактных средствах доставки и сверхустойчивых сетях.

Из парадигмы клинический микросистемы следует, что лечащим терминалом телемедицины является клиническая микросистема.

Задача телемедицины — трансляция смыслов. Всегда существует опасность деградации системы, когда наряду с догоростоящим оборудованием и линиями связи сразу отсекается инженерная и медицинская компонента, и сеанс телемедицины превращается в рутинную телеконференцию.

11.1.4 Translate the following text into English and make an oral summary of the text

Термин "телемедицина", введенный R. Mark в 1974 г. (по другим данным, это сделал Thomas Bird в 1970 г.), объединяет множество телекоммуникационных и информационных методов, применяемых в здравоохранении, а также их разнообразные клинические приложения. Существует несколько десятков определений телемедицины, отличающихся как по степени детализации её характеристик, так и по содержанию включаемых в неё технологий и направлений. Системообразующий принцип телемедицины: один из терминалов (целевых точек) системы телемедицины обязательно должен быть пациент.

Н. Браун (руководитель телемедицинского проекта в Портлендском, Орегон, исследовательском центре) определяет телемедицину как использование телекоммуникаций для предоставления медицинской информации и услуг, как "нечто среднее" между простым обсуждением клинического случая двумя врачами по телефону, и проведением

интерактивной видео-консультации между медицинскими центрами разных стран с использованием спутниковой технологии.

ВОЗ в 1997 г. ввела несколько более широкое понятие - медицинская телематика, означающий деятельность, услуги и системы, связанные с оказанием медицинской помощи на расстоянии посредством информационно-коммуникационных технологий, направленные на содействие развитию здравоохранения, осуществление эпидемиологического надзора и предоставление медицинской помощи, а также обучение, управление и проведение научных исследований в области медицины.

Есть такое определение: “Телемедицина - направление медицины, основанное на использовании современных компьютерных и телекоммуникационных технологий для адресного обмена медицинской информацией между специалистами с целью повышения качества и доступности диагностики и лечения конкретных пациентов”. Ряд других определений телемедицины в основных элементах сходны.

11.2 Revise grammar material in appendix (см. приложение Б)

11.2.1 Point out the kind of object and say by what it is expressed. Translate the sentences into Russian

1 What have you got there? 2 She pretended not to hear. 3 Marcellus found the luggage packed and strapped for the journey. 4I know all about it, my son. 5 I have to show Dr. French his room. 6 I never heard you express that opinion before, sir. 7 Halting, he waited for the Roman to speak first.

8 He was with you at the banquet. 9 They don't want anything from us - not even our respect. 10 I beg your pardon for calling you by your name. 11 I found myself pitying the Baron. 12I've got it framed up with Gilly to drive him anywhere. 13 He smiled upon the young men a smile at once personal and presidential. 14Gallio didn't know how to talk with Marcellus about it. 15 Laura helped her mother with the good-byes.

11.2.2 Point out the Complex Object and say by what it is expressed. Translate these sentences into Russian

1 He could see the man and Great Beaver talking together. 2 She had lied about the scullery door being open on the night of the disappearance of the bank-notes. 3 Each woman thought herself triumphant and the other altogether vanquished. 4 Thus these two waited with impatience for the three years to be over. 5 Sammy watched Mr. Cheviot slowly take the receiver from the girl. 6 He hated her to work in the boarding house. 7 The Consul felt his legs, give way. 8 Mother objected to Aimee being taken away from her game with the boys. 9 They had never heard him speak with such urgency, his eyes glowing like amber coals in the fading light.

11.2.3 Translate these sentences from Russian into English

1 Он посвящал музыке все свободное время. 2 Объясните мне, пожалуйста, значение новых слов. 3 Мы приписываем теплому течению мягкий климат этого острова. 4 Он открыл нам секрет своего изобретения. 5 Байрон посвятил одну из своих поэм Гете. 6 Вы видели, чтобы кто-нибудь вышел из комнаты? 7 Она объявила нам о своем желании уехать работать в Америку. 8 Не приписывайте мне того, чего я никогда не делал. 9 Он посвящает общественной работе все свое свободное время. 10 Мне вчера не починили часы. 11 Я никогда не слышал, чтобы об этом студенте плохо отзывались. 12 Я хочу перешить свое пальто. 13 Войдя в картинную галерею, я увидела мою приятельницу, стоявшую у окна. 14 Она хотела, чтобы ей сшили пальто к Новому году.

12 Section 12 Medical imaging

12.1 Text 1 Medical imaging

12.1.1 Read and translate the text

Medical imaging refers to the techniques and processes used to create images of the human body (or parts thereof) for clinical purposes (medical procedures seeking to reveal, diagnose or examine disease) or medical science (including the study of normal anatomy and function). As a discipline and in its widest sense, it is part of biological imaging and incorporates radiology (in the wider sense), radiological sciences, endoscopy, (medical) thermography. Measurement and recording techniques which are not primarily designed to produce images, such as electroencephalography (EEG) and magnetoencephalography (MEG) and others, but which produce data susceptible to be represented as maps (i.e. containing positional information), can be seen as forms of medical imaging.

As a field of scientific investigation, medical imaging constitutes a sub-discipline of biomedical engineering, medical physics or medicine depending on the context: Research and development in the area of instrumentation, image acquisition (e.g. radiography), modelling and quantification are usually the preserve of biomedical engineering, medical physics and computer science. Research into the application and interpretation of medical images is usually the preserve of radiology and the medical sub-discipline relevant to medical condition or area of medical science (neuroscience, cardiology, psychiatry, psychology, etc) under investigation. Many of the techniques developed for medical imaging also have scientific and industrial applications.

Medical imaging is often perceived to designate the set of techniques that noninvasively produce images of the internal aspect of the body. In this restricted sense, medical imaging can be seen as the solution of mathematical inverse problems. This means that cause (the properties of living tissue) is inferred from effect (the observed signal). In the case of ultrasonography the probe consists of ultrasonic pressure waves and echoes inside the tissue show the internal structure. In the case of

projection radiography, the probe is X-ray radiation which is absorbed at different rates in different tissue types such as bone, muscle and fat.

12.2 Text 2 Magnetic resonance imaging (MRI)

12.2.1 Read and translate the text

A Magnetic Resonance Imaging instrument (MRI scanner) uses powerful magnets to polarize and excite hydrogen nuclei (single proton) in water molecules in human tissue, producing a detectable signal which is spatially encoded resulting in images of the body. In brief, MRI involves the use of three kinds of electromagnetic field: a very strong (of the order of units of teslas) static magnetic field W polarize the hydrogen nuclei, called the static field; a weaker time-varying (of the order of 1 kHz) for spatial encoding, called the gradient field(s); and a weak radio-frequency (RF) field for manipulation of the hydrogen nuclei to produce measurable signals, collected through an RF antenna. Like CT, MRI traditionally creates a 2D image of a thin "slice" of the body and is therefore considered a tomographic imaging technique.

Modern MRI instruments are capable of producing images in the form of 3D blocks, which may be considered a generalization of the single-slice, tomographic concept. Unlike CT, MRI does not involve the use of ionizing radiation and is therefore not associated with the same health hazards; for example there are no known long term effects of exposure to strong static fields and therefore there is no limit on the number of scans to which an individual can be subjected, in contrast with X-ray and CT. However, there are well identified health risks associated with tissue heating from exposure to the RF field and the presence of implanted devices in the body. These risks are strictly controlled as part of the design of the instrument and the scanning protocols used. CT and MRI being sensitive to different properties of the tissue, the appearance of the images obtained with the two techniques differ markedly. In CT, X-rays must be blocked by some form of dense tissue to create an image, therefore the image quality when looking at soft tissues will be poor.

12.2.2 Read and translate the following text

Modern ECG monitors offer multiple filters for signal processing. The most common settings are monitor mode and diagnostic mode. In monitor mode, the low frequency filter (also called the high-pass filter because signals above the threshold are allowed to pass) is set at either 0.5 Hz or 1 Hz and the high frequency filter (also called the low-pass filter because signals below the threshold are allowed to pass) is set at 40 Hz. This limits artifact for routine cardiac rhythm monitoring. The high-pass filter helps reduce wandering baseline and the low pass filter helps reduce 50 or 60 Hz power line noise (the power line network frequency differs between 50 and 60 Hz in different countries). In diagnostic mode, the high pass filter is set at 0.05 Hz, which allows accurate ST segments to be recorded. The low pass filter is set to 40, 100, or 150 Hz. Consequently, the monitor mode ECG display is more filtered than diagnostic mode, because its bandpass is narrower.

12.3 Text 3 Sonography

12.3.1 Read and translate the text

Sonography (ultrasonography) is widely used in medicine. It is possible to perform both diagnosis and therapeutic procedures, using ultrasound to guide interventional procedures (for instance biopsies or drainage of fluid collections). Sonographers are medical professionals who perform scans for diagnostic purposes. Sonographers typically use a hand-held probe (called a transducer) that is placed directly on and moved over the patient. A water-based gel is used to couple the ultrasound between the transducer and patient.

Sonography is effective for imaging soft tissues of the body. Superficial structures such as muscles, tendons, testes, breast and the neonatal brain are imaged at a higher frequency (7-18 MHz), which provides better axial and lateral resolution. Deeper structures such as liver and kidney are imaged at a lower frequency 1-6 MHz with lower axial and lateral resolution but greater penetration.

Diagnostic sonography (ultrasonography) is an ultrasound-based diagnostic imaging technique used to visualize subcutaneous body structures including tendons, muscles, joints, vessels and internal organs for possible pathology or lesions. Obstetric sonography is commonly used during pregnancy and is widely recognized by the public. There are a plethora of diagnostic and therapeutic applications practiced in medicine.

In physics the term "ultrasound" applies to all acoustic energy with a frequency above human hearing (20,000 hertz or 20 kilohertz). Typical diagnostic sonographic scanners operate in the frequency range of 2 to 18 megahertz, hundreds of times greater than the limit of human hearing. The choice of frequency is a trade-off between spatial resolution of the image and imaging depth: lower frequencies produce less resolution but image deeper into the body.

The sonographic scanner must determine three things from each received echo:

1 How long it took the echo to be received from when the sound was transmitted.

2 From this the focal length for the phased array is deduced, enabling a sharp image of that echo at that depth (this is not possible while producing a sound wave).

3 How strong the echo was. It could be noted that sound wave is not a click, but a pulse with a specific carrier frequency. Moving objects change this frequency on reflection, so that it is only a matter of electronics to have simultaneous Doppler sonography.

Once the ultrasonic scanner determines these three things, it can locate which pixel in the image to light up and to what intensity and at what hue if frequency is processed.

Transforming the received signal into a digital image may be explained by using a blank spreadsheet as an analogy. We imagine our transducer is a long, flat transducer at the top of the sheet. We will send pulses down the 'columns' of our spreadsheet (A, B, C, etc.). We listen at each column for any return echoes. When we

hear an echo, we note how long it took for the echo to return. The longer the wait, the deeper the row (1,2,3, etc.). The strength of the echo determines the brightness setting for that cell (white for a strong echo, black for a weak echo, and varying shades of grey for everything in between.) When all the echoes are recorded on the sheet, we have a greyscale image.

12.3.2Tell what you have learnt about sonography

12.4 Text 4 Producing a sound wave

12.4.1 Read and translate the text

A sound wave is typically produced by a piezoelectric transducer encased in a probe. Strong, short electrical pulses from the ultrasound machine make the transducer ring at the desired frequency. The frequencies can be anywhere between 2 and 18 MHz. The sound is focused either by the shape of the transducer, a lens in front of the transducer, or a complex set of control pulses from the ultrasound scanner machine. This focusing produces an arc-shaped sound wave from the face of the transducer. The wave travels into the body and comes into focus at a desired depth.

Older technology transducers focus their beam with physical lenses. Newer technology transducers use phased array techniques to enable the sonographic machine to change the direction and depth of focus. Almost all piezoelectric transducers are made of ceramic.

Materials on the face of the transducer enable the sound to be transmitted efficiently into the body (usually seeming to be a rubbery coating, a form of impedance matching). In addition, a water-based gel is placed between the patient's skin and the probe.

The sound wave is partially reflected from the layers between different tissues. Specifically, sound is reflected anywhere there are density changes in the body: e.g. blood cells in blood plasma, small structures in organs, etc. Some of the reflections return to the transducer.

12.4.2 Ask questions to the text given above

12.5 Text 5 Computed tomography

12.5.1 Read and translate the following text

Computed tomography (CT) is a medical imaging method employing tomography. Digital geometry processing is used to generate a three-dimensional image of the inside of an object from a large series of two-dimensional X-ray images taken around a single axis of rotation. The word “tomography” is derived from the Greek tomos (slice) and graphein (to write).

Computed tomography was originally known as the “EMI scan” as it was developed at a research branch of EMI, a company best known today for its music

and recording business. It was later known as computed axial tomography (CAT or CT scan) and body section roentgenography.

CT produces a volume of data which can be manipulated, through a process known as windowing, in order to demonstrate various structures based on their ability to block the X-ray or Roentgen beam. Although historically the images generated were in the axial or transverse plane (orthogonal to the long axis of the body), modern scanners allow this volume of data to be reformatted in various planes or even as volumetric (3D) representations of structures.

Although most common in medicine, CT is also used in other fields, such as nondestructive materials testing. Another example is the Digi Morph project at the University of Texas at Austin which uses a CT scanner to study biological and paleontological specimens.

12.6 Revise grammar material in appendix (см. приложение Б)

12.6 1 Point out the predicate and say to what type it belongs

1 Presently she grew tired of that and looked across at her sister. 2 You shall have as many dances as you like. I shan't dance with anyone except you and Maxim. 3 Well, do you feel any better now? 4 Harry was enjoying his dinner. 5 Alice went on, he ought to stop doing nothing and criticizing everybody. 6 Everything is being taken down and used against you. 7 The story will only get repeated and exaggerated. 8 But I've got to have a word with him. We got to do something about it. 9 She became bitter and unapproachable. 10 Her marriage was more or less fixed for the twenty-eighth of the month. They were to sail for India on September the fifth. 11 Leila's partner gave a little gasping laugh. 12 You are to go straight to your room. You are to say nothing of this to anyone. 13 He was a country doctor. He died young. 14 I began to stammer my apologies. He would not listen to me. 15 To walk in this way behind him seemed to Annette already a sufficient marvel.

12.6.2 Say where the predicate is simple and where it is compound (nominal or verbal)

1 Two young girls in red came by. 2 Demetrius came alive and pressed a flock of inquiries. 3 And in many ways along lines you'd more or less approve, I am coming to feel the mill apart of myself. 4 He tried to be both firm and friendly. I've felt dependent on him. 5 He now felt only a confused ache of memory and a growing desire to be home. 6 No one was there to meet Dick. He felt a twinge of disappointment. 7There was a silence but not an uncomfortable one. 8 He was vaguely aware of his father standing by kitchen-range with his coat off. 9 The day of our wedding came. He was to call for me to choose the furniture. 10 A good reliable husband he'd make. And our Alice is a great one for wanting a place of her own. 11 That made all the difference. The room came alive at once. 12 "She sounds serious," Albertine insisted. “She keeps talking about it.” 13 Not even her own children had

seen Ma break down. She'd keep a proud face always. 14 My lady keeps a list of the names in a little red book

12.6.3 Point out the predicative and say by what it is expressed

1 Annette was completely dazed. 2 Their highest concept of right conduct, in his case, was to get a job. 3 I'm five foot eleven in my socks. 4 Sally, herself, was quite content for a while to enjoy becoming acquainted with her son, washing and feeding him, taking him for walks in the bush, singing him to sleep. 5 Mr. de Morfe was as generous and hail-fellow-well-met with them as ever.' 6 I am cold. And I always was such a one for being warm. 7 Your resemblance to your mother is very striking. 8 He did not answer. I was aware again of that feeling of discomfort. 9 I hated myself. My question had been degrading, shameful. 10Their interests were hers as well as the interests of' everybody. 11 He's a good chap. He makes you feel it's worth while being alive. 12 Arrived here, his first act was to kneel down on a large stone beside the row of vessels, and to drink a copious draught from one of them. 13 Either course seemed unthinkable, without any connection with himself. 14 The nightmare of my life has come true. We are in danger of our lives. We are white people in a Chinese city. 15 The best thing is for you to move in with me and let the young lady stay -with your mother.

13 Section 13 Ophthalmology

13.1 Text 1 Ophthalmology

13.1.1 Read and translate the text

Ophthalmology is the branch of medicine which deals with the diseases and surgery of the visual pathways, including the eye, brain, and areas surrounding the eye, such as the lacrimal system and eyelids. By convention the term ophthalmologist is more restricted and implies a medically trained surgical specialist. Since ophthalmologists perform operations on eyes, they are generally categorized as surgeons.

The word ophthalmology comes from the Greek roots ophthalmos meaning eye and logos meaning word, thought or discourse; ophthalmology literally means “the science of eyes”. As a discipline, it applies to animal eyes also, since the differences from human practice are surprisingly minor and are related mainly to differences in anatomy or prevalence, not differences in disease processes. However, veterinary medicine is regulated separately in many countries and states provinces resulting in few ophthalmologists treating both humans and animals.

In the United States, 4 to 5 years of residency training after medical school are required, with the first year being an internship in surgery, internal medicine, pediatrics, or a general transition year. Most currently practicing ophthalmologists train in medical residency programs accredited by the Accreditation Council for

Graduate Medical Education (ACGME) and are board certified by the American Board of Ophthalmology. Some physicians train in osteopathic medical schools may hold a Doctor of Osteopathy ("DO") degree rather than an MD. The same residency and certification requirements for ophthalmology training must be fulfilled by osteopathic physicians. Completing the requirements of continuing medical education is mandatory for continuing licensure and re-certification. Professional bodies like the AAO and ASCRS organize conferences and help members through continuing medical education programs to maintain certification, in addition to political advocacy and peer support.

In **the United Kingdom,** there are four colleges that grant postgraduate degrees in ophthalmology. The Royal College of Ophthalmologists grants MRCOphth and FRCOphth (postgraduate exams), the Royal College of Edinburgh grants MRCSEd, the Royal College of Glasgow grants FRCS and Royal College of Ireland grants FRCSI. Work experience as a specialist registrar and one of these degrees Is required for specialisation in eye diseases.

American Board of Ophthalmology

The American Board of Ophthalmology (ABO) is an independent, non-profit organization responsible for certifying ophthalmologists (eye physicians and surgeons) in the United States of America. Founded in 1916, the ABO was the first American Board established to certify medical specialists.

The ABO is the founding member of the American Board of Medical Specialties. Originally, a combined board of Ophthalmology &. Otolaryngology, the specialties split into two board backed specialties in the 1960s.

Certification by the American Board of Ophthalmology is a voluntary process that involves a written and an oral examination. A candidate who successfully passes both the written qualifying and oral examinations becomes a Board Certified Diplomate of the American Board of Ophthalmology and is entitled to use the letters D.A.B.O. after his or her name.

13.1.2 Speak about: Ophthalmology in the United States

13.1.3 Speak about: Ophthalmology in the United Kingdom

13.1.4 Speak about: American Broad of Ophthalmology

13.1.5 Read and translate the text "Examples of equipment used for eye and vision health testing" and give the short content of this text in English

Many types of equipment are used during an eye examination. Vision charts and machines are used to measure vision and visual fields. Trial (spectacle and contact) lenses or a phoropter and retinoscope may be used during refraction. Prism bars, small objects, and occluders may be used to assess eye movements and eye alignment. Test booklets, sheets, instructions, and pencils may be used for visual information processing examination.

Penlights and transilluminators can be used when assessing pupil light response, a neurological screening test. Specialty magnifiers, such as ophthalmoscopes and slit-lamp bio-microscopes, help with detailed inspection of external and internal anatomical ocular structures. Diagnostic eye drops may also be used to assess the various anatomical structures of the eyes.

Many optometrists use computerized equipment specifically designed to help diagnose and/or monitor certain ocular diseases. For example, many optometrists' offices have various visual field analyzers and tonometers that are helpful in diagnosing disease entity in early stages. Optometrists use digital imaging equipment, such as digital cameras to document appearance of the anterior and posterior parts of the eye. Corneal topographers are used to gather information on anterior aspects of the anatomy of the eye and cornea. Other sophisticated equipment such as Optical coherence tomography, GDX, or HRT II can be used for various disease testing and treatment.

13.2 Revise grammar material in appendix (см. приложение Б)

13.2.1 Point out the kind of adverbial modifier, and state by what it is expressed. Translate these sentences into Russian

1 John slowly nodded his head. 2 He's coming Saturday at one o'clock. 3 Lucia stopped them in their tracks with a stern command. 4 Sally was sitting on the front seat of the buggy, dumb and unhappy at being ignored. 5 I feel my own deficiencies too keenly to presume so far. 6 A few miners hung on, hoping the mines would reopen. 7 The first bar of gold raised hopes sky high. 8 She had to talk because of her desire to laugh. 9 John pushed back his huge chair and rose to his full height as if preparing to deliver an address. 10 He takes a glass and holds it to Nora to be filled. 11 Morris was walking too quickly for Sally to keep up with him. 12 The poor woman was annoyed with Morris for dumping his wife on her. 13 It was quite a long narrative. 14 Of course Laura and Jose were far too grown-up to really care about such things. 15 Now and then Gavin would stop to point out silently some rarity. 16 And for all her quiet manner, and her quiet smile, she was full of trouble. 17 The young schoolteacher's spirits rose to a decided height. 18 Evil report, with time and chance to help it, travels patiently, and travels far.

13.2.2 Point out the kind of adverbial modifier, and state by what it is expressed. Translate the sentences from Russian into Russian

1 At the top of the stairs she paused to wave to him. 2 Marcellus accepted this information without betraying his amazement. 3 Having knocked on his door, she firmly entered Grandpa's room. 4 After waiting for a few minutes, he marched up the steps, closely followed by Demetrius. 5 Why do you always look at things with such dreadfully practical eyes? 6 David appeared in the open door, one hand clutching a sheaf of bills, under his other arm an account book. 7 That night I could scarcely sleep for thinking of it. 8 She did feel silly holding Moon's hand like that. 9 Then

Gallio cleared his throat, and faced his son with troubled eyes. 10 We have some exceptionally fine roses this year.11 Jonathan shook his head slowly, without looking up, his tongue bulging his cheek. 12 But it was of no use. Marcellus' melancholy was too heavy to be lifted. 13 Sally never would have been able to make a success of the dining-room but for the kindness and assistance of the men. 14 On being informed of the old man's flight, his fury was unbounded. 15 To be a complete artist it is not enough to be a painter, sculptor or architect. 16 Sally was furious with herself for having fainted. 17 With all her faults, she was candor herself. 18 The receiving overseer, Roger Kendall, though thin and clerical, was a rather capable man.

Список использованных источников

1 Агабекян, И.П. Английский для технических вузов / И.П. Агабекян.– М.: 2007.[б.и.], - 218с.

2 Бонк, Н.А. Учебник английского языка / Н.А. Бонк, Г.А. Котий, Н.А. Лукьянова. – М.: Деконт - ГИС 1999. - 320с.

3 Вейтман, Г.А. Новое в грамматике современного английского языка. / Г.А. Вейтман. – М.: [б.и.], 2002. - 163с.

4 Качалова, К.Н. Израилевич, Е.Е Практическая грамматика английского языка. / К.Н. Качалова, Е.Е Израилевич. – М: БАЗИС, КАРО - 2006. – 609с.

5 Каушанская, В.П. Сборник упражнений по грамматике английского языка / В.П. Каушанская. – М.: 2000. [б.и.], - 136с.

6 Колодяжная, Л. Познакомьтесь Великобритания / Л. Колодяжная. – М.: Айрис Пресс, 2001. – 412с.

7 Кравцова, Л.И. Английский язык / Л.И. Кравцова. – М.: 2004. [б.и.], 320с.

8 Куриленко, Ю.В. Устные темы по английскому языку. / Ю.В. Куриленко. - М.: 2005. [б.и.], - 215с.

9 Мильруд, Р.П. Грамматические тексты / Р.П. Мильруд, С.В. Логунова. – М.: 2007. [б.и.], 168с.

10 Ощепкова, В.В. О США кратко / В.В. Ощепкова. – М.: Оникс, 2000. – 113с.

11 Христорождественская, Л.П. Intermediate English / Л.П. Христорождественская. – М.: [б.и.], 1998.- 201с.

10 Свободная интернет-энциклопедия Википедия [Электронный ресурс].- Режим доступа: http://en.wikipedia.org/

Приложение А
(рекомендуемое)
Тексты для чтения

Text 1

Atmosphere protection measures

Measures of the protection of atmosphere are subdivided into three large groups. First group: decrease measures of gross amount of contamination, thrown out into atmosphere. This is the improvement of the quality of fuel, using of special liquids in fuel etc. Same group of measures includes perfecting of technological processes including development of the closed cycle production without making of harmful substances into atmosphere.

The second group includes measures of protection of atmosphere by dispersion, processing and neutralization of harmful wastes. And finally the third group of measures assumes prevention of the air contamination by rational placing of the "dirty" enterprises - sources of harmful wastes with consideration of natural conditions and potential possibility of the air contamination.

For realization of atmosphere protection measures the strict state control of air environment, economic and legal stimulation of measures for control of its pollution are also important.

But no one company begins to reduce its wastes if it does not meet their interests, if it is not profitable for them (especially for Russia).

Unfortunately it is hard to make them reduce pollution by prohibitions. In this connection it is offered to distribute interesting experience of the USA, Canada, Germany and Austria where enterprises redeem quotas for wastes of harmful gases (i.e. pay for using of natural environment belonging to all world community). Other variant is introduction of the international "green tax" for harmful wastes. In this case firms would be interested in ecologically clean production.

But unfortunately in most cases nature protection activity does not vield a profit for enterprises, except of cases connected with useful using, that is utilization of wastes caught during cleaning of waste water and gases. The most of these substances are valuable raw material (sulfur, a dust of colour metals etc.) and can be used in production, promoting thereby for receiving of the additional profit.

This measure, certainly, requires forward scientific technologies. So, for example, in Norway in 80's there was one factory on production of aluminum, it threw out into an atmosphere many weighted particles, especially lead, and the management of this factory was compelled to use special dustcatchers. By 90's the

factory became unprofitable, then it has paid attention to this thrown leaden dust, It appears that this dust is a very valuable material for production of completely new high-strength plates. Now this factory exists only due to waste of this dust. In Russia, much to our regret, there are no such examples.

Finally large significant part has an ecological culture of the population (one of examples of respect of the nature is the act of the board directors chairman of the company “Monsanto” Reachard Mahoney. He, having seen, how much toxic wastes his company makes, was shocked and has decided to reduce a level of toxic wastes by 90 %).

Text 2

Short history of fiber optics

Part 1

Optical communication systems date back two centuries, to the "optical telegraph" that French engineer Claude Chappe invented in the 1790s. His system was a series of semaphores mounted on towers, where human operators relayed messages from one tower to the next. It beat hand-carried messages hands down, but by the mid-19th century was replaced by the electric telegraph, leaving a scattering of "Telegraph Hills" as its most visible legacy.

Alexander Graham Bell patented an optical telephone system, which he called the Photophone, in 1880, but his earlier invention, the telephone, proved far more practical. He dreamed of sending signals through the air, but the atmosphere didn't transmit light as reliably as wires carried electricity. In the decades that followed , light was used for a few special applications, such as signalling between ships, but otherwise optical communications, like the experimental Photophone Bell donated to the Smithsonian Institution, Languished on the shelf.

In the intervening years, a new technology slowly took root that would ultimately solve the problem of optical transmission, although it was a long time before it was adapted for communications. It depended on the phenomenon of total internal reflection, which can confine light in a material surrounded by other materials with lower refractive index, such as glass in air. In 1840s, Swiss physicist Daniel Collodon and French physicist Jacques Babinet showed that light could be guided along jest of water for fountain displays. British physicist John Tyndall popularized light guiding in a demonstration he first used in 1854, guiding light in a jet of water flowing from a tank. By the turn of the century, inventors realized that bent quartz rods could carry light, and patented them as dental illuminators. By the 1940s, many doctors used illuminated plexiglass tongue depressors.

Optical fibers went a step further. They are essentially transparent rods of glass or plastic stretched so they are long and flexible. During the 1920s, John Logie Baird in England and Clarence W. Hansell in the LESSONed States patented the idea of using arrays of hollow pipes or transparent rods to transmit images for television or facsimile systems. However, the first person known to have demonstrated image

transmission through a bundle of optical fibers was Heinrich Lamm, than a medical student in Munich. His goal was to look inside inaccessible parts of the body, and in a 1930 paper he reported transmitting the image of a light bulb filament through a short bundle. However, the unclad fibers transmitted images poorly, and the rise of the Nazis forced Lamm, a Jew, to move to America and abandon his dreams of becoming a professor of medicine.

Text 2

Short history of fiber optics

Part 2

In 1951, Holger Moeller or Moeller, the o has a slash through it Hansen applied for a Danish patent on fiber-optic imaging. However, the Danish patent office denied his application, citing the Baird and Hansell patents, and Moeller Hansen was unable to interest companies in his invention. Nothing more was reported on fiber bundles until 1954, when Abraham van Heel of the Technical University of Delft in Holland and Harold. H. Hopkins and Narinder Kapany of Imperial College in London separately announced imaging bundles in the prestigious British journal Nature.

Neither van Heel nor Hopkins and Kapany made bundles that could carry light far, but their reports the fiber optics revolution. The crucial innovation was made by van Heel, stimulated by a conversation with the American optical physicist Brian O'Brien. All earlier fibers were “bare”, with total internal reflection at a glass-air interface. Van Heel covered a bare fiber or glass or plastic with a transparent cladding of lower refractive index.

This protected the total-reflection surface from contamination, and greatly reduced crosstalk between fibers. The next key step was development of glass-clad fibers, by Lawrence Curtiss, then an undergraduate at the University of Michigan working part-time on a project to develop an endoscope to examine the inside of the stomach with physician Basil Hirschowitz then working at the American Optical Co., made glass-clad fibers at about the same time, but his group lost a bitterly contested patent battle). By 1960, glass-clad fibers had attenuation of about one decibel per meter, fine for medical imaging, but much too high for communications.

Meanwhile, telecommunications engineers were seeking more transmission bandwidth. Radio and microwave frequencies were in heavy use, so they looked to higher frequencies to carry loads they expected to continue increasing with the growth of television and telephone traffic. Telephone companies thought video telephones lurked just around the corner, and would escalate bandwidth demands even further. The cutting edge of communications research were millimeter-wave systems, in which hollow pipes served as waveguides to circumvent poor atmospheric transmission at tens of gigahertz, where wavelengths were in the millimeter range.

Text 3

Electrophoresis

Electrophoresis is the best-known electrokinetic phenomenon. It was discovered by Reus in 1807. He observed that c lavel particles dispersed in water migrate under influence of an applied electric field. There are detailed descriptions of Electrophoresis in many books on Colloid and Interface Science. There is an IUPAC Technical Report prepared by a group of well known experts on the electrokinetic phenomena. Generally, electrophoresis is the mctk . dispersed particles relative to a fluid under the influence of an electric field that is space u Alternatively, similar motion in a space non-uniform electric field is called dielectrhoresis

Electrophoresis occurs because particles dispersed in a fluid almost always carry an electric surface charge. An electric field exerts electrostatic Coulomb force on the particles through charges. Recent molecular dynamics simulations, though, suggest that surface charge is no: always necessary for electrophoresis and that even neutral particles can show electrophoresis to the specific molecular structure of water at the interface.

The electrostatic Coulomb force exerted on a surface charge is reduced by an opposing force which is electrostatic as well. According to double layer theory, all surface charges in flub screened by a diffuse layer. This diffuse layer has the same absolute charge value, but opposite sign from the surface charge. The electric field induces force on the diffuse layer, as well as on the surface charge. The total value of this force equals to the first mentioned force it is oppositely directed. However, only part of this force is applied to the particle. It is actually applied to the ions in the diffuse layer. These ions are at some distance from the particle -They transfer part of this electrostatic force to the particle surface through viscous stress. This part of the force that is applied to the particle body is called electrophoretic retardation force.

There is one more electric force, which is associated with deviation of the double layer fix spherical symmetry and surface conductivity due to the excess ions in the diffuse layer. This force is called the electrophoretic relaxation force.

Text 4

Ultrasonic tomograph

General information

A1230 is designed for visualization of the internal texture of objects and structures within reinforced concrete (for example, slabs, blocks, supporters, tunnels' facing, etc.). The examination is carried out in case of one side access. Tomograph

provides detection of foreign inclusions and cavities in inspected objects and defined conditions of concrete reinforcement.

The principal of tomograph operation is based on the ultrasonic echo-pulse method of inspection with synthesized focused aperture and coherent signal processing. The tomograph comprises an antenna array (AA) and portable computer of "NoteBook" type that represented information as A-scan and B-scan.

The antenna unit consists of 36 elements (6 x 6) antenna array with built-in control module and ADC receiving circuit. The elements of the AA are spring-controlled and provide inspection of rough surfaces (roughness up to 8 mm) with curve radius of 150 mm. The computer controls the operation of the AA and provides signals processing and images presentation.

Main features

Dry acoustic contact with material surface;

Antenna array adaptation to roughness of concrete surface;

2D and 3D representations internal structure of testing object;

Echo-pulse testing method;

Operating ultrasonic frequency 30-90 kHz. Features

Choice of represented tomogram on 3D image synthesized volume;

Turn image of synthesized volume in any plane;

Defects coordinates count and signal level in any point of tomogram;

Threshold and smoothing filtration of 3D image and tomogram;

Gray-scale and color represents of signal level in the synheized images and tomograms;

Manual and automatic mode of threshold images processing;

Record starting data array and synthesized 3D images on computer hard disk;

Print images.

These tomograms will receive with the help of ultrasonic tomograph A1230.

Text 5

Diamond microscalpels

There has been developed and is produced in limited batches a broad nomenclature of diamond microblades and scalpels promising for use in ophthalmology, cardiosurgery and other areas of microsurgery.

Main advantages:

long operating life without rehoning

high strength and chemical stability

individual design of every blade

The articles are produced from natural diamonds specially selected in Gokhran (State Storage) of Russia. Production of scalpels and microblades relies on use of diamond crystals with minimal deviations from quality parameters and minimal microinclusions, as a rule, of the very best and close to it quality in colour, as well as with a low level of internal stresses. Initial diamonds of about 2 carats and more in size are used to produce microblades with a large cutting edge

Use of high-quality source material and up-to-date equipment for precision mechanical and laser treatment of diamond slabs and crystals ensure production of microblades with a long operating life-span. Optical high-resolution microscopes, photo- and cathode-luminescent technologies of precision measurement of articles dimensions and honing angles are used to control quality of initial slabs and finished products.

Technical parameters tolerance

Blade thickness, mm

Blade width, mm

Blade length (for new articles), mm

Angles, degree

As a rule, angles of produced articles' cutting edges are 40°. Orders for products with a value of the cutting edge angle more than 45° are subject to additional accommodation. All the open working surfaces of diamonds receive precision polishing, defect-free areas are selected for junctions. Each microblade is fabricated individually to ensure conformity to highest quality requirements. All the articles have full warranty. Production capacities of the enterprise ensure a potential for annual manufacture of several thousands of diamond microarticles of different designations, shapes and dimensions tailored in accordance with the customer's requirements and drawings.

Text 6

Cold-plasma argon coagulator

The coagulator is designed to be used in medical institutions of different types, including military and emergency surgery.

It provides stopping bleeding with simultaneous antiseptic treatment in major surgeries on internal organs.

Its application decreases time needed to heal vulnerary complications occurring in the post-operation period , stimulates trauma and burn vulnerary defects healing.

The device consists of a generator (the main unit), remote head (plasmatron), gas-dynamic unit (a high-pressure vessel with a reducing valve), control foot pedal.

The plasmatron incorporates a high-frequency unipole resonance generator of high voltage, a point electrode with a gas-feeding tube, coaxially joined to it, and an injector nozzle.

The operation principle of the device is based upon pulse-periodic excitation and ionization of the inert gas jet outgoing from the nozzle and generation of electric spark discharge pulses with unipole high-frequency voltage. It results in formation of a multispark cold-plasma flare on the tip of the plasmatron active electrode.

The cold-plasma flare characteristics are determined by parameters of the generator work mode (voltage and frequency), the nozzle sizes, design of the high-voltage converter. The device enables to smoothly regulate the depth of living tissues treatment (from a micron up to tenths of a millimeter), limiting heat affect on the

adjacent areas of living tissues. It permits to reduce pain and stop bleeding within a minimum period of time.

It features a pronounced sterilizing effect (on the wound treatment, the amount of microorganisms goes down by 4 - 6 orders). Wounds heal faster (4 to 6 days earlier than of patients in the reference group) and without complications.

Advantages

The distinguishing peculiarities of the device, as compared with analogues produced by the Erbe (the USA) and Vallilab (Germany), are its compactness, simple and safe operation, with cost much lower.

The device is protected by the RF patent. Batch-production by order has been mastered.

Text 7

Multifunctional laser complex "Lazdicom"

There has been created a prototype of the unique laser multifunctional complex “Lazdicom” enabling to carry out non-invasive diagnostics by way of probing the patient's biological tissue by low-intensity laser radiation in a broad wavelengths range (0.35 - 1.5 mem) with subsequent data processing by the built-in computer.

The complex enables to reveal a broad range of pathological states, including cancer, on the basis of using different investigation techniques (biophotometry, fluorescence, oxihemometry, thermometry, fluometry). Combining of different investigation techniques enables **to** obtain qualitatively new information about the state of man's organism with a high degree of accuracy.

The operation principle of the “Lazdicom” complex is based on analysis of the nature and registration of the parameters of laser radiation interaction (degrees of reflectance, absorption, beam scattering, levels of fluorescence and temperature field in specific points) in a broad spectrum of the optical band with the patient's tissues. From the range of diagnosed parameters the following should be singled out: the nature and kind of an inflammatory or oncological disease, blood properties (degree of saturation with oxygen, capillary blood circulation parameters). The investigation results and other data are presented on the monitor display in a graphical, tabular or text format.

Text 8

Low intensive laser stimulation as the effective method for corrections disturbed accommodation and prophylaxis of advancing myopia

Recently, as testified by statistical data, a significant spreading of myopia is observed First of all, this is explained by the wide use of computers and video equipment. A shown in multiple investigations by scientists from the former USSR and Russia weakening of eye accommodation displayed at excessive visual activity at near distance is one of the basic factors inducing myopia occurrence and

development. Many scientists all over the world outline the weakened accommodation, namely, the lower relative positive accommodation or lowering accommodative response as one o sufficient premyopic syndrome and as permanent companion of its progress.

We do not even insist in the weakened accommodation to be the reason for induced myopia. Anyway, we have numerous data showing that in most cases, weakening of accommodation accompanies myopia progression in children and teenagers and very often precedes myopia occurrence. The spasm of accommodation is considered as one of manifestations of its lowering, which is really quite infrequently observed. The accommodation hypertonus is observed much more frequently, especially at the early stages of myopia development: when natural refraction measured both on refractometer and subjectively exceeds that (by the same indices) at paralysis of accommodation.

In case of hypermetropia, this natural tonus of accommodation promotes dynamic refraction shift towards emmetropia and , obviously, is also preserved at myopia development. However, in this case it loses adaptive value and increases myopia and yet more reduces the acuity of vision increasing dynamic refraction. Many Russian ophthalmologists call this state the partial spasm of accommodation, which makes a mess of terminology. The core of the event is that the state is usually accompanied by weakened accommodation. How may weakened accommodation be determined? The studies of relative accommodation volume (RAV) were found informative. The determination technique is the following: gradual adding of positive and then negative lenses to full ametropia correction when binocular reading text No. 4 for closeness at fixed distance of 33 cm up to the moment, when reading becomes impossible. Hence, the part of relative accommodation determined by added negative lenses - the so-called positive accommodation or relative accommodation reserve (RAR) - was found the most pathognomonic and sensitive at myopia. Obviously, RAR represents some integral index which reflects the accommodation state and its connection to convergence. This is the index that reflexes to both change in myopia process (progress or stabilization) and various curing measures.

Insufficient blood supply is one of the basic mechanisms leading to weakened accommodation. Rheoophthalmology is the common, objective method for assessment of sphygmic blood volume in ciliary body and choroids vessels. Rheographic coefficient R_q is the basic analyzable parameter of the blood filling of vessels. Using this method it is shown that deterioration of hemodynamic parameters in vertebrobassilary basin correlates with RAR decrease and, in turn, induces myopia progress. Hence, rheographic coefficient decreases with myopia progress:

at lower myopia it equals (4,22 ± 0,09) ‰;

at moderate myopia- (3,22 ± 0,13) ‰;

at higher myopia - (2,12 ± 0,07 ‰),

whereas its normal value is (5,15 ± 0,05) ‰.

The target of trans-scleral laser therapy technique is elimination of accommodation derangement and normalization of ciliary muscle function. The effect of infrared low energy laser irradiation increases metabolism in the cells of the ciliary body and leads to a notable improvement of eye hemodynamics.

Text 9

About mechanisms of low energy laser irradiation

All photobiological processes the light energy is required for overcoming activation barriers of chemical transformations. These processes include the following stages: light absorption by tissue photosensitizer and formation of electron-excited states, migration of electron excitation energy, primary photophysical act and synthesis of primary photo products, intermediate stages, including charge transfer, primary, stable chemical product formation, combined physiological and biochemical processes, final photobiological effect.

The fundamental law of photobiology says that biological effect is induced only by radiation with the wavelength, absorbed by molecules or photoreceptors of different structural elements in cells. Biostructure sensitivity to low energy laser irradiation of the whole optical range is caused by the totality of specific photo acceptors which absorb the radiation energy and provide its transformation in biophysical biochemical processes.

The low energy laser irradiation induces various effects in tissues and organs, bound to direct and indirect effect of electromagnetic waves of the optical spectrum.

Direct action manifests itself in irradiated tissue volume change. Hence, laser irradiation interacts with photoreceptors and starts the whole complex of photophysical and photochemical reactions. Besides photo acceptors, various molecular structures reflex to direct effect of electromagnetic waves. Weak atomic and molecular bonds are disturbed in these structures. This, in turn, adds and intensifies the effect of direct laser irradiation.

The indirect effect is associated with either irradiation energy transformation and its further migration or the energy or its effect transfer by different ways and methods. The effect is mainly manifested by cell reradiation of electromagnetic waves and transfer of low energy laser irradiation effect through liquid media of the organism.

The final photo biological effect of laser irradiation manifests itself in the entire organism response and complex reacting of organs and systems. This is reflected in clinical effects of laser therapy.

Text 10

Ophthaimic Nd: YAG Laser System LC-1000

Application

It is an excellent laser system with a variety of functions.

A high-quality laser is employed to assure uniform output. More effective treatment applications are made possible thanks to continuous laser output conversion from 0 to 15 m/pulse, three bursts per second discharge, burst mode, etc.

In a slit lamp, observation, illumination and laser emission systems are separated from each other, assuring a clear view of the surgical area and accurate focusing.

Maximum accuracy is assured by the use of a dual beam, rotary alignment collimation system.

Focus and laser emission are accomplished with a slit lamp joystick control; smooth one-hand operation is possible.

Innovations

The following new functions have been built into the system to prevent operating mistakes or malfunction;

Laser output can be instantly cut by hitting the emergency switch.

Laser output cuts off automatically whenever the unit's self-diagnostic system senses a malfunction.

The self-diagnostic system runs a complete operational check on the unit every time the main switch is turned on. If a malfunction is detected, the system activates the appropriate indicator lamp on the display panel.

Laser output is possible only when the footswitch and laser output switch are pressed simultaneously.

Text 11

Device for measurements of spatial-energy parameters of pulsed laser radiation IPX-1

Three-dimensional picture of laser radiation intensity distribution

Coordinate of the energy center

Beam diameter against the specified level

Graphic representation of beam sections versus X, Y, Z coordinater

Independent calibration at a place of use

Visualization of is o-energetic zones in cross section of laser pulse

Introduction :

IPX-1 represents a compact device for measurements of radiation distribution in cross section of laser pulse, of energy centre coordinates and laser beam diameter against the specified level. High accuracy of measurements is achieved due to application of a special matrix fiber collector. Compact, air-cooling, easy in use IPX-1 is an optimal approach for express and precise measurements of the basic spatial energy parameters at manufacturing and operation of pulsed solid-state lasers.

The technical review:

IPX-1 is an independent informational measuring system consisting of matrix radiation converter , a controller, independent calibration device and PC computer. The laser pulse falls on the input surface of the patented matrix optical fiber collector and undergoes a spatial division into 256 beams which are registered by

photodetectors. This collector performs a laser pulse spatial division excluding mutual influence of the neighbour optical channels, thus providing measurements high stability and accuracy. The device is supplied with a control system and measurement process is completely automated.

Standard characteristics:

intensity distribution profile measurement within a laser pulse cross section

computation of an energy center coordinate

computation of a beam diameter against the specified level

256-channel matrix converter of laser radiation

measuring unit consisting of the controller and the microprocessor

independent calibration device

automatic control, registration and data processing

one day for personnel training

operator's guide and operation rules

Additional characteristics:

The software determining the measured distribution structure divergency from the Gauss one

Additional programs on the user's request

Specific procedures of measured results registration and comparison

Full diagnostics of laser pulse parameters at common use with the energy measuring device IEL400

Applications:

Metrology: stability of laser pulse orientation diagram from pulse to pulse; divergency, energetic centre's diameter and coordinates.

Manufacture of pulsed solid-state lasers:

1) resonator adjustment;

2) output control.

Measurements of spatial - energy parameters in the following fields :

1) materials processing ;

2) medical devices units;

3) systems of laser location, detection, indication and illumination.

Specifications :

Power: 220 V, 50 Hz, 60 W

Dimensions: (the matrix converter of radiation) - 280 x 320 x 270 mm

(the measuring unit) - 120 x 200 x 300 mm

Weight: 20 kg

Temperature: 10 - 40 °C

Warm-up time: 10 min

Interface: RS - 232

Operational parameters:

Spectral range (um) 0,4 – 1,1

Beam diameter (mm) 8-16

Dynamic range of distribution structure measurements (rel.unit) 0,01-1

Range of laser radiation energy at which spatial energy parameters are measured (J) 10^{-3} - 1

Pulse duration (s) $10"^{n}$ - $10"^{3}$
Pulse rate - unitary pulses
The basic error < 5 %
Reproducibility of measurements results > 99 %
The software:
Control,
processing and the analysis of measurements results,
independent calibration algorithm
IPX - 1 has the Gosstandart of Russia certificate on calibration and is brought in the register of measurements means.

Text 12

Mobile standard - carrier of the size of a pulsed laser radiation energy unit MEPE-2

Calibration of energy measurement means at operation place
High accuracy of energy unit size reproduction and transfer
Energy stabilized pulsed lasers without cooling
Possibility of energy measurement means calibration in spectral range within 0,19 - 12,0 um
Compactness and transportability
Independent electric calibration of the standard
Automated calibration of energy measurement means
Introduction:
MEPE-2 is intended to ensure the uniformity of pulsed laser energy measurements and calibration of energy measurement means (MM). It represents a laser measuring system in compact portable design. Achievements in technology of pulsed lasers power parameters stabilization and in engineering of precise calorimetric converters provide high reproducibility and accuracy of energy measurements. Compact and easy in use, MEPE-2 is optimal for calibration of energy measurement means and appropriate radiation detectors.
The technical review:
MEPE-2 is a mobile information and measurement system of laser power photometry. Pulse energy of stabilized laser is measured by precise calorimetric radiation converter and calibrated MM simultaneously, as this takes place,the energy instability in optical channel of the MM under calibration is constantly being measured by similar calorimetric radiation converter. For MEPE-2 calibration on the national standard the calorimetric radiation converter may be withdrawn from device housing.
Standard characteristics:
Mobile MEPE-2 with the system of automated MM calibration Computer "PENTIUM"
The device for standard control, data registration and storage
The standard software on WINDOWS basis

The standard passport
Operation guide and application rules
Metrological certificate
Additional opportunities:
Specific receptions of MM calibration
Additional algorithms and checking programs on user's delivery of lasers requirement
Other radiation wavelengths on user's requirement
Applications:
Uniformity ensurance of pulsed laser radiation energy measurements (reproduction, storage, transfer of unit size)
Calibration of MM of pulse of laser radiation energy (determination of transformation factor)
Calibration of radiation detectors
Investigations of main error components for energy MM under development
Specifications :
Power: 220 V, 50 Hz, 200 W
Dimensions: Height: 285 mm Width: 150 mm Length: 800 mm Weight: 25 kg
Temperature : 20° C
Warm-up time: 30 min
Laser cooling: air
Duration of reproduced pulses: (5-10) 10^9 s (at wavelengths 1,06 and 0,53 mkm) (1-3) 10^3 s (at wavelength 1,54 mkm.
Error of energy unit size reproduction: 0,8 %
Error of energy unit size transfer of the calibrated MM: 0,8%
Time of MM calibration : 30 min.
Interval between calibrations: 18 month.
The software:
Algorithm of energy unit size reproduction and transfer
Algorithm of MM calibration
Control
Data processing and storage WINDOWS
MEPE-2 has the metrological certificate of the Gosstandart of Russia

Text 13

Molecular Technology Today

One dictionary definition of a machine is “any system, usually of rigid bodies, formed and connected to alter, transmit, and direct applied forces in a predetermined manner to accomplish a specific objective, such as the performance of useful work.” Molecular machines fit this definition quite well.

To imagine these machines, one must first picture molecules. We can picture atoms as beads and molecules as clumps of beads, like a child's beads linked by snaps. In fact, chemists do sometimes visualize molecules by building models from

plastic beads (some of which link in several directions, like the hubs in a Tinkertoy set). Atoms are rounded like beads, and although molecular bonds are not snaps, our picture at least captures the essential notion that bonds can be broken and reformed.

If an atom were the size of a small marble, a fairly complex molecule would be the size of your fist. This makes a useful mental image, but atoms are really about 1/10,000 the size of bacteria, and bacteria are about 1/10.000 the size of mosquitoes. (An atomic nucleus, however, is about 1/100,000 the size of the atom itself; the difference between an atom and its nucleus is the difference between a fire and a nuclear reaction.)

The things around us act as they do because of the way their molecules behave. Air holds neither its shape nor its volume because its molecules move freely, bumping and ricocheting through open space. Water molecules stick together as they move about, so water holds a constant volume as it changes shape. Copper holds its shape because its atoms stick together in regular patterns; we can bend it and hammer it because its atoms can slip over one another while remaining bound together. Glass shatters when we hammer it because its atoms separate before they slip. Rubber consists of networks of kinked molecules, like a tangle of springs. When stretched and released, its molecules straighten and then coil again. These simple molecular patterns make up passive substances. More complex patterns make up the active nanomachines of living cells.

Biochemists already work with these machines, which are chiefly made of protein, the main engineering material of living cells. These molecular machines have relatively few atoms, and so they have lumpy surfaces, like objects made by gluing together a handful of small marbles. Also, many pairs of atoms are linked by bonds that can bend or rotate, and so protein machines are unusually flexible. But like all machines, they have parts of different shapes and sizes that do useful work. All machines use clumps of atoms as parts. Protein machines simply use very small clumps.

Biochemists dream of designing and building such devices, but there are difficulties to be overcome. Engineers use beams of light to project patterns onto silicon chips, but chemists must build much more indirectly than that. When they combine molecules in various sequences, they have only limited control over how the molecules join. When biochemists need complex molecular machines, they still have to borrow them from cells. Nevertheless, advanced molecular machines will eventually let them build nanocircuits and nanomachines as easily and directly as engineers now build microcircuits or washing machines. Then progress will become swift and dramatic.

Text 14

Designing with Protein

How far off is such an ability? Steps have been taken, but much work remains to be done. Biochemists have already mapped the structures of many proteins. With gene machines to help write DNA tapes, they can direct cells to build any protein

they can design. But they still don't know how to design chains that will fold up to make proteins of the right shape and function. The forces that fold proteins are weak, and the number of plausible ways a protein might fold is astronomical, so designing a large protein from scratch isn't easy.

The forces that stick proteins together to form complex machines are the same ones that fold the protein chains in the first place. The differing shapes and kinds of stickiness of amino acids - the lumpy molecular "beads" forming protein chains - make each protein chain fold up in a specific way to form an object of a particular shape. Biochemists have learned rules that suggest how an amino acid chain might fold, but the rules aren't very firm. Trying to predict how a chain will fold is like trying to work a jigsaw puzzle, but a puzzle with no pattern printed on its pieces to show when the fit is correct, and with pieces that seem to fit together about as well (or as badly) in many different ways, all but one of them wrong. False starts could consume many lifetimes, and a correct answer might not even be recognized. Biochemists using the best computer programs now available still cannot predict how a long, natural protein chain will actually fold, and some of them have despaired of designing protein molecules soon.

Yet most biochemists work as scientists, not as engineers. They work at predicting how natural proteins will fold, not at designing proteins that will fold predictably. These tasks may sound similar, but they differ greatly: the first is a scientific challenge, the second is an engineering challenge. Why should natural proteins fold in a way that scientists will find easy to predict? All that nature requires is that they in fact fold correctly, not that they fold in a way obvious to people.

Proteins could be designed from the start with the goal of making their folding more predictable. Carl Pabo, writing in the journal Nature, has suggested a design strategy based on this insight, and some biochemical engineers have designed and built short chains of a few dozen pieces that fold and nestle onto the surfaces of other molecules as planned. They have designed from scratch a protein with properties like those of melittin. a toxin in bee venom. They have modified existing enzymes, changing their behaviors in predictable ways. Our understanding of proteins is growing daily.

In 1959. according to biologist Garrett Hardin, some geneticists called genetic engineering impossible; today, it is an industry. Biochemistry and computer-aided design are now exploding fields, and as Frederick Blattner wrote in the journal Science, “computer chess programs have already reached the level below the grand master. Perhaps the solution to the protein-folding problem is nearer than we think.” William Rastetter of Genentech, writing in Applied Biochemistry and Biotechnology asks, “How far off is de novo enzyme design and synthesis? Ten, fifteen years?” He answers, “Perhaps not that long.”

Forrest Carter of the U.S. Naval Research Laboratory, Ari Aviram and Philip Seiden of IBM, Kevin Ulmer of Genex Corporation, and other researchers in university and industrial laboratories around the globe have already begun theoretical work and experiments aimed at developing molecular switches, memory devices, and other structures that could be incorporated into a protein-based computer. The U.S. Naval Research Laboratory has held two international workshops on molecular

electronic devices, and a meeting sponsored by the U.S. National Science Foundation has recommended support for basic research aimed at developing molecular computers. Japan has reportedly begun a multimillion-dollar program aimed at developing self-assembling molecular motors and computers, and VLSI Research Inc., of San Jose, reports that "It looks like the race to bio-chips (another term for molecular electronic systems) has already started. NEC, Hitachi, Toshiba. Matsushita, Fujitsu, Sanyo-Denki and Sharp have commenced full-scale research efforts on bio-chips for bio-computers."

Biochemists have other reasons to want to learn the art of protein design. New enzymes promise to perform dirty, expensive chemical processes more cheaply and cleanly, and novel proteins will offer a whole new spectrum of tools to biotechnologists. We are already on the road to protein engineering, and as Kevin Ulmer notes in the quote from Science that heads this chapter, this road leads toward a more general capability for molecular engineering which would allow us to structure matter atom by atom.

Приложение Б
(рекомендуемое)
Грамматический справочник

Section 1

Revise the following grammar rules

Части речи

Все слова, входящие в язык, делятся на разряды, называемые частями речи Различаются следующие части речи:

1) существительное (noun, n)
2) прилагательное (adjective, a)
3) числительное (numeral)
4) местоимение (pronoun, pron)
5) глагол (verb, v)
6) наречие (adverb, adv)
7) предлог (preposition, prep)
8) союз (conjunction, cj)
9) междометие (interjection, inter)

1 Существительным называется часть речи, обозначающая предметы. Предметами в грамматике называют все то, о чем можно спросить: кто это? или что это?

Кто это? - a doctor, a man, a girl

Что это? - a tree, a house, freedom

Существительные имеют два артикля: a (an) - неопределенный и the - определенный.

Существительные имеют два числа: единственное - a boy, a tree и множественное - boys, trees.

Существительные имеют два падежа: общий - sister и притяжательный - sister's. Притяжательный падеж, как правило, имеют одушевленные существительные.

2 Прилагательным называется часть речи, обозначающая признаки предметов и отвечающие на вопрос: какой? Например: red, interesting, Russian и т.д.

Прилагательные не изменяются по родам, числам и падежам.

Прилагательные имеют три степени сравнения**:** положительную, сравнительную и превосходную.

3 Числительным называется часть речи, обозначающая количество или порядок предметов

Склонение личных местоимений

Личные местоимения в английском имеют два падежа:

1 именительный падеж (the nominative case)

2 объектный падеж (the objective case), заменяющий собой все падежи русского

		Именительный падеж	Объектный падеж
Ед. число	1 лицо	I (я)	me (мне, меня)
	2 лицо	you (ты)	you (тебе, тебя)
	3 лицо	he (он)	him (ему, его)
		she (она)	her (ей, ее) it (ему)
		it (оно)	
Мн. число	1 лицо	we (мы)	us (нам, нас) you (вам,
	2 лицо	you (вы)	вас)
	3 лицо	they (они)	them (им)

Притяжательные местоимения

Единственное число	Множественное число
1 лицо my (мой, моя, мое, мои)	1 лицо our (наш, наша, наше, наши)
2 лицо your (твой, твоя, твое, твои)	2 лицо your (ваш, ваше, ваши)
3 лицо his (его), her (ее), its (его)	3 лицо their (их)

Притяжательные местоимения имеют две формы: основную и абсолютную.

Основная форма употребляется в тех случаях, когда за притяжательным местоимением стоит существительное.

This is my book and that is your book. Это моя книга, а то твоя книга.

Абсолютная форма притяжательных местоимений употребляется в тех случаях, когда за местоимением не стоит существительное.

This is my book and that is yours. Это моя книга, а то твоя.

It is not mine. Она не моя.

Абсолютные формы притяжательных местоимений

	Единственное число	Множественное число
1 лицо	mine (мой, моя, мое, мои)	ours (наш, наша, наше, наши)
2 лицо	yours (твой, твоя, твое, твои)	yours (ваш, ваша, ваше, ваши)
3 лицо	his (его), hers (ее), its (его)	theirs (их)

Указательные местоимения

Указательные местоимения имеют единственное и множественное число.

Единственное число	Множественное число
this (этот, эта, это)	these (эти)
that (тот, та, то)	those (те)

This is my house and that is yours Это мой дом, а то - твой.

These are my books. Take those books. Эти книги мои. Возьми те книги.

Указательное местоимение such имеет одну неизменяемую форму.

I like such books. Мне нравятся такие книги.

В английском языке возвратные местоимения образуются от личных местоимений

I - myself	we - ourselves
you - yourself	you - yourselves he - himself
she - herself it - itself	they - themselves

Возвратное местоимение oneself образуется от неопределенного местоимения one + self

Спряжение глагола to be

Настоящее время (Present Indefinite)

Ед. число

Утвердительная форма	Вопросительная форма	Отрицательная форма
I am.	Am I?	I am not. You are not.
You are.	Are you?	He (she, it) is not.
He (she, it) is.	Is he (she, it)?	

Мн. Число

Утвердительная форма	Вопросительная форма	Отрицательная форма
We (you, they) are.	Are we (you, they)?	We (you, they) are not.

Прошедшее время (Past Indefinite)

Ед. число

Утвердительная форма	Вопросительная форма	Отрицательная форма
I (he, she, it) was.	Was I (he, she, it)?	I (he, she, it) was not.
You were.	Were you?	You were not.

Мн. Число

Утвердительная форма	Вопросительная форма	Отрицательная форма
We (you, they) were.	Were we (you, they)?	We (you, they) were not.

Будущее время (Future Indefinite)

Ед. число

Утвердительная форма	Вопросительная форма	Отрицательная форма
I shall be.	Shall I be?	I shall not be.
You (he, she, it) will be.	Will you (he, she, it) be?	You (he, she, it) will not be.

Мн. Число

Утвердительная форма	Вопросительная форма	Отрицательная форма
We shall be.	You (they) will be	We shall not be.
	Shall we be?	You (they) will not be.
	Will you (they) be?	

Спряжение глагола to have

Утвердительная форма	Вопросительная форма	Отрицательная форма
I have	have I?	I have no...
he has	has he?	He has no...
we have	have we?	we have no...
you have	have you?	you have no...
they have	have they?	they have no...

Глагол to have означает “иметь”, “обладать” и переводится на русский язык “у меня (тебя и т. д.) есть”.

Вопросительная форма образуется постановкой глагола-сказуемого перед подлежащим.

В отрицательных предложениях ставится отрицательное местоимение no:

I have no watch. He has no books.

В кратких отрицательных ответах после глагола следует отрицание not:

I have not или в разговорной речи haven't, he has not или he hasn't.

Существительные (Nouns)

Существительными принято называть слова, обозначающие названия предметов, людей, животных, растений, веществ и понятий, например:

a book - книга,
a woman - женщина,
a student - студент,
a dog - собака,
a flower - цветок,
bread - хлеб,
snow - снег,
problem - проблема,
love - любовь.

Все существительные делятся на имена собственные (имена людей, клички животных, названия городов, улиц и т.д.), которые всегда пишутся с большой буквы: Tom, London, America, и имена нарицательные, которые подразделяются на исчисляемые и неисчисляемые существительные. К исчисляемым существительным относят названия конкретных предметов и абстрактных понятий, которые поддаются счёту, например:

a pen - ручка,

a horse - лошадь,
a question - вопрос,
an effort - усилие.

К неисчисляемым существительным относят названия веществ и отвлечённых (абстрактных) понятий, которые счету не поддаются, например:

sand - песок,
sugar - сахар,
oil - масло,
time - время,
progress - прогресс.

Plural form of nouns. Множественное число существительных.

Исчисляемые существительные могут иметь форму единственного числа, если речь идёт об одном предмете, и множественного числа, если речь идёт о двух или более предметах. Форма множественного числа у большинства исчисляемых существительных образуется с помощью суффикса "**-s** (-es)", например:

a book - books книга - книги
a table - tables стол - столы
a bridge - bridges мост - мосты
a boy - boys мальчик - мальчики

В английском языке есть небольшое количество существительных, которые образуют форму множественного числа не по общему правилу:

Исключения

Ед. число	Мн. число	
man	men	мужчины, люди
woman	women	женщины
mouse	mice	мыши
tooth	teeth	зубы
foot	feet	ступни, ноги
child	children	дети
ox	oxen	быки
goose	geese	гуси
sheep	sheep	овцы
deer	deer	олени
swine	swine	свиньи

Существительные, оканчивающиеся на “-f/-fe “, во множественном числе пишутся с “-ves”. Если слово в единственном числе оканчивается на “-o”, то к нему во множественном числе прибавляется суффикс “-es”

Если же слово оканчивается на “-y” с предшествующим согласным, то во множественном числе к нему прибавляется суффикс “-es”, а буква “y” переходит в “I”, например:

leaf - leaves лист-листья
life - lives жизнь-жизни

tomato - tomatoes помидор-помидоры
Negro - Negroes негр-негры
army - armies армия-армии
family - families семья - семьи.

Неисчисляемые существительные имеют только форму единственного числа и согласуются только с глаголами в единственном числе:
Her hair is blond. Волосы у неё светлые.
The money is on the table. Деньги лежат на столе.
His knowledge is great. Его знания обширны.
The information is interesting. Сведения интересные.
Their progress is great. Их успехи значительны.

Обратите внимание, что есть некоторые неисчисляемые существительные, основа которых оканчивается на “-s”: news - новости, politics - политика, physics - физика, но они могут употребляться только с глаголами в единственном числе.
Your news is very interesting. Твои новости очень интересны.

С другой стороны имеются существительные, которые напротив употребляются только в форме множественного числа. К ним относятся слова, обозначающие предметы, состоящие из двух частей: trousers - брюки, braces - подтяжки, scissors - ножницы, glasses - очки, или собирательные существительные: troops - войска, goods - товары, clothes - одежда, police - полиция, people - люди. Такие существительные согласуются только с глаголом во множественном числе.

The police are looking for the murderer. Полиция ищет убийцу.
There were few people out in the street. На улице было мало людей.
These trousers are too small for me. Эти брюки слишком малы мне.

Притяжательный падеж существительных (Possessive case of nouns)

Существительные в английском языке имеют два падежа: общий падеж и родительный или притяжательный падеж. В общем падеже существительные не имеют никаких окончаний и отвечают на вопрос “кто, что”; притяжательный падеж образуется путём прибавления суффикса “-'s” к существительным в единственном числе, а также к тем существительным во множественном числе, которые образуют его не по правилам, например: boy's, girl's, men's, children's, и отвечает на вопрос “чей”. Апостроф “ -' “ прибавляется к существительным во множественном числе: soldiers', workers'.
This is the boy's book.
These are the boys' books.

Существительные в родительном падеже обычно выступают в качестве определения к другому существительному и выражают принадлежность в широком смысле слова, например: the children's toys - игрушки (чьи?) детей, the parents' consent - согласие (чьё?) родителей, the girl's story - рассказ (чей?) девочки; или служит описанию предмета, например: sheep's eyes - глаза, как у

овцы, soldiers' uniform - солдатская форма, a mile's distance - расстояние в одну милю. Существительные, обозначающие неодушевлённые предметы, вещества и отвлечённые понятия, как правило, в форме родительного падежа не употребляются, а образуют оборот с предлогом “of”:

the windows of the house -окна дома
the handle of the door - ручка двери.

Числительные (The Numerals)

Числительные обозначают количество предметов или порядок предметов при счете. Числительные делятся на количественные, отвечающие на вопрос «сколько?» и порядковые, отвечающие на вопрос “который?”. Количественные числительные от 13 до 19 образуются прибавлением суффикса -teen к основе.

Числительные, обозначающие десятки, имеют суффикс -ty. Порядковые числительные кроме первых трех (first, second, third) образуются прибавлением суффикса -th или -eth к соответствующим количественным числительным. Существительные с порядковыми числительными всегда употребляются с определенным артиклем.

Порядковые Какой по счету?
the first первый
the second второй
Количественные сколько?
1 one - один
2 two - два
3 three - три
4 four - четыре
5 five
6 six
7 seven
8 eight
9 nine
10 ten
11 eleven
12 twelve
13 thirteen
14 fourteen
15 fifteen
16 sixteen
17 seventeen
18 eighteen
19 nineteen
2 twenty

the third the fourth the fifth the sixth the seventh the eighth the ninth the tenth the eleventh the twelfth the thirteenth the fourteenth the fifteenth the sixteenth the seventeenth the eighteenth the nineteenth the twentieth

третий четвертый

Десятки:

20 twenty-the twentieth

30 thirty - the thirtieth

40 forty - the fortieth

50 fifty - the fiftieth

60 sixty - the sixtieth

Составные числительные:

twenty-one

the twenty-first twenty-two

the twenty-second thirty-three - the thirty-third forty-four - the for

70 seventy-the seventieth fifty-five - the fifty-fifth

80 eighty - the eightieth sixty-six - the sixty-sixth

90 ninety - the ninetieth

Числительные от 100 и больше:

100 - a (one) hundred	100th - the hundredth
101 - a (one) hundred	101st - the one hundred and first
200 - two hundred	200th - the two hundredth
1000 - (one) thousand	1000th - the thousandth

1001 - a (one) thousand and one

5,550 - five thousand five hundred and fifty 5,000,000 - five million 1500 - fifteen hundred

Числительные hundred, thousand, million не имеют окончания *-s,* когда перед ними стоит другое числительное. Когда числительные обозначают неопределенное количество, они употребляются во множественном числе с окончанием -s, за которым следует предлог of. hundreds of books two hundred books

thousands of books	five thousand books
millions of people	2 million people

Номера страниц, домов, квартир, транспорта, обозначаются не порядковыми, а количественными числительными. В этих случаях существительные употребляются без артикля: page 15, house 40, flat 13, bus 72.

Как читаются даты?

Числительное, обозначающее год, делится на две части - число сотен, а затем - число десятков и единиц.

1900 - nineteen hundred, in (the year) nineteen hundred

2000 - two thousand, in (the year) two thousand

1905 - nineteen five, in (the year) nineteen five

Даты можно читать так:

April 12, 2001

1 on the twelfth of April, two thousand one

2 on April the twelfth, two thousand one

В английских деловых письмах дата (день, месяц, год) печатается справа. Обычно дата печатается полностью, а не в цифровом выражении, напр. 12 Apr. 2003. Названия месяцев можно писать в сокращении, кроме May.

В американских деловых письмах дата пишется иначе, так как в США обозначается сначала месяц, затем день и год. Например: 2 сентября 2000 года в американском варианте лучше написать September 2, 2000.

Как читаются дробные числительные?

Простые Десятичные

1/2-a (one) half; 0.1 -0[ou] point one

1/4 - a (one) quarter 2.45 - two point four five 2/3 - two thirds

35.25 - three five

(или thirty- five) point two five 1.5- one and a half

Обозначения времени:

Если минутная стрелка находится в правой части циферблата - используется предлог past,

It's ten past eleven. 10 минут двенадцатого.

It's a quarter past eleven. Четверть двенадцатого.

It's half past eleven. Половина двенадцатое .

Если минутная стрелка находится в левой части циферблата, то используется предлог to

It's ten to twelve. Без десяти двенадцать.

It's a quarter to twelve. Без четверти двенадцать.

It's twenty minutes Без двадцати минут to twelve.

двенадцатьIt is eleven sharp. Ровно одиннадцать.

Время до полудня обозначается a.m. (от лат. ante meridiem), а после полудня p.m (от лат. post meridiem).

Например:

10 a.m. - Десять часов утра.

6 p.т - Шесть часов вечера.

Предлоги и союзы (Prepositions and Conjunctions)

Предлоги - служебные слова, которые указывают на связь существительных (или местоимений) с другими словами в предложении. Ввиду того, что в английском языке почти полностью отсутствуют падежные окончания, порядок слов и предлоги играют особенно важную роль.

По своей структуре предлоги могут быть отдельными словами (in, for, under), сложными словами (inside, throughout), словосочетаниями (thanks to, because of, on account of, in accordance with). Предлоги выражают разнообразные отношения (пространственные, временные, причинные и др.), которые в русском языке передаются падежными окончаниями. Так, предлог of часто соответствует русскому родительному падежу, to - дательному, by и with

- творительному (by обозначает действующее лицо, а with обозначает предмет, с помощью которого производится действие). Например:

It's a good map of the town.	Это хорошая карта города.
The book is written by my friend.	Книга написана моим другом.
I cut my finger with a knife.	Я порезал свой палец ножом.

Многие предлоги имеют не одно, а несколько значений. Часто употребление предлога в предложении зависит от предшествующего слова - глагола, прилагательного или существительного. Так, например, глагол to depend требует после себя предлога on, to laugh - предлога at и т.д.

My decision depends on you.	Моё решение зависит от тебя.
The book belongs to me.	Книга принадлежит мне.

Особенностью английского языка является сохранение предлога в конце предложения после глагола или после дополнения.

What are you looking at?	На что ты смотришь?
The doctor was sent for.	За доктором послали.
This is the house he lives in.	Это дом, в котором он живёт.

Союзы - служебные слова, которые устанавливают связь между словами, словосочетаниями и частями речи.

По своей структуре союзы могут быть отдельными словами (and, but, after, as, while, if и др.), словосочетаниями (in case, as soon as, as if и др.), а также соотносительными парами (both... and, either... or, not only... but also и др.).

У союзов есть своё лексическое значение, согласно которому они подразделяются на соединительные и подчинительные.

Соединительные союзы связывают слова, словосочетания и части предложения, которые не зависят друг от друга, например:

Her hair was dark and long.	Волосы у неё были тёмные и длинные.
It's fine but cold.	Ясно, но холодно.
Tea or coffee?	Чай или кофе?

Подчинительные союзы связывают придаточные предложения с главным, уточняя подчинительный характер отношений между ними, например:

When she read the letter, she locked it in her desk.	Когда она прочла письмо, она заперла его в своём толе.
She knew that I should go with him if he asked me to	Он знал, что я пойду с ним, если он меня пригласит.

соединительные	подчинительные
and-и (объединение)	when – когда
but - но (противопоставление)	while - пока
or - или (выбор)	after - после того как
either... or - или ... или	that – что
neither...nor - ни ... ни	as - в то время как
both ... and - как ... так и	before - прежде чем
as well as - также как	since - с тех пор как

not only ...but - не только ... но и if - если

Порядок слов в английском предложении

В английском предложении каждый член предложения, как правило, имеет свое определенное место. Так, в простом распространенном повествовательном предложении следующий порядок:

1) подлежащее;
2) сказуемое;
3) дополнение (беспредложное, прямое, предложное)
4) обстоятельства (образа действия, места, времени).

Например:

1 I 2 gave 3 my brother 3 a book 4 yesterday.

Основные типы вопросов, используемые в английском языке

Обший вопрос (General Question)

Общий вопрос относится ко всему предложению в целом, и ответом на него будут слова yes или no: Do you like ice cream? - Yes, I do. Can you speak English? -Yes, I can. Are you a schoolboy? - No, I am not. Have you bought a textbook? - Yes, I have.

Порядок слов в общем вопросе.

1 вспомогательный глагол (модальный, глагол-связка),
2 подлежащее (существительное или местоимение),
3 смысловой глагол (или дополнение).

Специальный вопрос (Special Question)

Специальный вопрос относится к какому-нибудь члену предложения или их группе и требует конкретного ответа:

What is your name? My name is Peter.
Where do you live? - live in Rostov.

Порядок слов в специальном вопросе:

1) вопросительное слово (what, where, who, when, how и т. д.),
2) вспомогательный глагол (модальный, глагол-связка),
3) подлежащее,
4) смысловой глагол,
5) дополнения,
6) обстоятельства (места, времени, образа действия и т.д.).

В специальных вопросах, обращенных к подлежащему в формах Present и Past Indefinite, не употребляется вспомогательный глагол do (did) и сохраняется прямой порядок слов: Who wants to go to the cinema? Who lives in this house?

Альтернативный вопрос (Alternative Question)

Альтернативный вопрос предполагает выбор из двух возможностей:

Do you like coffee or tea? - Вы любите кофе или чай?

Альтернативный вопрос начинается как общий вопрос, затем следует разделительный союз or и вторая часть вопроса.

Разделительный вопрос (Disjunctive or Tail Question)

Разделительный вопрос состоит из двух частей. Первая часть - это повествовательное предложение (утвердительное или отрицательное), вторая, отделенная запятой от первой - краткий вопрос:

You are a pupil, aren't you? - Вы ученик, не правда ли?

Если в повествовательной части разделительного вопроса содержится утверждение, то во второй - отрицание. Если в повествовательной части - отрицание, то во второй части, как правило, - утверждение:

You are a student, aren't you?

You don't go to school every day, do you?

Section 2

Времена английского глагола

Таблица временных форм глагола

Глаголы в формах Indefinite (Simple) описывают обычные, повторяющиеся действия как факт – без относительно к их длительности или к результату действия:

I go to school every day. - Я хожу в школу каждый день.

went to school when I was a boy. - Я ходил в школу, когда был мальчиком.

I shall go to school when I grow up. - Я буду ходить в школу, когда вырасту.

Для указания на повторный характер действия часто употребляются слова

every day / week, month, year (каждый день / каждую неделю, месяц, год), often (часто), seldom (редко), always (всегда),usually (обычно), never (никогда).

Наречия often, seldom, always, never, usually обычно ставятся перед глаголом.

В предложениях с глаголом to be эти наречия обычно ставятся после глагола.

He is never late for the lessons. - Он никогда не опаздывает на уроки.

Временные формы глагола

Время	Простое Indefinite (Simple)	Длительное Continuous	Завершенное Perfect
Настоящее Present	I write Я пишу (вообще, обычно)	I am writing Я пишу (сейчас)	I have written Я (уже) написал

Прошедшее Past	I wrote Я (на) писал (вчера)	I was writing Я писал (в тот момент)	I had written Я написал (уже к тому моменту)
Будущее Future	I shall/will write Я напишу, буду писать (завтра)	I shall/will be writing Я буду писать (в тот момент)	I shall / will have written Я напишу (уже к тому моменту)

Формы глагола Indefinite (Simple)

Формы глагола в Present Indefinite

Число	Утвердительная форма	Вопросительная форма	Отрицательная форма
Ед.	I (you) ask. He (she, it) asks.	Do I (you) ask? Does he (she, it) ask?	I (you) do not ask. He (she, it) does not ask.
Мн.	We (you, they) ask.	Do we (you, they) ask?	We (you, they) do not ask.

Формы глагола в Past Indefinite

Число	Утвердительная форма	Вопросительная форма	Отрицательная форма
Ед. и мн.	I (you, he, she, it, we, they) asked.	Did I (you, he, she, it, we, they) ask?	I (you, he, she, it, we, they) did not ask.

Отрицательная и вопросительная формы в Indefinite образуются при помощи вспомогательных глаголов do, does, did с частицей not, краткая форма: don't, doesn’t, didn’t. Порядок слов прямой. Вопросительные предложения образуются, как правило, простой перестановкой подлежащего и вспомогательного глагола. Вопросительные местоимения при этом стоят всегда впереди.

He is a student. - Is he a student?

We do not write much. - Do we write much?

You have a computer. - Have you a computer? - What do you have?

She does not live in Moscow. - Does she live in Moscow?

He didn't like the film. - Did he like the film? - What film he didn't like?

Особую группу составляют разделительные вопросы, которые переводятся как утверждения плюс «не так ли?» Они применимы к любому времени. Например:

You speak English, don't you? Вы говорите по-английски, не так ли?

Но: Let us speak English, shall we? Давайте говорить по-английски, хорошо?

Правильные и неправильные глаголы (Regular and irregular verbs)

По способу образования прошедшего времени все глаголы в английском языке можно разделить на две группы: правильные и неправильные. У правильных глаголов вторая и третья формы (Past Indefinite Tense и Past Participle - простое прошедшее время и причастие прошедшего времени) совпадают между собой и образуются путем прибавления к основе глагола окончания -ed (-d):

to ask - asked to change - changed

to receive - received to work- worked

Формы глагола в Future Indefinite

Число	Утвердительная форма	Вопросительная форма	Отрицательная форма
Ед.	I shall ask. You (he, she, it)will ask.	Shall I ask? Will you (he, she, it) ask?	1 shall not ask. You (he, she, it) will not ask.
Мн.	We shall ask. You (they) will ask.	Shall we ask? Will you (they) ask?	We shall not ask. You (they) will not ask.

Безличные и неопределенно-личные предложения

Английские предложения отличаются от русских тем, что в них всегда есть подлежащее и сказуемое.

Поэтому в безличных предложениях, когда нет подлежащего, используется в качестве формального подлежащего местоимение it .

It is cold today. Сегодня холодно.

Как видим, безличные предложения такого тип? состоят из местоимения it, которое не переводится, глагола-связки в нужном по смыслу времени и именной части сказуемого, выраженного чаще всего именем прилагательным. Именная часть может быть также выражена именем существительным или именем числительным.

It's nice to meet you. Приятно познакомиться.

It is nine o'clock now. Сейчас девять часов.

Очень часто безличные предложения описывают явление природы, состояние погоды, обозначают время, расстояние.

Вопросительная и отрицательная формы безличных предложений образуются по тем же правилам, что и вопросительные и отрицательные формы предложений с именным составным сказуемым.

Is it cold? - Холодно?

Wasn't it interesting? - Разве это не было интересно?

Частица not ставится после первого вспомогательного глагола.

Артикли (Articles)

В английском языке имена существительные имеют поясняющее слово - артикль. Артиклей два: неопределенный “a” (или “an”, если слово начинается с гласной) и определённый “the”. Неопределённый артикль произошёл от древнеанглийского слова “один”, поэтому он может употребляться только с исчисляемыми существительными в единственном числе :

a tree - дерево, an apple - яблоко.

Неопределённый артикль в силу своего происхождения не может сочетаться с существительными во множественном числе или с неисчисляемыми существительными. Место неопределённого артикля остаётся в этом случае пустым. Это отсутствие артикля называется нулевым артиклем. Определённый артикль произошёл от древнеанглийского местоимения “этот” и может употребляться с самыми разными существительными без ограничения.

Артикли очень важны для установления взаимопонимания между говорящими. Говорящий употребляет артикли для того, чтобы собеседник его правильно понял. Неопределённый и нулевой артикль ставится перед исчисляемым существительным в единственном числе, когда возникает необходимость впервые назвать предмет или понятие, которые до этого в разговоре не затрагивались, например:

What did he give you? - A cigarette.
Что он тебе дал? Сигарету.
What did he tell you? - He asked me a question
Что он тебе сказал? - Он задал мне вопрос.
I saw a letter on the table.
Я увидел (какое-то) письмо на столе.
I saw letters on the table.
Я увидел (какие-то) письма на столе.
I saw snow in the fields.
Я увидел снег в полях.

Определённый артикль показывает, что говорящий имеет в виду конкретный предмет или понятие, которые хорошо известны его собеседнику, например:

Ann, put the kettle on the stove, please.

Аня, поставь чайник на плиту, пожалуйста.

Артикли относятся непосредственно к существительному, но если у существительного есть определение, то артикли ставятся перед всеми определениями, например:

a cat / a black cat / a dirty black cat
кот / чёрный кот/ грязный чёрный кот

the man / the old man / the fat old man
человек / пожилой человек / толстый пожилой человек.

Если определением существительного является местоимение, то артикль не нужен:

the dictionary (этот) словарь
my dictionary мой словарь.

Section 3

Продолженные времена (Continuous Tenses)

Основным назначением группы “Continuous” является обозначение действий, протекающих в точно указанное время, либо одновременно с другим действием. Дополнительными характеристиками таких действий является их незаконченность, динамичность и наглядность. Глаголы во всех временных формах этой группы состоят из вспомогательного глагола “to be” в соответствующем времени и смыслового глагола в форме “-ing” (т.н. инговая форма глагола “V ing”, которая образуется путём прибавления суффикса “-ing” к основе инфинитива “V”).

Например: to write (писать) - I am writing (Я пишу).
to look at (смотреть на) - He is looking at me (Он смотрит на меня).

При добавлении суффикса “-ing” соблюдаются следующие правила правописания:
если слово оканчивается на “-ie”, то перед суффиксом “-ing” оно заменится на “-y”; to lie (лгать) - I am not lying to you (Я тебе не лгу)
- конечная согласная в закрытом слоге удваивается перед “-ing”,

например: to sit (сидеть) - She is sitting (Она сидит).

Настоящее продолженное время (The Present Continuous Tense)

Для того чтобы показать, что действие происходит именно в настоящий момент (в момент речи), используются глаголы в форме настоящего продолженного (длящегося) времени. Глаголы в форме настоящего продолженного времени употребляются обычно в предложении с обстоятельствами now - сейчас, at the moment - в настоящий момент, но большей частью эти обстоятельства только подразумеваются, так как они всегда очевидны из самой формы глагола.

What are you writing? - I am writing a letter to a friend of mine.

Что ты (сейчас) пишешь? - Я пишу (сейчас) письмо моему другу.

They are not working. They are on their holidays.

Они не работают (сейчас). Они в отпуске.

Утвердительная форма настоящего времени образуется из вспомогательного глагола “to be” в соответствующем лице настоящего времени

(am, is, are) и смыслового глагола в инговой форме (V-ing), которые следуют за подлежащим.

He is reading a book. Он читает книгу.
I am waiting for a call. Я жду телефонного звонка.

Чтобы задать вопрос в настоящем продолженном времени, нужно поставить глагол "to be" перед подлежащим, смысловой глагол в форме "-ing" следует за подлежащим.

Is he reading a new book? Он читает новую книгу?
Are we waiting for a bus? Мы ждём автобус?

Отрицательная форма образуется путём постановки отрицания "not" после вспомогательного глагола.

They are not playing football now. Они не играют в футбол сейчас.
They are very busy. Они очень заняты.

Сравните с настоящим неопределённым:

They don't play football at all. Они не играют в футбол вообще.

+ She is standing.
- She is not standing.
? Is she standing?
Yes, she is. No, she is not. (No, she isn't.)

Прошедшее продолженное время (The Past Continuous Tense)

Прошедшее продолженное время образуется, как и настоящее продолженное время, при помощи глагола “to be” и смыслового глагола в инговой форме. При этом глагол “to be” употребляется в форме прошедшего времени (was, were).

I was reading a book. Я читал книгу.
They were playing chess. Они играли в шахматы.
He was writing a letter. Он писал письмо.

Основным назначением the Past Continuous является обозначение действий, протекавших в точно указанное время в прошлом:

Sue was working at ten o'clock yesterday morning.
Сью работала вчера утром в десять часов. (т.е. в десять часов утра Сью ещё не закончила свою работу).

Дополнительными характеристиками таких действий являются их незаконченность, динамичность и наглядность. Момент, в который протекает интересующее нас действие, часто бывает обозначен другим коротким действием в the Past Simple.

It was raining when I went out into the street.

Шёл дождь, когда я вышел на улицу.
Little Mary came in. She was eating an ice-cream.
Вошла маленькая Мэри. Она ела мороженое.
I saw you last night.
Я видел тебя прошлым вечером.
You were waiting for a bus.
Ты ждал автобус.
I dropped my bag when I was running for a bus.
Я уронил сумку, когда бежал за автобусом.
My car broke down when I was driving to work.
Моя машина сломалась, когда я ехал на работу.
He broke a tooth when he was eating a sandwich.
Он сломал зуб, когда ел сэндвич.

Глагол “to be” (was, were) является в данном случае служебным и служит для образования вопросительной и отрицательной формы. Чтобы задать вопрос в the Past Continuous нужно поставить глагол “to be” (в нужной форме: was/ were) перед подлежащим. А чтобы образовать отрицательную форму, нужно поставить отрицание “not” после глагола “to be”:

+ He was playing at 3 o'clock.
- He was not playing at 3 o'clock.
? Was he playing at 3 o'clock?
Yes, he was. No, he was not. (No, he wasn't.)

Будущее продолженное время (The Future Continuous Tense)

Глаголы в форме будущего продолженного времени выражают действие, которое будет происходить в определённый момент или отрезок времени в будущем. Признаком глагола в форме будущего продолженного времени является сочетание вспомогательного глагола "to be" в будущем времени (shall be, will be) с формой смыслового глагола I-ing.

We shall be expecting you at 5.
Мы будем ждать вас в 5 часов.
Next month they will be repairing the school.
В следующем месяце они будут ремонтировать школу.
This time on Sunday I'll be bathing in the sea.
В это время в воскресенье я буду купаться в море.
+ She will be sleeping.
- She will not be sleeping.
? Will she be sleeping?
Yes, she will. No, she will not. (No, she won't.)

Свершенные времена (Perfect Tenses)

Обозначают действия, закончившиеся к определённому моменту или происходившие ранее других действий в настоящем, прошедшем или будущем.

Временные формы этой группы имеют следующие общие признаки: 1 Глаголы во всех временных формах этой группы состоят из вспомогательного глагола “to have” в соответствующем времени и смыслового глагола в третьей форме - III (ed).(Participle II)

Правильный глагол to work

настоящее:	I have worked
прошедшее:	He had worked
будущее:	We shall have worked
будущее в прошедшем:	I should have worked

Неправильный глагол to write

настоящее:	I have written
прошедшее:	He had written
будущее:	We shall have written
будущее в прошедшем:	I should have written

2 В вопросительной форме подлежащему предшествует вспомогательный глагол:

Have I worked?
Had I worked?
Shall I have worked?
What have you seen there?

3 В отрицательной форме за первым вспомогательным глаголом следует отрицание "not":

I have not written the letter.
I had not written the article.
I should not have written the test work.

Настоящее свершенное время (Present Perfect Tense)

The Present Perfect Tense обозначает действие, которое завершилось к настоящему моменту или завершено в период настоящего времени (в этом году, на этой неделе.) Хотя глаголы в the Present Perfect часто переводятся на русский язык в прошедшем времени, следует помнить, что в английском языке эти действия воспринимаются в настоящем времени, так как привязаны к настоящему результатом этого действия.

В собственном значении the Present Perfect употребляется для выражения действий, которые в момент речи воспринимаются как свершившиеся. В этом случае в центре внимания находится само свершившееся действие.

We have bought a new TV set.
Мы купили новый телевизор (у нас есть новый телевизор).
The students have left the room.

Студенты ушли из комнаты (студентов сейчас в комнате нет).
Go and wash your hands.
Пойди и вымой руки.
I have washed them.
Я их вымыл (руки у меня чистые).

Для the Present Perfect характерны наречия:
already, still, yet, ever, just, recently, never, today, this week.

Употребление:
1 Для обозначения действий, (не) закончившихся к моменту речи (часто с "just" - только что, "yet" - ещё не и др.):

- Have you finished your job? - Ты закончил работу?
- Yes, I have/ No, I haven't. - Да / Нет.
The train has just arrived.
Поезд только что прибыл.
She hasn't written the test yet.
Она ещё не закончила контрольную.

2 Для обозначения действий, происходивших в прошлом, но актуальных в настоящем:
-Have you passed your driving test?
Вы уже сдали экзамен на право вождения автомобиля?
-We can't enter the room.I've lost my key.
Мы не можем войти в (эту) комнату. Я потеряла ключ.

3 Для описания действий, начавшихся в прошлом и продолжающихся до настоящего момента (часто с "since" - с или "for" - в течение):
I' ve always liked him.
Он мне всегда нравился (раньше и теперь).
I have known him for years / since my youth / since 1990.
Я знаю его много лет / с юности/ с 1990 года.
He has written about a hundred novels.
Он написал около ста романов.
(He is alive and can write more.)
(Он жив и может написать ещё).
но:
He wrote about a hundred novels. (He is dead).
Он написал около ста романов. (Его нет в живых).

4 Для обозначения действий, имевших место в неистекший период времени с выражениями типа "this morning" / "afternoon" / "week" - сегодня утром / днём / на этой недели и т.п.:
Has the postman come this morning?
Почтальон приходил сегодня утром?

He hasn't phoned this afternoon.
Он ещё не звонил сегодня днём.
+ He has dressed himself.
- He has not dressed himself.
? Has he dressed himself?
Yes, he has. No, he has not. (No, he hasn't.)

Прошедшее свершенное время (Past Perfect Tense)

The Past Perfect Tense обозначает действие, которое произошло до какого-то момента в прошлом.
Употребление:
1. Когда есть указание момента времени, к которому закончилось действие в прошлом:
By 9 o'clock we'd finished the work.
К 9 часам мы закончили работу.
She had written only two letters by noon.
К полудню она написала только 2 письма.
2. Когда действие в прошлом имело место ранее другого действия:
When you arrived, he had just left.
Когда вы прибыли, он только что уехал.
He had worked at the university for thirty years before he retired.
Он проработал в университете 30 лет, прежде чем ушёл на пенсию.
3. В косвенной речи для передачи настоящего свершенного и простого прошедшего времени:
He said he had studied English for two years. (He said: "I have studied English for two years.")
Он сказал, что изучает английский язык два года.
She said she had published her first story 10 years before. (She said: "I published my first story 10 years ago.")
Она сказала, что опубликовала свой первый рассказ 10 лет тому назад.

+ She had written a letter by 5 o'clock on Saturday.
- She had not written a letter by 5 o'clock on Saturday.
? Had he written a letter by 5 o'clock on Saturday?
Yes, he had. No, he had not. (No, he hadn't.)

Будущее свершенное время (Future Perfect Tense)

The Future Perfect Tense обозначает действие, которое завершится к определенному моменту в будущем.
+ She will have finished.
- She will not have finished.

? Will she have finished?
Yes, she will. No, she will not. (No, she won't.)

Будущее свершенное время часто заменяется простым будущим. Употребляется часто с обстоятельствами “by then” - к тому времени, “by... o'clock” - к ... часу, “by the end of” - к концу:

By 2 o'clock we'll have discussed all the problems.
К двум часам мы уже обсудим все проблемы

Section 4

Модальные глаголы и их эквиваленты (Modal Verbs and their Equivalents)

В английском языке есть группа глаголов, которые выражают не действия, а только отношение к ним со стороны говорящего. Они называются модальными. С их помощью говорящий показывает, что то или иное действие возможным или невозможным, обязательным или ненужным и т.д. К числу модальных глаголов относятся can, may, must, ought, shall, should, will, need.

He can swim.	Он умеет плавать.
He may swim.	Он может плавать (ему разрешено).
I must swim.	Я должен плавать.
You should swim.	Ты должен плавать (рекомендация).
She needs to swim.	Ей надо плавать (необходимо).
He can swim.	Он умеет плавать.
He may swim.	Он может плавать (ему разрешено).
I must swim.	Я должен плавать.
You should swim.	Ты должен плавать (рекомендация).
She needs to swim.	Ей надо плавать (необходимо).

Чисто модальные глаголы являются недостаточными по форме, так как у них отсутствует ряд грамматических форм, например: они не имеют суффикса -s в 3-м лице единственного числа настоящего времени; у них нет инфинитива, инговой формы и причастия; у некоторых из них нет формы прошедшего времени (must, should, ought, need). Среди других особенностей модальных глаголов необходимо упомянуть следующие:

1 Инфинитив смыслового глагола употребляется без частицы to после всех модальных глаголов, кроме ought, to have и to be.
2 Вопросительные и отрицательные формы предложений, в которых имеются модальные глаголы, строятся без вспомогательного глагола do, за исключением глагола to have, например:

Must I come too?	Я тоже должен прийти?
She cannot do it today.	Она не может сделать этого сегодня.

Взамен недостающих форм употребляются их эквиваленты:

Past	Present	Future
		shall
could	can	be able to do smth
		will
		shall
had to do smth	must	have to do smth
		will
		shall
might	may	be allowed to do smth
		will

Употребление:

may, might

May + Present Infinitive выражает просьбу, разрешение, возможность, предположение, сомнение. Might - прошедшее время от may выражает также сомнение - в большей степени, чем may.

can, could

Can + Present Infinitive выражает возможность или способность. Could+Infinitive часто имеет оттенок неопределённости и может соответствовать русскому сослагательному наклонению.

must

Must + Present Infinitive в утвердительных и вопросительных предложениях выражает необходимость, долженствование, обязанность, а также совет, приказ. Отрицательная форма mustn't (must not) обычно выражает запрет (нельзя), т.е. является противоположной по значению глаголу may. Отсутствие необходимости (не нужно, не надо) выражается глаголом needn't (need not). Must может относится только к настоящему и, в некоторых случаях, к будущему времени. Для выражения долженствования в прошедшем и будущем вместо must употребляется have to + Present Infinitive (в соответствующей временной форме).

Например:

He had to take a taxi to get to the airport on time.

Ему пришлось взять такси, чтобы вовремя попасть в аэропорт.

I'll have to go to the super- market tomorrow.

Завтра мне придётся пойти в супермаркет.

+ He had to wake up early yesterday.

- He didn't have to wake up early yesterday.

? Did he have to wake up early yesterday?

Yes, I did. No, I did not. (No, I didn't.)

had to do smth - in the Past Indefinite Tense

will (shall) have to do smth - in the Future Indefinite Tense

need

Need + Present Infinitive (Active или Passive) употребляется только в форме настоящего времени - обычно в отрицательных и вопросительных предложениях.

should, would

Глагольные формы should и would выполняют функцию не только вспомогательных глаголов, но и употребляются в качестве модальных глаголов.

Would выражает в качестве модального глагола:

1 повторность действия в прошлом;

2 просьбу;

3 намерение, желание.

Should выражает (в качестве модального глагола) наставление, увещевание, рекомендацию, совет (на русский язык переводится - должен, должен бы, следует, следует бы).

Ought to, в отличие от can, may, must, требует инфинитива смыслового глагола с частицей to. Обозначает часто моральный долг, обязанность говорящего. Совпадает по значению с should, но используется реже.

Степени сравнения прилагательных и наречий (Degrees of Comparison)

1 Односложные (и некоторые двусложные) прилагательные и наречия образуют сравнительную степень путем прибавления суффикса -ег, превосходную - путем прибавления суффикса -est:

high - higher - the highest (высокий - выше - самый высокий),

big - bigger - the biggest (большой - больше - самый большой).

сравнительную степень путем прибавления слов more (less),

превосходную - путем прибавления слов most (least)

interesting - more (less) interesting - most (least) interesting,

easily - more (less) easily - most (least) easily.

3 Ряд прилагательных и наречий являются исключениями:

good, well (хороший, хорошо) - better (лучше) - the best (самый хороший),

bad (плохой) - worse (хуже) - the worst (самый плохой)

little (маленький, мало) - less (меньше) - the least (наименьший)

many (much) - more - the most

far - farther (further) - the farthest (furthest)

Существительное, определяемое прилагательным в превосходной степени, всегда имеет определенный артикль: the largest building.

Страдательный залог (Passive Voice)

Формы страдательного залога английских глаголов образуются с помощью вспомогательного глагола to be в соответствующем времени, лице и числе и Причастия II (Participle II) смыслового глагола:

Present Indefinite: Past Indefinite: Future Indefinite:

The letter is written. The letter was written. The letter will be written.

Present Continuous: The letter is being written.

Past Continuous: The letter was being written.

Future Continuous: The letter will be being written.

Present Perfect: The letter has been written.

Past Perfect: The letter had been written.

Future Perfect: The letter will have been written.

Глагол-сказуемое в страдательном залоге показывает, что подлежащее предложения является объектом действия со стороны другого лица или предмета.

Сравните:

I bought a book. Я купил книгу.

The book was bought (by me). Книга была куплена (мной).

Глаголы в страдательном залоге на русский язык переводятся

1 глаголом быть + краткая форма причастия страдательного залога:

The letter was sent yesterday. Письмо было послано вчера.

1 глаголом с частицей -ся (-сь):

This problem was discussed last week. Эта проблема обсуждалась на прошлой неделе.

3 неопределенно-личным оборотом, т.е. глаголом в действительном залоге 3 лица множественного числа, типа “говорят”, “сказали”:

English is spoken in many countries. На английском языке говорят во многих странах.

4 глаголом в действительном залоге (при наличии исполнителя действия):

Pupils are taught at school by teachers. Учеников учат в школе учителя.

Section 5

Причастие (The Participle)

Причастие является неличной формой глагола, которая обладает свойствами глагола, прилагательного и наречия. Подобно прилагательному, причастие может быть определением к существительному или именной частью составного сказуемого:

a broken cup разбитая чашка

a cup was broken чашка была разбита

Подобно наречию, причастие может быть обстоятельством, характеризующим действие, выраженное сказуемым:

Reading the text he wrote out new words.

Читая текст, он выписывал новые слова.

Подобно глаголу, причастие имеет видовременные и залоговые формы, может иметь прямое дополнение и определяться наречием. В английском языке существует два вида причастий: Participle I и Participle II.

Participle I образуется путем прибавления окончания -ing к основе глагола:

to speak - speaking, to stop - stopping, to begin - beginning, to travel - travelling, to drive - driving, to lie - lying.

Participle II правильных глаголов образуется путем добавления окончания -ed к основе глагола: to ask - asked, to train - trained.

Participle II неправильных глаголов образуется особыми способами; это третья форма неправильных глаголов: to give - given, to build - built.

Все другие сложные формы Participle I образуются с помощью вспомогательных глаголов to be или to have и Participle II смыслового глагола.

Независимый причастный оборот - это сочетание существительного в общем падеже (или местоимения в именительном падеже) с Participle I или Participle II, в котором существительное (или местоимение) выполняет роль подлежащего по отношению к причастию и не является подлежащим всего предложения. Такой оборот логически связан с предложением и по существу является его обстоятельством. Подобно обстоятельству, независимый причастный оборот может предшествовать подлежащему, т. е. стоять в начале предложения или следовать за группой сказуемого в конце предложения. Этот оборот всегда отделяется запятой от остальной части предложения.

В начале предложения в функции обстоятельства на русский язык этот оборот переводится, как правило, придаточным предложением причины, времени, условия с союзами так как, когда, если и др.:

The weather being fine, we went for a walk. Так как погода была хорошая мы пошли погулять.

Weather permitting, the airplane will fly will fly. Когда погода позволит, самолет вылетит.

Section 6

Согласование времен в главном и придаточном предложениях

В английском сложноподчиненном предложении с придаточным дополнительным (вопрос “что?”, “кто?”, “чего?” и т.д.) соблюдаются правила согласования ере мен в главном и придаточном предложениях. Эти правила сводятся к следующему:

1 Если глагол-сказуемое главного предложения стоит в настоящем или будущем времени, то глагол-сказуемое придаточного дополнительного предложения может стоять в любой временной форме, требуемой смыслом, например:

He says you are right. - Он говорит, что ты прав. He will tell why he was not at school yesterday. - Он скажет, почему он не был в школе вчера.

2 Если глагол-сказуемое главного предложения стоит в прошедшем времени (обычно - в Past Indefinite), то и глагол дополнительного придаточного предложения должен стоять в одном из прошедших времен, в том числе - в будущем с точки зрения прошедшего (Future in the Past).

He said he would not go to school tomorrow. - Он сказал, что не пойдет в школу завтра.

При этом для обозначения действия, одновременного с действием, выраженным сказуемым главного предложения, употребляется Past Continuous (в русском языке - настоящее время) или Past Indefinite.

He told me he was preparing for his exam. - Он сказал мне, что готовится к экзамену.

Для обозначения действия, предшествующего действию, выраженному сказуемым главного предложения, обычно употребляется Past Perfect. На русский язык глагол-сказуемое придаточного в данном случае переводится глаголом в прошедшем времени:

I didn't know he had left for Moscow. - Я не знал, что он уехал в Москву.

При указании определенного времени (in 1980, yesterday) предшествующее время выражается при помощи Past Indefinite. Например: I thought you were

born in 1980.

Для выражения будущего времени с точки зрения прошедшего времени употребляется форма Future in the Past где вспомогательный глагол will меняется на would , которая на русский язык переводится будущим временем:

He told me that he would meet me at the Institute. - Он сказал мне, что встретит меня в институте.

Section 7

Инфинитив (The Infinitive)

Инфинитив представляет собой основу глагола, которой обычно предшествует частица to, и относится к его неличным формам.

Формы инфинитива

Tense	Active	Passive
Simple	to help	to be helped
Continuous	to be helping	to have been
Perfect	to have helped	helped

1 The Simple Infinitive Active и Passive употребляется для выражения действия, одновременного с действием, обозначенным глаголом-сказуемым в предложении, в настоящем, прошедшем и будущем времени:

I am glad to help him. Я рад помочь ему.

I was glad to help him. Я был рад помочь ему.

I'll be glad to help him. Я буду рад помочь ему.

I am glad to be helped. Я рад, что мне помогают.

2 The Continuous Infinitive Active употребляется для выражения действия в процессе его развертывания, происходящего одновременно с действием, обозначенным глаголом-сказуемым в предложении:

I am glad to be helping him.

Я рад, что сейчас помогаю ему.

It was pleasant to be helping him again.

Было приятно снова помогать ему.

3 The Perfect Infinitive Active и Passive употребляется для выражения действия, которое предшествует действию, обозначенному глаголом-сказуемым в предложении:

I am glad to have helped him.

Я рад, что помог ему.

I am glad to have been helped.

Я рад, что мне помогли.

Функции инфинитива

Инфинитив может выполнять в предложении следующие функции:

1 **подлежащего**

To translate such an article without a dictionary is difficult. To work with computer was new to many of us.

В этом случае инфинитив стоит в самом начале предложения во главе группы слов перед сказуемым. Инфинитив в функции подлежащего можно переводить как неопределенной формой глагола, так и отглагольным существительным.

2 **обстоятельства цели**

Переводить (перевод) такую статью без словаря трудно. Работать (работа) с компьютером было новым для нас.

To translate such an article without a dictionary, you must know English well.

One must work hard to master a foreign language. To increase the speed, the designers have to improve the aircraft shape and engine efficiency.

Once a week a student of Cambridge is to go to his tutor to discuss his work.

Чтобы переводить такую статью без словаря, вы должны хорошо знать английский язык. Нужно много работать, чтобы овладеть иностранным языком. Чтобы увеличить скорость, конструкторы должны улучшить форму самолета и КПД (эффективность) двигателя. Раз в неделю студент Кембриджа должен встретиться со своим наставником, чтобы обсудить свою работу.

В этом случае инфинитив может стоять как в самом начале предложения перед подлежащим, так и в конце предложения. В функции обстоятельства цели инфинитиву могут предшествовать союзы in order to, so as чтобы, для того чтобы.

3 **части сказуемого (простого и составного)**

Our aim is to translate technical articles without dictionaries.

Наша цель - переводить (перевод) технические статьи без словаря.

Он может переводить такую статью без словаря. Он будет переводить (переведет) эту статью на следующей неделе.

В этом случае инфинитив стоит либо после глагола to be, либо после модальных глаголов, либо после вспомогательных глаголов.

He can translate this article without a dictionary.

He will translate the article next week.

4 **дополнения**

He doesn't like to translate technical articles.

The article was not difficult to translate.

I am glad to have spoken to our lecturer about my work.

Он не любит переводить технические статьи. Эту статью было нетрудно переводить.

Я рад (а), что поговорил (а) с нашим лектором о моей работе.

В этом случае инфинитив стоит после глагола или прилагательного.

5 **определения**

He was the first to translate this

Он первым перевел эту статью, article.

В этой функции инфинитив стоит после слов the first, the second, the last и т. д. или после существительного.

После существительного инфинитив чаще всего стоит в пассивной форме, обычно имеет модальное значение и выражает действие, которое должно произойти в будущем. В этом случае инфинитив переводится определительным придаточным предложением:

He gave me some articles to translate.

Here is the article to be translated.

Here is the article to translate. Gagarin was the first to orbit the Earth.

The device to be tested has been made in our lab.

Он дал мне несколько статей, которые нужно было перевести (для перевода).

Вот статья, которую нужно перевести.

Вот статья для перевода. Гагарин первый облетел Землю.

Прибор, который будет (должен) испытываться, сделан в нашей лаборатории.

Инфинитивный оборот с предлогом for

Инфинитивный оборот с предлогом for представляет собой сочетание предлога for с существительным в общем падеже или местоимением в объектном падеже и инфинитива. Инфинитив показывает, какое действие должно быть совершено лицом, обозначенным существительным или местоимением. Этот оборот переводится на русский язык придаточным предложением обычно с союзом что, чтобы:

He waited for her to speak.

Он ждал, что она заговорит.

Инфинитив как часть сложного дополнения (The Complex Object)

В английском языке суждение, мнение, предположение о чем-то или о ком-то можно выразить двумя способами:

1 сложноподчиненным предложением с дополнительным придаточным предложением

2 простым предложением со сложным дополнением, которое представляет собой сочетание существительного (в общем падеже) или местоимения (в объектном падеже) с инфинитивом. На русский язык сложное

дополнение с инфинитивом переводится точно так же, как и сложноподчиненное предложение с дополнительным придаточным предложением

Сложное дополнение с инфинитивом употребляется после следующих глаголов: to know знать, to want хотеть, to find находить, устанавливать, to like любить, нравиться, to think думать, to believe полагать, to assume допускать, предполагать, to consider считать, to expect предполагать, to allow позволять, to enable давать возможность, to cause заставлять и др.:

Особенностью употребления сложного дополнения с инфинитивом является то, что после некоторых глаголов опускается частица to перед инфинитивом. К ним относятся глаголы чувственного восприятия: to feel чувствовать, to hear слышать, to see видеть, to watch наблюдать, to notice замечать, to let позволять, to make заставлять:

Инфинитив как часть сложного подлежащего (The Complex Subject)

В английском языке мнение или предположение группы неопределенных лиц о чем-то или о ком-то можно выразить

двумя способами:

1 сложноподчиненным предложением

2 простым предложением со сложным подлежащим, которое включает имя существительное (в общем падеже) или местоимение (в именительном падеже) и инфинитив. Инфинитивный оборот “сложное подлежащее” употребляется после следующих глаголов в страдательном залоге: to know знать, to say говорить, to report сообщать, to find находить, устанавливать, to assume, to suppose предполагать, to consider, to think считать, думать, to expect ожидать, полагать и др.:

He is known to be a good specialist

The experiment is expected to be over soon.

Перевод таких предложений следует начинать со сказуемого предложения и переводить его неопределенно-личным предложением известно, предполагают, установлено, считают и т. д., за которым следует придаточное предложение, вводимое союзом что:

Известно, что он хороший специалист.

Предполагают, что эксперимент скоро закончится.

Возможен и другой способ перевода этих предложений (начиная с подлежащего): Он, как известно, хороший специалист. Эксперимент, как полагают, скоро закончится. Глагол-сказуемое может быть и в действительном залоге, если употребляются следующие глаголы: to seem, to appear казаться, по-видимому, очевидно; to prove, to turn out оказываться; to happen случаться, оказываться:

They seem to work very hard. Они, кажется, много работают.

Наконец, глагол-сказуемое может быть составным: to be likely вероятно, to be unlikely невероятно, маловероятно, едва ли, to be sure, certainly несомненно, непременно, обязательно.

Section 8

Условные предложения (Conditional Clauses)

Условные предложения состоят из двух частей: условного придаточного предложения с союзом if если и главного предложения.

Имеются три типа условных предложений:

Тип 1:If I see Jane tomorrow, I'll ask her to call you.

Если я увижу Джейн завтра, я попрошу ее позвонить тебе.

Тип 2 If I had money, I would buy this car.

Если бы у меня были деньги, я бы купил эту машину.

Тип 3: If you'd spoken politely, he wouldn't have been angry.

Если бы ты говорила вежливо, он бы не рассердился.

I В первом тине условных предложений речь идет о ситуациях в настоящем или будущем. В придаточном предложении употребляется настоящее время (даже когда действие относится к будущему, как в примере, приведенном выше), а в главном - будущее время. Эти предложения обозначают возможные или вероятные действия в настоящем и будущем.

В придаточном предложении возможно также употребление других форм настоящего времени (Continuous или Perfect):

If you're looking for your glasses, you'll find them in the kitchen. Если ты ищешь свои очки, ты найдешь их в кухне.

If you've finished your homework, we'll have supper.

Если ты закончил(а) делать уроки, мы будем ужинать.

2 Во втором типе условных предложений употребляется простой прошедшее время в придаточной части и “would('d) + инфинитив” в главной;

If I had a country house, I'd (would) spend summer in it.

Если бы у меня был дом в деревне я бы проводил(а) в нем лето.

If she had a friend, she would ('d) go out more often.

Если бы у нес был друг, она бы чаще проводила время вне дома.

If I won a large sum of money I'd buy a new car.

Если бы я выиграл(а) большую сумму денег, я бы купил(а) новую машину.

Условные предложения этого типа относят действие к настоящему или будущему. Формы прошедшего времени в таких предложениях не относят действие к прошедшему времени. Они обозначают действие нереальное маловероятное. Так, в приведенных выше примерах утверждения в придаточных предложениях противоречат фактам:

1 Если бы у меня был дом в деревне означает, что у меня нет дома в деревне.

2 Если бы у нее был друг означает, что у нее нет друга.

3 Если бы я выиграл(а) большую сумму денег означает, что я не рассчитываю на это. Здесь действие относится к будущему, поэтому можно также сказать:

If I win a large sum of money, I will buy a new car.

Иначе говоря, в данном случае можно употребить I тип условного предложения.

Обратите внимание на то, что в условном придаточном предложении were употребляется для всех лиц единственного и множественного числа:

If I were you, I wouldn't trust this man.

На вашем месте (букв. если бы я был(а) вами/тобой) я бы не доверял(а) этому человеку

Этот тин предложения часто используют как совет. Однако if I/he, she was также возможно в устной речи.

В главном предложении вместо I, he, they ... would/I ... 'd часто используется might или could для обозначения возможного результата или действия

If I knew his phone number, I could call him .

Если бы я знал(а) номер его телефона , я бы позвонил(а) ему.

If you asked him, he might help you.

Если бы ты попросил(а) его, он, воз можно, помог бы тебе.

3 Третий тип условных предложений выражает нереальное условие, т.е. неосуществленное предположение, относящееся к прошлому:

If **I had/'d known** his phone number I **would/'d have warned** him.

Если бы я знал(а) номер его телефона, я бы предупредил(а) его. (Но я не знал (а) и не предупредил(а) его.)

В этом типе употребляются формы Past Perfect (had/'d known) в придаточном условия и **would/'d** + перфектный инфинитив (would/'d have warned) в главном.

В формальном стиле if может опускаться. В этом случае вспомогательный глагол прошедшего перфектного времени ставится перед подлежащим:

Had the President **known** the facts, he **would have acted** differently.

Если бы Президент знал эти факты, он бы действовал иначе.

Как и во втором типе условных предложений, в главном предложении вместо would можно употреблять **might** или **could** в сочетании с перфектным инфинитивом:

If **I had known** his phone number, I **could have warned** him.

Если бы я знал(а) его номер телефона, я бы предупредил(а) его.

If you **had asked** him, **he might have helped** you.

Если бы ты попросил(а) его, он, возможно, помог бы тебе.

Разница между II и III типом условных предложений заключена во временной отнесенности этих предложений: к настоящему и будущему во II типе и к прошедшему - в III.

Проанализируем условные предложения из диалогов:

1I know somebody who **would go** up even if he **knew** that he **would not come** back. Я знаю кое-кого, кто полетел бы в космос, даже если бы знал, что не вернется обратно.

Past Simple в условном предложении (knew) и would not + инфинитив в главном (в данном случае все условное предложение является определительным придаточным к слову somebody) относят его ко II типу.

2 I **would not agree** to go up if **I thought I might not come** back. Я не согласился бы лететь в космос, если бы я думал, что не смогу

вернуться обратно. (II тип условного предложения)

3 ... if I **had** to choose, I'd choose death while testing a jet. Если бы мне пришлось выбирать, я бы выбрал смерть во время испытания ракеты.(II тип условного предложения)

Представим себе, что Нил Армстронг дает интервью после полета на Луну. Второй пример в этом случае звучал бы так:

I would not have agreed to go up if I had thought I might not come back.

Это III тип условного предложения - действие относится к прошлому. Использованные в предложениях формы говорят о том, что Армстронг согласился лететь на Луну, потому что был уверен, что вернется обратно (букв, если бы я думал, что не вернусь обратно).

Section 9

Герундий (The Gerund)

Герундий - это неличная форма глагола, которая выражает действие как процесс, и образуется прибавлением окончания -ing к основе глагола. Герундий является промежуточной формой между глаголом и существительным и поэтому обладает свойствами и глагола и существительного.

Свойства глагола у герундия

1 Герундий имеет следующие формы времени и залога:

	Active	Passive
Indefinite	writing	being written
Perfect	having written	having been written

Indefinite Gerund выражает процесс в наиболее общем виде и действие, одновременное с действием глагола в личной форме.

We prefer using new methods of work.

Мы предпочитаем использовать новые методы работы.

We prefer new methods of work being used.

Мы предпочитаем, чтобы использовались новые методы работы.

Perfect Gerund выражает действие, которое обычно предшествует действию, выраженному глаголом в личной форме.

I remember having given this instruction.

Я помню, что дал (давал) это указание.

I remember having been given this instruction.

Я помню, что мне давали это указание.

Чаще всего формы пассивного герундия на русский язык переводятся придаточными предложениями.

2 Герундий может иметь прямое дополнение:

We are interested in improving working conditions.

Мы заинтересованы в том, чтобы улучшить условия работы (в улучшении условий работы).

3 Герундий может определяться наречием:

We have to insist on your replying promptly.

Мы вынуждены настаивать, чтобы вы ответили немедленно.

Свойства существительного у герундия

1 Герундий может определяться притяжательным местоимением или существительным в притяжательном падеже:

I insist on his (the inspector's) coming as soon as possible.

Я настаиваю на том, чтобы он (инспектор) приехал как можно скорее.

2 Перед герундием может стоять предлог:

On receiving a letter we shall immediately take action.

По получении письма мы немедленно примем меры.

Употребление герундия

1 После следующих глаголов без предлогов:

a **to begin, to start, to finish, to stop, to continue, to keep** (продолжать) и др.

Please keep sending us letters at this address.

Пожалуйста, продолжайте посылать нам письма по этому адресу.

b **to like, to enjoy, to prefer, to mind, to** excuse, **to remember, to forget, to suggest, to avoid, to need, to want, to require** и **др.**

The results need being checked.

Результаты необходимо проверить.

2 После глагола **с** предлогами:

to apologize for, to thank for, to look forward to, to congratulate on, to insist on, to depend on, to object to, to be interested in, to be responsible for и др.

We insisted on continuing the experiment.

Мы настаивали на продолжении эксперимента.

3 После существительного с предлогом: **way of, programme of, reason for, process of** и др.

The way of using is indicated in the instructions.

Способ использования указан в инструкциях.

4 После составных предлогов и словосочетаний: **on account of** - ввиду, из-за

because of - из-за

due to - благодаря, из-за

with a view to - с целью (для того чтобы)

despite - несмотря на

We could not continue the work because of no raw materials being supplied.

Мы не смогли продолжать работу из-за отсутствия поставки сырья.

Герундий употребляется:

1 В качестве подлежащего: Reading is useful. Чтение полезно.

2 Как часть сказуемого после глаголов **to finish, to start, to continue, to go on, to keep и др.**

He started reading the book. Он начал читать книгу.

3 Как предложное дополнение:

I am fond of reading. Я люблю читать

4 Как прямое дополнение:

Do you mind my reading here? Вы не против моего чтения здесь?

5 Как обстоятельство времени:

After reading he closed the book. После чтения он закрыл книгу.

6 Как обстоятельство образа действия:

Instead of reading he went to the movies. Вместо чтения он пошел в кино.

Перевод герундия на русский язык

Герундий может переводиться на русский язык:

1 Существительным

We are interested in buying these goods.

Мы заинтересованы в покупке этих товаров.

2 Инфинитивом

Everybody went on working**.** Все продолжали работать.

3 Деепричастием

On coming to the laboratory he got down to work.

Придя в лабораторию, он принялся за работу.

4 Придаточным предложением

We regretted having done it.

Мы сожалели о том, что сделали это.

Section 10

Подлежащее (The Subject)

Подлежащим называется член предложения, обозначающий предмет, о котором что-либо говорится в предложении. Оно отвечает на вопрос who? кто? или what*?* что?

Подлежащее может быть выражено:

1 Существительным

The steamer has arrived.	Пароход прибыл.
The meeting is over.	Собрание окончено.

2 Местоимением:

Be works at a factory.	Он работает на фабрике.
Someone wants to speak to you.	Кто-то хочет поговорить с вами.

3 Инфинитивом:

To swim is pleasant.	Плавать приятно.

4 Герундием:

Smoking is not allowed here.	Курить здесь не разрешается.

5 Числительным:

Three were absent from the lecture. Трое отсутствовало на лекции,

6 Любым словом или словосочетанием, употребленным в значении существительного:

Формальное подлежащее

В английских безличных предложениях употребляется формальное подлежащее, выраженное местоимением it, поскольку в английском языке подлежащее является обязательным элементом предложения.

Местоимение It употребляется в качестве формального подлежащего в следующих безличных предложениях:

1При сообщениях о явлениях природы:

It is winter.	Зима.
It is cold.	Холодно.
It is pelting dark.	Становится темно.
It was a warm spring day.	Был теплый весенний день.

2 При глаголах, обозначающих состояние погоды: to rain, to snow, to freeze:

It often snows in February.	В феврале часто идет снег.
It has been raining since three o'clock.	Дождь идет с трех часов.

3 При обозначениях времени и расстояния:

It is five o'clock.	Пять часов.
It is noon.	Полдень.
It is not far to the railway station.	До вокзала недалеко.

Местоимение it в функции формального подлежащего употребляется с некоторыми глаголами в страдательном залоге. Такие страдательные обороты соответствуют в русском языке неопределенно-личным оборотам:

It is said ...	Говорят ...
It is believed ...	Полагают ...
It is expected ...	Ожидают ...

Местоимение It в функции формального подлежащего употребляется также и при наличии подлежащего предложения, выраженного инфинитивом, герундием или придаточным предложением и стоящего после сказуемого:

It's no use telling him about it. Бесполезно говорить ему об этом.

It was clear that he would not come. Было ясно, что он не придет.

Оборот ***It is ... that***

Когда хотят сделать особое ударение на каком-нибудь члене предложения, его помещают в начале предложения между It is (was) и that (who, whom).

Например, если в предложении I met his sister in the park. Я не встретил его сестру в парке надо выделить подлежащее I, т. е. подчеркнуть, что именно я, а не кто-нибудь другой, встретил его сестру в парке, то I ставится между it was и that (who):

It was I that (who) met his sister in the park.

Именно (это) я встретил его сестру в парке.

Если надо выделить дополнение his sister, т. е. подчеркнуть, что и встретил именно его сестру, а не кого-нибудь другого, то his sister ставится между it was и that (whom):

It was his sister that (whom) I met in the park.

Именно (это) его сестру я встретил в парке.

Если надо выделить обстоятельство места in the park, т. с. подчеркнуть, что я встретил его сестру в парке, а не в другом месте, то in the park ставится между it was и that:

It was in the park that I met his sister.

Именно (это) в парке я встретил его сестру.

При переводе этого оборота часто пользуются словами именно, это.

При помощи оборота It is... that можно также выделить придаточное предложение. При переводе на русский язык выделенного таким образом придаточного предложения часто пользуются словом только.

Неопределенные существительные one и they

Когда действующее лицо мыслится неопределенно или обобщенно, *в* функции подлежащего употребляется местоимение one и значении каждый, всякий человек, люди (включая говорящего). В этом случае one часто употребляется с модальными глаголами:

One must always keep one's word.

Нужно всегда держать свое слово.

If талой же функции употребляется местоимение they со значением люди (исключая говорящего). They в этом случае употребляется чаше всего с глаголом to say:

They say the wheat crop in the USA will be fine this year.

Говорят, что в этом году будет прекрасный урожай пшеницы в США.

Section 11

Второстепенные члены предложения

Дополнение (The Object)

Дополнением называется второстепенный член предложения, который обозначает предмет и отвечает на вопросы, соответствующие и русском языке вопросам косвенных падежей как без предлога, так и с предлогом: whom?кого? what? Что,'to whom? кому? by whom? кем? about what? о чем? и т. д.

Дополнение бывает прямое и косвенное. Косвенное дополнение может быть беспредложным и предложным:

I have written a letter (прямое дополнение).	Я написал письмо.
She gave the student a book	Она дала студенту книгу.

(беспредложное косвенное дополнение).
I have received a telegram from my brother.
Я получил телеграмму от брата
(предложное косвенное дополнение).

Прямое дополнение (The Direct Object)

Прямое дополнение обозначает лицо или предмет, на который непосредственно переходит действие, выраженное переходным глаголом, как в личной, так и в неличной форме. Оно отвечает на вопрос whom? кого? или what? что? и соответствует в русском языке дополнению в винительном падеже без предлога.

Прямое дополнение стоит после глагола

I received a letter yesterday. Я получил вчера письмо.

Прямое дополнение не может быть выражено:

Существительным:

I have bought a book. Я купил книгу.

This plant produces tractors. Этот завод производит тракторы.

Местоимением:

I met him yesterday. Я встретил его вчера.

I didn't see anybody there. Я никого там не видел.

Числительным:

How many books did you take from the library?

Сколько книг вы взяли в библиотеке?

I took three. Я взял три.

Инфинитивом:

He asked me to do it. Он попросил меня сделать это.

Герундием:

I remember reading about it before. Я помню, что читал об этом раньше.

Беспредложное косвенное дополнение

Некоторые переходные глаголы (to give давать, to send посылать, to show покапывать.) имеют при себе, кроме прямого дополнении, второе беспредложное дополнение, отвечающее па вопрос to whom? кому? и обозначающее лицо, к которому обращено действие. Такое дополнение называется беспредложным косвенным дополнением и соответствует в русском языке косвенному дополнению в дательном падеже бес предлога, Беспредложное косвенное дополнение выражается существительным в общем надеже или местоимением в объектном надеже и стоит между глаголом и прямым дополнением:

He gave the boy a book. Он дал мальчику книгу.

Section 12

Обстоятельства (Adverbal Modifiers)

Обстоятельствами называются второстепенные члены предложения, которые обозначают, как или при каких обстоятельствах (т. е. где, когда, почему, зачем и т. н.) совершается действие. Обстоятельства обычно относятся к глаголу как в личной, так и в неличной форме.

Обстоятельства могут обозначать

1 Время:

She will come soon. We reached he town the next morning.

Она придет скоро. Мы достигли города на следующее утро.

2 Место:

I found him in the garden. We could see the river from the top of the hill.

Я нашел его в саду. Мы видели реку с вершины холма.

3 Образ действия:

He spoke slowly. He copied the letter with great care.

Он говорил медленно. Он переписал письмо с большой тщательностью.

4 Причину:

I came back because of the rain. Я возвратился из-за дождя.

The steamer could not leave the port owing to a severe storm.

Пароход не мог выйти из порта из-за сильной бури.

5 Цель:

The steamer called at Odessa to take on a fresh supply of coal.

Пароход зашел в Одессу, чтобы взять свежий запас угля.

6 Степень:

I quite agree with her. He has greatly changed.

Я вполне согласен с ней. Он очень изменился.

Обстоятельства, выражающие степень, могут относиться также к прилагательным и наречиям:

This machine is very heavy. Эта машина очень тяжелая.

I know him rather well. Я знаю его довольно хорошо.

7 Сопутствующие обстоятельства:

He sat at the table reading a newspaper. Он сидел у стола, читая газету.

Обстоятельства могут быть выражены:

1 Наречием:

The meeting was held yesterday. Собрание состоялось вчера.

He quickly opened the door and ran out of the room.

Он быстро открыл дверь и вы бежал из комнаты.

2 Существительным с предлогом:

He spent his vacation in the south. Он провел свои каникулы на юге.

3 Причастием (соответствующим русскому деепричастию):

He stood on the deck counting the cases. Он стоял на палубе, считая ящики.

4 Инфинитивом:

I called on him to discuss this matter.
Я зашел к нему, чтобы обсудить этот вопрос.
5 Герундием с предлогом:
He locked the door before leaving the office.
Он запер дверь, прежде чем уйти из конторы.
On arriving at the station he went to the information bureau.
Приехав на вокзал, он пошел в справочное бюро.

Приложение В
(рекомендуемое)
Тесты

Tests

Test 1
There is / there are / articles
Choose the correct answer (a, b, c or d)
1 How many people ... yesterday?
a) are there
b) were there
c) there are
d) there were
2 I'm afraid ... no water in the bottle.
a) there is
b) there are
c) there isn't
d) there aren't
3 ... anything to eat at the party tomorrow?
a) there will be
b) won't there be
c) will there be
d) there won't be
4 ... no news since last Tuesday.
a) there was
b) there hasn't been
c) there wasn't
d) there has been
5 Can you see ... cat in ... tree?
a) a, the
b) - (nothing), a
c) the, the
d) a, - (nothing)
6 Could you give me ... piece of cake?
a) the
b) a
c) an
d) - (nothing)
7 She gave me ... interesting book to read.
a) the
b) a
c) an
d) - (nothing)

8 Will you pass me ... salt, please?
a) the
b) a
c) an
d) - (nothing)
9. Carol lives in ... Green street.
a) the
b) a
c) an
d) - (nothing)
10 This isn't... Mary's little sister.
a) the
b) a
c) an
d) - (nothing)

Test 2
Plural of nouns /possessive case
Choose the correct answer (a, b, c or d)
1 There are five ... and fifteen ... in the basket.
a) appls, plumes
b) apples, plums
c) appls, plums
d) apples, plumes
2 Peter has two...
a) childs
b) childrens
c) childes
d) children
3 Do ... clean their... ?
a) mouses, tooths
b) mice, toths
c) mice, teeth
d) mouses, teeth
4 How many ... have two ... got?
a) wifes, mans
b) wifes, mens
c) wives, man
d) wives, men
5 Mike needs five ... of... for his party.
a) boxes, potatoes
b) boxes, potato
c) boxs, potatoes
d) boxs, potatos
6 There are many ... in the library.

a) dictionarys
b) dictionaries
c) dictionaryes
d) dictionares
7 This ... name is Bob.
a) man's
b) men's
c) mans
d) men
8 This is my ... car and this is my ... house.
a) parents', brothers
b) parents', brother's
c) parent's, brothers
d) parent's, brother's
9 He knows ... but he doesn't tell us.
a) the this book name
b) the book name
c) the name of this book
d) the book's name
10 Do you like... ?
a) the windows of the house
b) the house windows
c) the house's windows
d) the windows of the house's

Test 3
Prepositions
Choose the correct answer (a, b, c or d)
1 Jane is very fond ... banana ice-cream.
a) on
b) at
c) in
d) of
2 They promised to come ... Sunday afternoon.
a) at
b) on
c) in
d) out
3 We couldn't see the sky ... the clouds.
a) through
b) over
c) after
d) in
4 The largest country ... the world is Russia.
a) on

b) in
c) from
d) at
5 When did you make friends ... Andrew?
a) to
b) on
c) about
d) with
6 Our winter holidays last... two weeks.
a) between
b) in
c) for
d) to
7 I haven't seen Jane ... last Friday.
a) on
b) since
c) to
d) from
8 Can you give us some facts ... traditional English holidays?
a) about
b) from
c) of
d) out of
9 There is a table ... the window.
a) next
b) near to
c) next to
d) to
10 I think I can buy a drink ... you.
a) with
b) for
c) to
d) about

Test 4
Prepositions
Choose the word that should go in each space in the sentences below
1 ... Wednesday there was a boat... the river.
a) in, at
b) on, at
c) on, in
d) at, in
2 You can get to Saint Petersburg ... train or ... plane.
a) in, by
b) by, by

c) on, on
d) at, in
3 We can see two boys ... the picture ... the wall.
a) in, on
b) at, in
c) on, on
d) at, on
4 Tomorrow ... 6 o'clock I will be ... the airport.
a) in, in
b) at, in
c) in, on
d) at, on
5 Do you want to pay ... cheque or... cash?
a) in, in
b) by, in
c) by, by
d) in, by
6 I don't like going out... the evening, but today I'm going to the cinema... ten.
a) in, in
b) at, in
c) in, at
d) at, to
7 I don't want to go ... the party ... the moment.
a) in, on
b) at, in
c) on, at
d) to, at
8 ... 1995 he was ...Britain.
a) in, at
b) at, in
c) in, in
d) at, at
9 ... his age people don't swim ... weekends.
a) in, in
b) at, at
c) in, on
d) at, on
10 There is a number ... the right... bottom of the page.
a) in, on
b) in, at
c) on, in
d) on, at

Test 5

Questions

Choose the correct answer (a, b, c or d)

1 … about his new book?

a) how do you think

b) how you think

c) what you think

d) what do you think

2 ... far is it from the town where you live?

a) what

b) how

c) where

d) when

3... to buy a new car?

a) where you are going

b) what are you going

c) when are you going

d) what you are going

4 ... colour pencils would you like to use?

a) which

b) what

c) where

d) how

5 ... in Moscow or in Saint Petersburg?

a) where do you live

b) you live where

c) do you live

d) are you live

6 Mike knows a lot of interesting things,...?

a) isn't he

b) does he

c) hasn't he

d) doesn't he

7 They are learning French,...?

a) are they

b) do they

c) aren't they

d) don't they

8 Jane isn't very clever,... ?

a) isn't she

b) is she

c) doesn't she

d) does she

9 … arrive at the hotel?

a) when will they

b) when they will
c) where will they
d) where they will
10 … one of Mary's friends, are you?
a) aren't you
b) you don't
c) you aren't
d) don't you

Test 6
Questions and word order
Choose the correct answer (a, b, c or d)
1 It ... cold there in December.
a) will be certainly
b) will certainly be
c) certainly will be
d) will for certainly be
2 This child ... for his classes.
a) often is late
b) is late often
c) is often late
d) often late is
3 My children ... my birthday.
a) usually don't forget
b) don't forget usually
c) don't usually forget
d) do usually forget not
4 ... from work very late at night.
a) Mary sometimes comes
b) Mary comes sometimes
c) sometimes Mary comes
d) sometimes comes Mary
5 I don't know ... my holidays this year.
a) where will I spend
b) where will spend I
c) I where will spend
d) where I will spend
6 Could you give ... when she comes?
a) to Mary this card
b) Mary to this card
c) this card to Mary
d) to this card Mary
7 She was rather old so she ... .
a) had the windows cleaned
b) the windows had cleaned

c) had cleaned the windows
d) the windows cleaned had
8 Unfortunately we haven't got... .
a) chairs enough for the guests
b) enough for the guests chairs
c) chairs for the guests enough
d) enough chairs for the guests
9 Will you tell me at last... ?
a) with whom are you
b) who you are with
c) who with are you
d) whom with you are
10 Have you read that... which the teacher recommended?
a) funny old Spanish novel
b) Spanish old funny novel
c) old funny Spanish novel
d) old Spanish funny novel

Test 7
Tenses
Choose the correct answer (a, b, c or d)
1 Jane ... at six every day, but today she ... late.
a) is finishing, is working
b) is finishing, works
c) finishes, is working
d) finishes, works
2 They ... to Madrid at five yesterday evening.
a) flew
b) were flying
c) had flown
d) have flown
3 I ... he is a very good singer.
a) am not thinking
b) wasn't thinking
c) don't think
d) doesn't think
4 How many cars ... ?
a) has your family got
b) your family has got
c) has got your family
d) does your family have got
5 ... where you live?
a) do she knows
b) do she know
c) docs she knows

d) does she know
6 Please, phone later. James ... a bath.
a) has
b) is having
c) has got
d) had
7 I... anything to eat since the early morning
a) didn't have
b) haven't got
c) haven't had
d) hadn't had
8 When ... the University?
a) did you finish
b) do you finish
c) have you finished
d) had you finished
9 You look worried. What... about?
a) do you think
b) had you thought
c) have you thought
d) are you thinking
10 They ... the film and ... to bed.
a) watched, went
b) watched, had gone
c) had watched, went
d) had watched, had gone

Test 8
The Future
Choose the correct answer (a, b, c or d)
1 When ... back? Do you have any idea?
a) are you going to be
b) are you being
c) will you be
d) you are going to be
2 The weather ... next week.
a) will probably change
b) is going to change probably
c) is probably changing
d) probably changes
3 Dad will be very disappointed when he ... home.
a) will come
b) is coming
c) is going to come
d) comes

4 Please, remind me that I ... lunch with the director at two next Monday.
a) will have
b) am having
c) am going to have
d) have
5 Don't forget that next semester ... in February.
a) will start
b) is starting
c) starts
d) is going to start
6 I promise next time everything ... absolutely different.
a) is going to be
b) will be
c) is
d) would be
7 What will happen if you ... here tonight?
a) will stay
b) are staying
c) are going to stay
d) stay
8. I'm sorry, I can't come. Jan ... me to see his parents on Friday.
a) will take
b) is going to take
c) takes
d) is taking
9 Promise you ... to me as often as you can.
a) will write
b) write
c) are going to write
d) are writing
10 I won't see him on Friday, ...?
a) shall I
b) shan't I
c) will I
d) won't

Test 9
Present Perfect / Present Perfect Continuous
Choose the correct answer (a, b, c or d)
1 I … for you all day. Where have you been?
a) was looking
b) have looked
c) looked
d) have been looking
2 She says she ... this man for ages.

a) has known
b) has been knowing
c) was knowing
d) knows
3 Mrs. Stone ... as a teacher for twenty years.
a) work
b) worked
c) has been working
d) is working
4 You look upset. What... to you?
a) has been happening
b) has happened
c) happens
d) had happened
5No, thank you, I don't smoke. I... up.
a) gave
b) have been giving
c) have given
d) have been given .
6 Do you know where ... ?
a) has she gone
b) has she been going
c) she has been going
d) she has gone
7 ... to this news from Scott? I've just repeated it.
a) have you been listening
b) have you listened
c) you have been listened
d) you have listened
8 Do you really think her English ... since she started school?
a) improves
b) has been improving
c) has improved
d) improved
9 Their family has been living in this house since the eightee century, ...?
a) haven't they
b) hasn't it
c) don't they
d) isn't it
10 Come in and have a seat. We ... our plans for the next year.
a) have just been discussing
b) just discussed
c) have just discussed
d) just discuss

Test 10
Adjectives and articles
Choose the correct answer (a, b, c or d)
1 The books here are not as ... as those ones.
a) cheaper
b) the cheapest
c) cheap
d) cheapest
2 I think he is ... dancer among them.
a) the best
b) the better
c) good
d) best
3 This is my room. ... windows are not very big, as you can see.
a) an
b) - (nothing)
c) a
d) the
4 The water in this river is ... than in the lake.
a) clearer
b) clearest
c) more clear
d) most clear
5 I`d like ... sandwich, please.
a) a
b) the
c) an
d) - (nothing)
6 My father goes to ... work by car.
a) the
b) - (nothing)
c) an
d) a
7 This girl must be ....
a) most polite
b) the most polite
c) politer
d) more polite
8 Please, buy ... milk and some biscuits.
a) - (nothing)
b) a
c) the
d) an
9 I think this is ... place in the world.
a) more wonderful

b) very wonderful
c) the most wonderful
d) most wonderful
10 We will fly to ... Paris in winter.
a) the
b) - (nothing)
c) an
d) a

Test 11
Adjectives / adverbs
Choose the correct answer (a, b, c or d)
1 Is your father ... than an elephant?
a) more stronger
b) strongest
c) stronger
d) the strongest
2 Could you speak ... ?
a) distinctlier
b) more distinctly
c) more distinct
d) distinct
3 Will you repeat this ... again?
a) one more
b) more
c) one
d) once
4 What is ... book in your library?
a) most interesting
b) the most interesting
c) interesting
d) more interesting
5 What ...did she tell you?
a) else
b) still
c) more
d) yet
6 They have ... sold their car.
a) yet
b) still
c) already
d) else
7 Are your friends ... there?
a) yet
b) still

c) almost
d) else
8 I think the left picture isn't ... beautiful ... the right one.
a) so, so
b) as, than
c) more, then
d) as, as
9 I... ridden a horse in my life.
a) have never
b) often have
c) never have
d) have usually
10 Andrew has got... money than we do.
a) last
b) lest
c) least
d) less

Test 12
Articles
Choose the correct answer (a, b, c or d)
1 Mark usually goes to ... school to take the children home,
a) a
b) the
c) an
d) - (nothing)
2 After the accident five people had to go to ... hospital.
a) a
b) the
c) an
d) - (nothing)
3. What ... unusual dress she has got! It's all blue with pink stripes and golden pattern.
a) a
b) the
c) an
d) - (nothing)
4 Look! It's raining again! What... ghastly weather we are having.
a) a
b) the
c) an
d) - (nothing)
5 It's ...pity you don't write love stories. You'd make the mostof it!
a) a
b) the

c) an
d) - (nothing)
6 I was born in a small town on .., Volga.
a) a
b) the
c) an
d) - (nothing)
7 How many people have been on top of... Everest so far?
a) a
b) the
c) an
d) - (nothing)
8 Yesterday we couldn't find ... Ann's gloves, which she'd bought in a sale.
a) a
b) the
e) an
d) - (nothing)
9 You will be surprised if I tell you that... Scotts have invited us for dinner.
a) a
b) the
c) an
d) - (nothing)
10 Russia has strong trade ties with ... People's Republic of China.
a) a
b) the
c) an
d) - (nothing)

Test 13
Can / could / be able to
Choose the correct answer (a, b, c or d)
1 I... meet her since last October.
a) am not able to
b) cannot
c) haven't been able to
d) couldn't
2 When I was younger I... ride a bicycle with my hands behind my back.
a) was able to
b) can
c) have been able to
d) could
3 Excuse me, ... help me to get these bags to my car?
a) are you able to
b) could you
c) can you

d) will you be able to
4 I had left my camera at home so I ... take any pictures.
a) can't
b) hadn't been able to
c) couldn't
d) wasn't able to
5 Every child ... read and write at the age of eight.
a) is able to
b) can
c) are able to
d) could
6 I didn't know how I ... help my friend in that situation.
a) could
b) was able to
c) can
d) am able to
7 His leg was broken and he ... walk by himself.
a) couldn't
b) isn't able to
c) can't
d) wasn't able to
8 ... stop making that terrible noise, please? I ... concentrate.
a) could you, am not able to
b) are you able to, can't
c) could you, can't
d) are you able to, am not able to
9 When you get married you ... do everything you want, but not now.
a) will be able to
b) could
c) can
d) are able to
10 If you're not married you ... have a more independent life, as a rule.
a) can
b) are able to
c) could
d) will be able to

Test 14
Modals
Choose the correct answer (a, b, c or d)
1 I wonder if you ... lend me some two hundred.
a) could
b) may
c) must
d) can

2 Mary ... speak Polish to strangers.
a)was never able to
b) never could
c) has never been able to
d) never can
3 I'll come at 7 tomorrow. — No, you ... come that early, we start much later.
a) mustn't
b) don't have to
c) must
d) needn't
4 I think you ... tell him everything you know and the sooner the better.
a) could
b) may
c) might
d) should
5 She has just phoned me from her office. She ... still at work.
a) can't be
b) may be
c) must be
d) might be
6 I'm not sure but they ... the day before yesterday.
a) might have left
b) might leave
c) must leave
d) must have left
7 I tried different keys you gave me but the door just... .
a) won't open
b) couldn't open
c) wouldn't open
d) may not open
8 How ... such bad words? She was a little girl then.
a) can she have used
b) she could have used
c) could she use
d) can she use
9 I'm afraid you ... everything once again tomorrow.
a) must do
b) will have to do
c) should do
d) have to do
10 You... her in front of all your family. It was a personal matter, you know.
a) shouldn't insult
b) shouldn't have insulted
c) must have insulted
d) weren't able to insult

Test 15
Modal and auxiliary verbs
Choose the correct answer (a, b, c or d)
1 What time ... your guests coming?
a) do
b) have
c) are
d) can
2 He asked me how long ... been waiting.
a) I have
b) I had
c) have I
d) had I
3 Don't leave your dirty shoes here,….
a) could you
b) will you
c) do you
d) can you
4 You look ill. I ... get an aspirin for you.
a) will
b) do
c) could
d) would
5 You know everything perfectly. You ... in this city before.
a) must be
b) could have been
c) can be
d) must have been
6 When he was younger he ... never miss a chance to have a walk.
a) had
b) would
c) must
d) will
7 I don't think you ... do anything in this situation.
a) should
b) shouldn't
c) must
d) mustn't
8 When I was a little boy I... get up at half past five every day.
a) must
b) should
c) had to
d) will
9 ... I bring some paper for you? — No, you ... . There is plenty on the table.
a) will, mustn't

b) could, needn't
c) should, mustn't
d) shall, needn't
10 Do you know where he's from? - He ... be from Italy, but I'm not sure.
a) may
b) must
c) might
d) has to

Test 16
Degrees of comparison
Choose the correct answer (a, b, c or d)
1 My brother is ... and ... than me.
a) older, stronger
b) more older, more strong
c) more old, more strong
d) older, more stronger
2 The train is … than the horse.
a) fast
b) faster
c) more fast
d) more faster
3 My mother is ... than my father.
a) serious
b) seriouser
c) more serious
d) more seriouser
4 Please, come ... not to be late.
a) early
b) more early
c) earlyer
d) earlier
5 This book is ... and ... than that one on the left.
a) cheaper, more beautiful
b) more cheap, more beautiful
c) more cheap, beautifuler
d) cheaper, beautifuler
6 Today you look ... and ... than yesterday.
a) better, more fresh
b) better, fresher
c) gooder, fresher
d) more good, more fresh
7 He reads ... than this girl.
a) bader
b) more bad

c) worse
d) more worse
8 What is ... day in the year in this part of the country.
a) the hotest
b) the hottest
c) the most hot
d) hottest
9 What's ... film you saw last year?
a) best
b) goodest
c) the goodest
d) the best
10 What's ... subject for you in school?
a) the most easy
b) easiest
c) the easyest
d) the easiest

TEST 17
Sequence of tenses / reported speech
Choose the correct answer (a, b, c or d)
1 Everyone knows that Kennedy ... by an insane person.
a) had been killed
b) is killed
c) was killed
d) was being killed
2 She said that her cat... during the fire.
a) had been lost
b) is lost
c) was lost
d) was being lost
3 They promised that they ... at nine o'clock.
a) will come
b) came
c) would came
d) would come
4 She answered that Jennie ... their car at the moment.
a) is cleaning
b) was cleaning
c) cleans
d) had cleaned
5 I didn't know where ... .
a) the children had gone
b) the children went
c) had the children gone

d) did the children go
6 Mr. Smith asked us ... making that terrible noise.
a) to stop
b) that to stop
c) stop
d) that we stopped
7 Caroline wanted to know ... still angry with her.
a) was Kate
b) that Kate was
c) if Kate was
d) about Kate was
8 I just don't understand how... here while all of them are working.
a) can you sit
b) you can sit
c) could you sit
d) you could sit
9 Catherine said that she ... to buy an ice-cream.,
a) had wanted
b) want
c) wants
d) wanted
10 The teacher ... everybody had to give in then work.
a) said
b) spoke
c) told
d) asked

TEST 18
Passive voice
Choose the correct answer (a, b, c or d)
1 Modern furniture ... of plastic.
a) made
b) makes
c) is made
d) make
2 A lot of interesting films ... on TV last month.
a) show
b) were shown
c) shows
d) are shown
3 My friend ... detective stories.
a) is translated
b) translate
c) was translated
d) translates

4 All the cars ... before we sell them.
a) Test
b) were tested
c) are tested
d) tested
5 Scissors ... to cut different things.
a) are used
b) uses
c) use
d) was used
6 The results ... great progress in science.
a) are shown
b) show
c) were shown
d) shows
7 I think his telephone number... some days ago.
a) was lost
b) looses
c) is lost
d) lost
8 The television is a great thing. When ...?
a) did it invent
b) it was invented
c) it invented
d) was it invented
9 How many... in the dictation?
a) was mistakes made
b) mistakes were made
c) were made mistakes
d) mistakes was made
10 How ... in a usual Chinese family?
a) is tea made
b) is made tea
c) tea is made
d) tea made is

TEST 19
Passive voice
Choose the correct answer (a, b, c or d)
1 Last year my friends and I... to take part in a TV programme.
a) invited
b) invite
c) were invited
d) are invited
2 Some new metro stations ... in Moscow now.

a) will be built
b) are building
c) are being built
d) are built
3 I think the article ... tomorrow in the evening.
a) will be translated
b) will be translating
c) have been translated
d) will translate
4 How many cars ... in the accidents on this road so far?
a) have damaged
b) had been damaged
c) had damaged
d) have been damaged
5 John ... his ankle while I was playing football.
a) has sprained
b) sprained
c) has been sprained
d) was sprained
6 1,000 children ... every year in this city.
a) are born
b) will be born
c) were horn
d) born
7 This recipe ... for several centuries.
a) was known
b) has been known
c) had been known
d) is known
8 This man ... five people before the building exploded.
a) saved
b) has saved
c) had been saved
d) had saved
9 This phenomenon... for five years and now they publish their book.
a) has been studied
b) has been studying
c) was being studied
d) was studied
10 When we entered the wall ... bright yellow.
a) was painted
b) was been painted
c) was painting
d) was being painted