

МИНИСТЕРСТВО ВЫСШЕГО И СРЕДНЕГО СПЕЦИАЛЬНОГО
ОБРАЗОВАНИЯ РЕСПУБЛИКИ УЗБЕКИСТАН

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Кафедра иностранных языков

*МЕТОДИЧЕСКИЕ УКАЗАНИЯ
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ДЛЯ СТУДЕНТОВ II КУРСА, ОБУЧАЮЩИХСЯ
ПО НАПРАВЛЕНИЯМ
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ДЛЯ ИСПОЛЬЗОВАНИЯ НА ПРАКТИЧЕСКИХ ЗАНЯТИЯХ
В III СЕМЕСТРЕ*

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Методические указания по английскому языку для студентов II курса, обучающихся по направлениям «Электроэнергетика» и «Теплоэнергетика» для использования на практических занятиях в III семестре.

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LESSON ONE

Present Perfect Tense (Active Voice)

Настоящее совершенное время

Настоящее совершенное время (Present Perfect) образуется при помощи вспомогательного глагола *to have* в форме настоящего времени (*have, has*) и формы причастия прошедшего времени (*Past Participle*) смыслового глагола

Например:

I have worked - Я работал

He has worked - Он работал

Настоящее совершенное время (Present Perfect) употребляется в тех случаях, когда действие совершилось в прошлом, время действия не указано, но в настоящем имеется его результат

Например: *They have designed a new engine* – Они сконструировали новый двигатель

Present Perfect употребляется :

- 1) С обстоятельственными словами, указывающими на период времени который еще не закончился: *today-сегодня, this week – на этой неделе, this month-в этом месяце, this year – в этом году*
Например: *He has made his report today*
Он сделал доклад сегодня
- 2) С наречиями неопределенного времени и некоторыми предлогами : *ever-когда-либо, never-никогда, already-уже, yet-еще, just-только, что, since- с тех пор, после, before-прежде* и др.
- 3) Например: *The Institute has already introduced a new course in automated system of planning.*
- 4) Институт уже ввел новый курс по автоматизированной системе планирования
- 5) Вопросительная форма настоящего совершенного времени образуется : вспомогательный глагол ставится перед подлежащим .

6) Например: Have I worked ?

7) В отрицательной форме частица not ставится после вспомогательного глагола to have : I have not worked

Спряжение глагола to have

Statement: +...	Subject + have + Participle II
I have taken You have taken He/she/it has taken	We have taken You have taken They have taken
Interrogative: +...	Have + subject + Participle II
Have I taken? Have you taken? Has he /she/it taken?	Have we taken? Have you taken? Have they taken?
Negative: Participle II +...?	Subject + have + not + P II
I have not taken You have not taken He/she/it has not taken	We have not taken You have not taken They have not taken

Примечание: В устной речи глагол to have и отрицательная Частица not выглядит так: haven't, hasn't

The Present Perfect Tense (Passive Voice)

Временные формы страдательного залога образуются при помощи вспомогательного глагола to be в соответствующем времени и причастия прошедшего времени смыслового глагола

The exercises have been written – Упражнения написаны

Спряжение глагола to show

Statement:	Subject + have + been + PII+..
I have been shown You have been shown He/she/it has been shown	We have been shown You have been shown They have been shown
Interrogative	Have + subject + been PII+...

Have I been shown?	Have we been shown?
Have you been shown?	Have you been shown?
Has he/she/it been shown?	Have they been shown?
Negative:	Subject +have +not+PII+...
I have not been shown	We have not been shown
You not been shown	You have not been shown
He/she/it has not been shown	They have not been shown

Exercises

. Переведите следующее упражнение:

1. I have seen this film. I like it very much. 2. She has broken her pencil and she can't write now. 3. Have you prepared your task?- No, I haven't. 4. She has received two letters from her friend this week. 5. Our students have spoken to the dean today. 6. Friend of mine has studied several languages. Now she can speak English, German and French well. 7. Comrade Ismoilov has not yet come. But he will just come here. Wait you for him. 8. They have visited many cities of Uzbekistan this year

II. Составьте вопросы к следующим предложениям

1. She has been to Leningrad this summer. 2. I have brought these books for you. 3. The Karshi Engineering Economic Institute has trained many specialists. 4. I have sent a letter to my friend. 5. The teacher has helped the students to do the exercises today. 6. They have received this magazine this week.

III. Переведите следующие словосочетания на русский язык:

mining mechanics, descriptive courses, elementary practical training, the best lecturer, lectures on historical geology, a particular interest, a public figure.

IV. Переведите на русский язык следующие прилагательные с суффиксом -ful

useful, successful, powerful, harmful.

LESSON TWO

TEXT

THE FUNCTION OF ELECTRICAL POWER SYSTEM

The degree of development of sources of energy to accomplish useful work is one of the measures of industrial process. The discovery of sources of energy in nature, the transportation of energy in its various forms from one place to another and the conversion of energy to a more convenient form are essential parts of industrial economy.

An electric power system is one of the tools of converting and transporting energy. The only means of transporting energy in the form of electricity is over transmission lines. Gas is known to be transported by pipelines. Railroads, ships and pipelines carry oil and coal over long distances. The location of a steam generating station near a coal mine or a load centre provided there is a good water supply in both places may depend upon the difference in cost of transmitting electric energy and transporting coal from the mine to the load.

Hydroelectric Power is inexpensive only if the cost of its transportation is low. It is the final cost of the energy in the desired form, including transportation charges.

An electric power system consists of three principal components: the generating stations, the transmission lines and the distribution systems. We know that the transmission lines are the connecting links between all the generating stations and the distribution systems. A distribution system connects all the individual loads in a given area to the transmission lines.

Exercises

- ***Make up sentences with the following words and word combinations.***

- 0. energy
- 0. power system

3. pipelines
4. sources
5. Hydro electric Power
6. transportation
7. individual loads

II. Find Russian equivalents of the following words.

Function, degree, sources, railroads, location, energy, tools, transmission, distribution loads.

III. Напишите 3 формы следующих глаголов

to do; to make; to call; to find; to describe; to build; to speak; to read; to give.

LESSON THREE

The Past Perfect Tense (Active and Passive) Прошедшее совершенное время

Прошедшее совершенное время (*Past Perfect Tense*)
Образуется при помощи вспомогательного глагола *to have* в форме прошедшего времени (*had*) и причастия прошедшего времени смыслового глагола.

Например: I had worked; He had worked

Вопросительной форме вспомогательный глагол *to have* ставится перед подлежащим .

Например: Had I worked? Had he worked?

Я работал Он работал

Отрицательная форма глагола образуется при помощи частицы *not*, которая ставится после вспомогательного глагола:

Например: I had not worked – Я не работал

Прошедшее совершенное время употребляется для выражения:

- 1) действия которое закончилось до начала какого – то момента времени в прошлом, а также
 0) действия , которое закончилось до начала другого действия в прошлом .

Например: He had finished - Он закончил работу
 his work by the к концу недели .
 end of the month

He had finished Он закончил работу до
 his work, before he left того, как из Донбаса.
 the Donbas.

Exercises:

I. Переведите следующие предложения на русский язык:

1. She thought that Gert and Lanny had a quarrel. 2. By the time we came to see him, he had returned home. During the holiday, my father, decided to visit the village ,where he had lived before the war.4.When they entered the hall, the performance had already begun.5. When I came home ,my wife told me that she had received a letter from parents .6. Where had you worked before, you entered the Institute . 7. When we reached the station ,our train had already gone. 8. By 2 o'clock the teacher had examined all the students. 9. On my way to the office I remembered that I had left the report at home .10.All my friends were glad to hear that I had passed all the examinations successfully.

I. Поставьте глаголы в скобках в Past Perfect или в Past Indefinite Tense:

1. She (to study) French before she (to enter) the Institute .2. Lanny (to say) to him that he (to get) his education in Cape Town.3. The girl was glad that she(to find) a seat near the window.4. Suddenly he (to remember) that he not (to ring up) her in the morning.5. By the time the

train (to reach)the city he (to make) friends with many passengers.6. After his uncle (to leave) he (to rush) to the station to book a ticket.

III. Поставьте предложения в страдательном залоге.

0. We had finished our work by the end of the month.
0. I had not finished my work by 6 o'clock.
0. She had make this experiment by the beginning of the month.

IV. Поставьте предложения в вопросительной и отрицательной форме , переведите их на русский язык.

1. We had reached the station by 6 o'clock .2. She had read the book by the end of the week.3. He had translated the article by Monday. 4.His brother had returned , from Tashkent by Sunday. 5. The students had passed their winter exams by the end of January . 6. He had finished his work by Saturday.7. They had come to the correct decision before you rang them up. 8. The rain had stopped before we went out.

LESSON FOUR

TEXT ENGINEERING

Engineering is the science dealing with design, construction and operation of machines, engines and other devices, which are used in industry and every day life. The word “*engineering*” is a modern one. But the art of building houses and other structures was known many thousand years ago. Now we call it “*civil engineering*”. Civil engineering may be spoken of as an important branch of national economy. After the invention of the steam engine and the growth of factories some civil engineers became interested in the practical application of mechanics to the design of machines. As the result of it they separated themselves from the civil engineering and called themselves “*mechanical engineers*”. Thus a new branch of engineering – mechanical engineering was founded. At present it plays an important part in production processes. It is

mechanical engineering that deals with the design and construction of steam engines, turbines, etc. Another branch of engineering is electrical engineering. It appeared in the 19th century thanks to the development of the science of electricity. New electrical engineering includes two main branches: communication engineering and power engineering. Among modern branches of engineering we must also name the following ones: chemical engineering, nuclear engineering and space engineering. They are developing very rapidly.

Exercises

. *Answer the questions.*

0. What is engineering?
0. How many branches includes new electrical engineering?
0. What means the word “engineering”?

. *Translate these word combination into Russian.*

Branches
engineering
includes
invention
engineers
production
construction
science
appeared
electricity
development
deal
rapidly

III. Translate the following sentences into Russian.

0. Engineering is the science dealing with design, construction and operation of machines, engines and other devices, which are used in industry and every day life.

0. Civil engineering may be spoken of as an important branch of national economy.
0. New electrical engineering includes two main branches: communication engineering and power engineering.

LESSON FIVE

The Future Perfect Tense (Active and Passive)

Будущее совершенное время

Будущее совершенное время (Future Perfect Tense) образуется при помощи вспомогательного глагола to have в форме будущего времени (shall have и will have) и причастия прошедшего времени смыслового глагола .

Например: I shall have worked.

В вопросительной форме вспомогательный глагол (shall или will) ставится перед подлежащим :

Например: Shall I worked?

В отрицательной форме частица not ставится после первого вспомогательного глагола:

I shall not have worked.

Будущее совершенное время употребляется для выражения:

- 0) действия, которое закончится к определенному моменту времени в будущем.

Например:

They will have made their experiment by 7 o'clock – Они закончат свой эксперимент к 7 часам , а также ;

- 0) действие, которое закончится до начала другого действия в будущем.

Например: They will have finished his work before he leaves the colliery.
Они закончат свою работу до того, как уйдут из шахты.

Exercises:

II) Закончите следующие предложения. Переведите на русский язык.

Я этого человека раньше не видела - seen this man.

Например: I have never spoken to you about it. - Я тебе об этом никогда не говорил .

1. I have never 2. He has just... . 3. They haven't yet... . 4. Has she ever 5. We have often

II) Глаголы в скобках поставьте в нужной форме и времени Perfect и переведите их на русский язык.

2. We never (to be) to Tashkent .

2. The engineers (to complete) this experiment. By the end of the last week.

2. Our discoveries (to bring) great changes in the life of our people. 4. The workers(to build) many houses in our town last year. 5. She (to be) to Samarkand this summer. 6. They (to receive) this magazine this week.

LESSON SIX

TEXT

Sketches of college life in England

The University of Oxford is a collection of colleges. Some of these colleges were founded hundreds of years ago. "The University" is only an administrative center which arranges lecture for all the students of the colleges, holds examinations and gives degrees. Every college has student of all kinds, it has its medical students, its engineers, its art students , etc.

The tutorial system is one of the way in which Oxford and Cambridge differ from all other English universities. Every student has a tutor who plans his work .Each week some students come to see him and he discusses with them the work they have done. This system has

some advantages but has often operated against progressive thinking in British universities because many tutors are and they try to have a great political influence on their students.

Other English universities called “modern” or “provincial” are located in large centres of industry. There are no tutorial systems there.

These universities rely on lectures very few children of working people can be found among the students of all the British universities because the cost of students is too high. According to official reports only 3 percent of the whole number of daughters of working people.

The academic year in England is divided into three terms which usually run from about the beginning of October to the middle of December, from the middle of January to the end of March and from the middle of April to the end of June or the beginning of July.

Terminal examinations are held at the end of the autumn, spring and summer terms. Final examinations are taken at the end of the course of studies. If a student fails in an examination he may be allowed to take the exam again. Only two re-exams are usually allowed. For a break of discipline a student can be fined a sum of money, for a serious offence he may be expelled from the university.

Active Vocabulary

advantage	- превыше
allow	- дать разрешение
break	- ломать
expel	- отчислять
final	- заключительный
to be located	- располагаться
rely on	- пользоваться

Exercises:

. ***Ответьте на следующие вопросы:***

1. What is Oxford? 2. What does “the University?” 3. What does a tutor do? 4. How many terms is the academic year divided into?.5. How many examinations is the student allowed to take again? 6. When is a

student fined a sum of money? 7. Why can few children of working people be found at the universities?

. *Перескажите текст.*

. *Тексты для закрепления .*

0. Education in England.

0. Education in Uzbekistan.

IV. Используя текст, заполните предложения.

1. The University of Oxford is a ... of colleges. 2. The Is one of the ways in which Oxford and Cambridge differ for all other English universities. 3. Every student has ... who plans his work. 4. These universities on lectures. 5. Examinations are held at the end of the autumn, spring and summer terms. 6. ... examinations are taken at the end of the course of studies. 7. If a student fails in an exam, he may be ... to take the exam again.

V. Из текста выпишите предложения , которые относятся к группе Perfect .

LESSON SEVEN

Perfect Continuous Tense.

Времена группы Perfect Continuous Tense выражают длительное действие и переводятся на русский язык несовершенного вида в настоящем, прошедшем или будущем времени соответственно

Времена группы Perfect Continuous образуются при помощи вспомогательного глагола to be в соответственной форме Present , Past или Future Perfect и ПII смыслового глагола.

Например: I have been writing this exercise - Я пишу это упражнение и т.д.

Present Perfect Continuous выражает длительное действие, начавшееся до момента речи и все еще продолжающееся в момент речи. Present Perfect Continuous переводится на русский язык глаголом в настоящем времени часто с добавлением наречия уже. Например: He has been working at this problem for two years. - Он работает над этой проблемой уже 2 года.

The Past Perfect Continuous Tense - выражает длительное действие, протекавшее до указанного момента в прошлом и часто продолжавшееся и после этого момента.

had been + РП

Например: We had been conducting this experiment for two hours before you came - Мы проводим этот опыт в течение 2-х часов, до того как вы пришли.

The Future Perfect Continuous Tense.

Future Perfect Continuous Tense выражает длительное будущее действие, которое начнется ранее другого будущего действия или момента и будет еще совершаться в момент его наступления.

Это время образуется при помощи вспомогательного глагола shall или will + have been и причастия настоящего времени.

Например: When I return to the laboratory, my friends will have been working there for several hours – Когда я вернусь в лабораторию, мои друзья уже будут работать там в течение нескольких часов.

Времена группы Perfect Continuous не имеют формы страдательного залога.

Exercises:

- ***Глаголы в скобках поставьте в нужной временной форме:***

c) Present Continuous или Present Perfect Continuous:

1. He (to run) now . He (to run) for ten minutes without any rest. 2. What they (to do) now? They (to work) in the reading room . They (to work) for some time.3. She (to wash) in the bathroom (now) .She (to wash) for half an hour. 4. Where is he now? He is in the garden .He (to play) volley –ball with his friends. He (to play) the whole morning .

c) Past Continuous или Past Perfect Continuous :

1. When I came home he (to sleep). He (to sleep) for some time .2. It (to rain) when they left the house. It (to rain) hard during the whole morning. 3. She (to go) to this school for several years when the war broke out .4. They (to sit) on the platform for 15 minutes before the rain arrived .

. *Глаголы в скобках поставьте в нужной временной форме .
Переведите предложения на русский язык .*

1. «What do you (to do) here? «I (to prepare) for my report» «How long you (to prepare) for it «I (to prepare) for it since last Sunday. 2. He (to teach) at school five years when the war (to break) out. 3. She (to study) English since 1995. 4. «What you (to read)?». I (to read) a magazine . I (to read) it for half an hour»5. She (to live) in Moscow for two years when her sister (to come) to live with her. 6. Our teacher(to come). Now he (to speak) with our monitor .7. They (to speak) when I (to look) at them .8. (to walk) about an hour when I (to see) a little house not far from the river 9. After he (to read) the newspaper he(to give) it to his brother.10. He (to leave) for Tashkent in 1992 and since then he (to live) there.11. He(to tell) me about a new film.12. Tomorrow at this time we(to discuss) your report.

LESSON EIGHT

TEXT

SOME GENERAL ENGINEERING SUBJECTS

Modern engineering demands sound knowledge of different subjects. One of the general engineering subjects is mechanics. The main branches of mechanics are statics and dynamics. The first branch deals with systems which do not move. The second one deals with systems in motion. Dynamics is divided into kinetics and kinematics. A famous English scientist I. Newton discovered the laws which form the basis of mechanics.

Mechanics is the oldest branch of physics. Thus physics is also an important general engineering subject. Besides mechanics, it includes such branches as electricity, magnetism, nuclear physics and others. Many well-known scientists have made a great contribution to the development of electricity. They are: Maxwell, Faraday, Ampere and some others.

Nuclear physics is one of the important branches of modern physics. It began to develop extensively in the 1930. It is I. V. Kurchatov who was one of the founders, of this branch of physics. I.V.Kurchatov was a famous Russian scientist. He devoted all his life to the investigation of problems of nuclear physics.

Exercises:

- ***Используя текст, определите синоним следующих слов:***

To begin , to fix, parts, to build, to do forward, to choose,suitable , to try, form, generally, age particularly ,to utilize.

- ***Составьте предложения со следующими словами и словосочетаниями.***

Especially, valuable contribution, rule, directly, a proper shape, semicircular arch, the branch of science, to erect something, first attempts, safe dimensions

- ***Переведите следующие предложения.***

1. The scientists are supposed to work in the laboratory.2. Scientists expect polymers to be widely used in industry.3. In ancient

times the sun was thought to be revolving round the Earth.3. The students are offered to work at this experiment. 5. These engineers are reported to be good specialists. 6. The lecture is found to be very interesting .7. My friend is supposed to have left Tashkent on Sunday.

LESSON NINE

Модальные глаголы и их эквиваленты.

Глаголы *can, may, must* – являются модальными глаголами; они не обозначают действия, а выражают отношение к нему, т.е. возможность, вероятность или необходимость совершения действия. Само действие выражается инфинитивом смыслового глагола без частицы *to* следующим за модальным глаголом.

Глагол *Can* выражает возможность или способность совершения действия и переводится на русский язык могу (может, можешь, и т.д.), умею.

Глагол *may* выражает разрешение или предположение и переводится могу, можно, возможно.

Глагол *must* выражает необходимость, обязательность или вероятность совершения действия и переводится должен, нужно, надо, вероятно.

Например:

We can determine the pressure of our atmosphere with the help of a barometer. - Мы можем определить давление атмосферы с помощью барометра.

You may use this instrument in your experiments. – Вы можете (вам разрешено) пользоваться этим прибором во время опытов.

They must provide us with all necessary data. - Они должны снабдить нас всеми необходимыми данными.

Для образования отрицательной формы после модального глагола ставится отрицательная частица *not*.

Примечание: Отрицание *not* с глаголом *can* пишется слитно .
Для образования вопросительной формы модального глагола ставится перед подлежащим.
Например: I cannot read this word.

Эквиваленты модальных глаголов.

У модальных глаголов *can*, *may*, *must* есть эквиваленты, которые употребляются наряду с соответствующими модальными глаголами и, кроме того, используются взамен отсутствующих временных форм этих модальных глаголов.

Эквивалентом модального глагола *can* – является *(to) be able to*.

Глагол *may* - *to be allowed to*.

Глагол *must* – *(to) have to*.

Exercises:

- ***Поставьте следующие предложения в отрицательной и вопросительной форме .***

1. You may take this book . 2. My sister can go by plane. 3. The students of this group may go on an excursion today. 4. My brother must come here to night. 5. Her little daughter can swim well.

- ***Глядя на образец. Поставьте следующие предложения в Future Indefinite Tense.***

Например: You must read this book.
You have to read this book.
You will have to read this book.

1. Alisher must help his sister. 2. They may go home. 3. I must take English lessons. 4. The students must pass examinations. 5. We can skate on Sunday. 6. He can send this letter tomorrow. 7. You can ask your professor about it.

- ***Замените следующие предложения в Present, Past и Future Indefinite Tense. Не забудьте применить эквиваленты модальных глаголов.***

1. She can speak English very well. 2. He must go to the library to prepare his lessons. 3. You may take my dictionary. 4. We must stay in Karshy. 5. I can get information at 7 o'clock. 6. You can say it at the meeting. 7. You may ask your friend about it. 8. She must help her mother. 9. I must wait for him in the library. 10. He may ski during the winter vacation.

IV. Переведите следующие предложения на русский язык.

1. The designers can always improve the operation of these receivers. 2. He could use any transmitter for this system. 3. The designer was able to contract a new device by using semi conductors. 4. The engineers must test a new receiver for using it in this system. 5. For improving the system operation the designer was to use low weight equipment. 6. The engineers were to investigate new means of radio communication. 7. After finishing the experiment the scientists will have to discuss the result. 8. They didn't have to analyze these data. 9. The students might use all the laboratory equipment. 10. The students will be allowed to conduct this experiment in the laboratory.

V. Напишите следующие предложения в отрицательной форме, переведите их на русский язык.

- 3. You may begin your work now.
- 3. She must ask such questions.
- 3. Tom can skate well.

VI. Заполните следующие предложения модальным глаголом или эквивалентом модального глагола.

“They to make this work tomorrow”

- 1. must
- 2. will be able
- 3. had.

VII. Переведите следующие предложения на английский язык.

2. Я могу здесь работать?
2. Вы не должны говорить по-русски на уроках английского языка.
2. Эту картину вы можете увидеть на выставке.
2. Кто сможет ответить на этот вопрос?
2. Я могу взять вашу книгу?
2. Когда он должен прийти сюда?

LESSON TEN

TEXT

PHYSICAL QUANTITIES AND UNITS OF MEASUREMENTS

Physics is the science based upon correct measurements. So one must know the units of measurements which are usually used.

The basic concepts of physics are length, mass and time. The units used to measure them are called fundamental units. All other units are called derived ones. There are two widely used systems of fundamental units. The Metric System and the English System. The Metric System is the international decimal system of weights and measures. If we use metric units, we shall measure length in millimetres, centimetres, metres or kilometres. Time is measured in seconds, minutes or hours. Mass is measured in grams or kilograms.

The English System uses the foot, yard and mile as units of length; the ounce, pound and ton as units of mass and the second as the unit of time. The advantage of the Metric System over the English one is that all metric units are divided into 10 or 100 parts. Thanks to it fractional quantities can be represented as decimals. Having been invented in France, the Metric System is widely applied in many countries. The English System is used in Great Britain and the USA.

Various physical quantities can be represented by means of standard symbols. This is the list of some of them: length – l , mass – m , time – t , area – A , volume – V , velocity – v , acceleration – a , force – f , work – w , power – P , electric current – I , electric resistance – R , temperature – t , heat – G , etc.

Exercises:

II. Пользуясь текстом заполните предложения.

3. Physics is the ... based upon correct measurements.
3. The units used to ... them are called fundamental units.
3. The English System is ... in Great Britain and the USA.

II. Вставьте, где нужно артикль.

0. So one must know ... units of measurements which are usually used.
0. ... English System uses ... foot, yard and mile as units of length; ... ounce, pound and ton as units of mass and ... second as ... unit of time.
0. This is ... list of some of them: length – l, mass – m, time – t, area – A, volume – V, velocity – v, acceleration – a, force – f, work – w, power – P, electric current – I, electric resistance – R, temperature – t, heat – G, etc.

III. Find Russian equivalents of the following words.

measurements, pound, ounce, ton, yard, resistance, force, acceleration.

LESSON ELEVEN

Continuous (active) and Passive Времена группы Continuous

Продолженные времена (Present Past, Future Continuous) образуются при помощи вспомогательного глагола to be в соответствующем времени, лице и числе и причастия настоящего времени (PI) смыслового глагола .

The Present Continuous Tense образуется при помощи глагола вспомогательного глагола to be в настоящем времени PI смыслового глагола .

Например: They are working .

Действие совершается в момент речи в этом времени ,иногда употребляется наречие now.

The Past Continuous Tense(Прошедшее совершенное время) образуется при помощи вспомогательного глагола to be в прошедшем времени (was, were) и PI.

Например: They were working .

Past Continuous употребляется для выражения длительного действия , начавшего до определенного момента в прошлом и все еще совершается в этот момент этот момент может определен

3) с обстоятельствами времени : at 5 o'clock , yesterday, by that time ,the other day и т.д.

3) другими прошедшим действием, выраженным глаголом в Past Indefinite.

The Future Continuous Tense – будущее продолженное время образуется при помощи вспомогательного глагола to be в форме будущего времени (shall be, will be) и причастия настоящего времени .

Например: They will be working – Это время употребляется для выражения процесса действия, который будет совершаться в течение указанного периода и времени в будущем.

Например: They will be working at the mine from 2p.m. till 8p.m.-

Они будут работать в шахте с 2 часов дня до 8 вечера.

Страдательный залог группы Continuous образуется при помощи вспомогательного глагола to be в Present или Past Continuous + PII и переводится по общим правилам перевода глагола в страдательном залоге, но глаголом несовершенного вида.

Например: During the experiment the air in the laboratory was being purified by two ventilators.

Формы Future Continuous Passive не существует

Exercises:

I. Поставьте следующие предложения в действительном залоге, переведите их на русский язык.

1. He is being asked to make a report at our meeting. 2. We were being waited for by him in the library for an our yesterday. 3. The new problems are being studies by our scientists. 4. This work is being carried out by a group of engineers. 5. The new bridge was being built across this river when we came to this town. This text was being translated by the students all the evening yesterday. 7. New methods of productions are being developed by our engines and workers. 8. What rule was being explained by the teacher when you came into the classroom. 9. This question was being discussed by the students at that time 10 comrade P. Is being examined by the professor now.

II. Найдите сказуемое следующих предложений, определите время и залог.

1. Our shop is producing some new chemical apparatus.
0. The water in the tube is boiling.
0. The laboratory assistant was writing down all the data during our experiment.
0. They waiting them from 5 to 7 o'clock.
0. They will be increasing it little by little.

LESSON TWELVE

TEXT

GREAT ENGLISH PHYSICISTS

Among the famous English physicists we must call the name of Isaac Newton (1642-1727). Newton was interested in many problems of physics and made a number of discoveries. When he was 24 he developed the theory of gravity. He calculated the force of gravity acting between the

sun and the other planets. Thus he had discovered the laws of motion. All these laws are widely used by the modern physicists.

Michael Faraday (1791- 1867) is another great English physicist . His scientific interests were varied. During his lifetime M. Faraday conducted more than two thousand experiments and made a number of important discoveries. Faraday was the first who measured the electric current. In 1831 he discovered the electromagnetic induction. This discovery laid the foundation for the development of electrical engineering. The name of Ernest Rutherford (1871 –1937) is also widely known all over the world. Being a student he showed wonderful abilities in physic. E. Rutherford studied the structure of the atom and the processes of radioactivity. In 1899 he discovered that radioactive radiation included two particles. He called them Alpha and Beta rays. The research work of E. Rutherford is of great importance for modern physics. It is continued by many scientists of different countries.

Exercises:

I. Ответьте на следующие вопросы:

1. Who was Isaac Newton?
2. What is theory he was developed?
3. Who was Michael Faraday?
4. Who measured the electric current?
5. Who was Ernest Rutherford?
6. Whose works is of great importance for modern physics.

II. Пользуясь текстом вставьте нужные слова.

1. Newton was interested in many problems ... physics and made a number of discoveries.
2. His scientific ... were varied.
3. During his M. Faraday conducted more than two thousand experiments and made a number of ... discoveries.

4. The research work of E. Rutherford is of great ... for modern physics.

. *Find Uzbek equivalents of the following words and word combinations.*

modern physics, research work, experiments, conducted, famous, importance, wonderful abilities.

LESSON THIRTEEN

TEXT

NEWTON'S LAWS OF MOTION

Isaac Newton was forty – two years old and at the very peak of his scientific genius , when he began his famous masterpiece called “Mathematical Principles of Natural Philosophy” or as it is always referred to simply “The Principe”.

Newton’s mind was overflowing with results of more than twenty years of original scientific thinking and he accomplished the gigantic task of putting it on paper in this masterwork of his. This book gave the world his law of universal gravitation. “The Principe” is a book that is little read today. Ask for it in a bookshop or even in many libraries and no copy will be available. It is true that this book is hard to find nowadays, but throughout the world there are still thousands of shelves containing tens of thousands of books with modernised versions of the basic truths in the “Principe”. When copies of the first printing became scarce many people were soon paying three or four times the original cost, and even copying out the of whole book by hand.

Newton like the Archimedes gave up his whole life and all his talents to science and mathematics. It is to the author of “The Principe” that the world looks back with gratitude and awe as the first mind in the eighteenth century that equalled the mind of Archimedes.

Newton's First Law of Motion states a body at rest will remain at rest and body in motion will continue in motion at a constant speed in a straight line unless acted upon by some outside force.

The First Law introduces the idea of inertia. Suppose that you are riding in a bus going 20 miles an hour. The bus stops suddenly, it is no longer doing 20 miles an hour. But you are. Unless you grab a strap or a hand-rail, you will keep right on going since you are a "body" in motion.

On the Earth's surface, it is difficult to demonstrate the First Law of Motion because air-resistance and the tremendous forces of gravity prevent an object from traveling at one constant speed in a straight line. But one of the best proofs of the First Law is being found in the movements of the heavenly bodies, which meet practically no friction in their travels through space. The only strong forces that are holding them in their orbits. The planets are truly bodies in motion.

Modern artificial satellites- sputniks also obey Newton's First Law in the same way. Space ships will also certainly be able to prove this law in actual practice. Whatever speed the ship will attain, it will be going in a straight line forever unless of course it enters the gravitational field of another heavenly body.

Active Vocabulary

overflow with	- полон чем-либо
to accomplish	- соединён
equal	- равный
inertia	- инерция
to ride	- путешествовать
to keep on	- продолжать
to prevent from	- делать преграду
friction	- трение
to hold in orbit	- держать в орбите
artificial	- искусственный
to attain	- достигать
mass	- масса

Exercises:

. ***Translate.***

1. All these facts do not obey the law. 2. Your disobedience is remarkable. 3. There are variables in the equation. 4. Astronomers speak of all sizes. 5. All falling bodies fall with the same motion, started together they fall together. 6. The body gains speed at a steady rate. 7. The boy gains the same addition of speed in each successive second. 8. Large heavenly bodies are moving in regular orbits. 9. Something is being with their straight line motion. 10. The mutual actions of any two bodies are always equal and oppositely directed.

. ***Fill in the gaps with the words from the text.***

1. Newton's mind was ... with results. 2. The First Law introduces the idea of 3. ... and tremendous forces of gravity prevent an object from travelling at one constant speed. 4. Heavenly bodies meet practically no ... in their travels through space. 5. The gravitational forces are ... the planets in their 6. Modern artificial satellite-sputniks also ... Newton's First Law. 7. Newton ... the gigantic task of putting it all on paper in this masterwork of his.

. ***Define the following concepts.***

a) inertia; b) body at rest; c) friction; d) a body in motion; e) the force of gravity.

LESSON FOURTEEN

TEXT

SOME FACTS ABOUT ATOMS AND MOLECULES

An atom may be spoken of as the smallest particle of any substance. If atoms cannot be seen it does not necessarily mean that they do not exist. It indicates that any particles, if present, must be extremely small. There are methods by means of which the sizes of atoms and their arrangement

in molecules can be determined. One of these methods uses X-ray diffraction.

The results of a number of investigations show that when atoms are in contact with other atoms in molecules, their radius is as much as $0.1 \times 10^{-9} \text{ m}$ (0.1 nm). Some idea of how small atoms are can be obtained by imagining one million copper atoms (radius = $0.13 \times 10^{-9} \text{ m}$ (0.13 nm)) . If these copper atoms are stacked one on top of the other, the pile will be as high as the full stop at the end of this sentence.

In the course of many investigations, chemists came to a conclusion that the atoms of different elements are all made essentially of three simple types of units, which were referred to as protons, neutrons, and electrons.

The number of electrons, protons, and neutrons in an atom of an element can be calculated if the atomic number and relative atomic mass of the element are known.

In 1911 the British physicist Ernest Rutherford carried out some experiments which showed that every atom contains, in addition to one or more electrons, another particle, called the nucleus of the atom.

Every nucleus has a positive electric charge. It is very small. It is about as big as an electron (about 10^{-12} cm in diameter). It is very heavy - the lightest nucleus is 1836 times as heavy as an electron.

There are many kinds of nuclei. The nuclei of the atoms of one element are different from the nuclei of the atoms of every other element.

Use of new atomic power sources of tremendous energies is of great significance for the national economy. However, a part of no lesser importance is played by radioactive and stable isotopes obtained in nuclear reactors, accelerators, and special separation plants. Isotopes are various forms of the same chemical element differing in their atomic weights and physical properties, but chemically identical. Almost every chemical element has a number of isotopes.

Exercises :

I. Переведите предложения на русский язык:

1. The rate of change in motion is influenced by many factors. 2. All forces occur in pairs which may conveniently be spoken of as action and reaction. 3. He rose to speak and was listened to with great attention. 4. After a long discussion an agreement was arrived at. 5. We are approaching this problem in a slightly different way. 6. Such results cannot be wondered at. 7. When you are spoken to please answer quickly. 8. He refused to be dictated to.

II. Вместо точек вставьте нужные слова.

- 6. An atom may be spoken of as of any substance.
- 6. If ... cannot be seen it does not necessarily mean that they do not
- 6. It ... that any particles, if present, must be ... small.
- 6. There are ... by means of which the sizes of ... and their ... in molecules can be
- 6. One of these methods uses

III. Make up sentences with the following words.

protons
neutrons
electrons
sources
element
separation

LESSON FIFTEEN

TEXT

***FARADAY'S DISCOVERY OF THE INTERDEPENDENCE OF
MAGNETIC AND ELECTRICAL ACTIONS***

This occurred in August 31, 1831. Faraday had wound two separate coils of wire upon an iron ring. The ring formed a common core for the two coils. The ends of one coil were joined together by means of a long wire. The wire passed over a compass needle. To the other coil he connected the battery. What did he think? What might he observe? It was a deflection of the compass needle under the wire of the second coil merely. But no such deflection was produced. However, what he thought was something quite unexpected. It was this: when the battery circuit was closed, the compass needle did move, then , oscillating back and forth, finally it returned to its original position of rest; also , upon opening the battery circuit, the needle moved again, then, oscillating as before, likewise returned to a position of rest. This transient, that is a momentary flow of current, was wholly unexpected, in fact it puzzled the experimenter so much that he had some difficulty in explaining the phenomenon. After a considerable study Faraday was able to understand exactly what had happened. He later showed that magnetic and electrical actions were truly reciprocal because: a) It is necessary for electricity to move before a magnetic effect is produced. b) It is necessary for magnetic field to move (or change) before an electrical effect is produced. This matter was of great usefulness in developing the science of electromagnetism and electrodynamics.

Exercises:

II. *Translate these word combinations into Russian.*

ring formed, compass needle, oscillating back, truly reciprocal.

II. *Make up sentences with the following words.*

- 2. Occurred
- 2. separate
- 2. usefulness
- 2. electromagnetism
- 2. reciprocal

II. *В место точек вставьте нужные слова по тексту.*

4. This ... in August 31, 1831.

4. Faraday had wound two of wire upon an iron ring.

4. The ring formed a ... core for the two coils.
4. The ends of one coil were ... together by means of a long wire.
4. The wire passed over a ... needle.
4. To the other coil he ... the battery.

LESSON SIXTEEN

TEXT

ELECTRICAL MEASUREMENTS

Electrical measurements are sure to be one of the most interesting fields of engineering. We know they are very important and widely used in all branches of industry. A large and increasing number of other quantities such as temperature, mechanical movement, gas pressure are turned into electrical ones. They are measured with the help of electrical instruments. Many non-electrical quantities may be readily measured with galvanometers of different type. It is important that every student should have proper information, because information on them is not available in compact form.

It is often convenient to measure the direct current with a direct reading instrument.

For small currents to be measured the arrangements of circuits should be very careful. When small currents are to be measured the insulation of the systems must be very good. The electrical leaks are usually associated with parasitic e.m.f.s (electromotive forces), so that the charge of the isolated system does not remain constant when no potential difference is apparently imposed on the insulator. In case of small current measurements the insulating materials available are rather limited and do not include most of the substances used in ordinary electrical engineering.

Exercises

I. Translate these word combinations into Russian.

include most, electrical engineering, electrical leaks, direct current, apparently imposed, rather limited

II. Make up sentences with the following words.

- 3. currents
- 3. fields
- 3. available
- 3. information
- 3. apparently

LESSON SEVENTEEN

TEXT ***ENGINES***

The heat engines is a machine that converts heat energy to mechanical energy. The engines of motor-cars, motor-cycles, farm tractors, motor boats, etc., are heat engines, which belong to the subgroup of internal combustion engines. Combustion engines may be divided into several types according to the number of piston strokes, Most of modern automobile engines operate on four stroke cycle. Cross section of a four-stroke SI engine is one of the main parts of engine. There are also engines which operate on two-stroke and six-stroke cycles.

A diesel engine is a machine which produces power by burning oil in a body of air which has been squeezed to a high pressure by a moving piston.

Steam, gas and oil engines were known and used prior to the invention of the diesel engine. The steam engine converts the heat energy of steam to mechanical energy. A typical steam reciprocation engine consists of cylinder fitted with a piston. A connecting rod and crankshaft change the piston to-and-fro motion into rotary motion. The steam pressure on the piston varies during the stroke, and it is a flywheel which maintains a constant output velocity.

Active Vocabulary

heat engine
motor car
motor cycle

ТЕПЛО ДВИГАТЕЛЬ
АВТОМОБИЛЬ
МОТОЦИКЛ

motor boat	моторная лодка
internal combustion engines	двигатель внутреннего сгорания
piston stroke	движение поршня
diesel engine	дизель
mobile equipment	двигающий прибор
steam	пар
connecting rod	шатун
flywheel	маховик

Exercises:

I. Change the following sentences according to the model.

Model: It is known that he works here. – He is known to work here.

1. It is considered that this mine is the best in the district. 2. It was expected that the expedition would come in a week. 3. It is said that you know your speciality very well. 4. It is known that he worked at the University. 5. It is supposed that he will come back tomorrow. 6. It seems that she knows the subject well. 7. It appeared that he had left for Leningrad.

II. Translate.

1. Steam, gas and oil engines are known to have been used prior to the invention of the diesel engine. 2. The name “heat engines” is known to include many types of engines and turbines. 3. The engine is said to be a source of power. 4. The up-and-down movement of the piston is known to be a reciprocating motion. 5. Heat engines are supposed to lose much heat energy when they do mechanical work.

III. Answer the questions.

1. What is heat engine? 2. Into what types may combustion engines be divided? 3. What is a diesel engine? 4. Who invented a diesel engine? 5. Where are diesel engines especially suitable? 6. What parts does a typical engine consist of? 7. When were steam, gas and oil engines used.

LESSON EIGHTEEN

TEXT

TURBINES

The turbine is a machine for generating mechanical power from energy of the stream of fluid. Steam, hot air or gaseous products of combustion, and water are the most widely used working fluids.

A steam turbine may be defined as a form of heat engine in which the energy of the steam is transformed into kinetic energy. It consists of the following fundamental parts: a) a blades; b) a rotor, containing the moving blades; c) a set of bearings; d) a governor and valve system for regulating the speed and power of the turbine. The main types of steam turbines are axial - flow turbines and radial stage turbines.

The reciprocating steam engine come into its own during the nineteenth century when it found greatest use in mills, locomotives and pumping systems. The modern steam turbine, developed at the turn of the last century is rapidly replacing the reciprocating engine for large installations. Gas is used as the working fluid in gas turbines. The basic theory underlying their design and their operating characteristics is identical with that for steam turbines. The energy of water is converted into mechanical energy of a rotating shaft in hydraulic turbines. Power may be developed from water by three fundamental processes: by action of its weight, of its pressure or its velocity; or by a combination of any or all three.

Active Vocabulary

arrangement	- устанавливать
casing (shell)	- корпус
stationary blades	- стационарные крылья
rotor	- ротор
moving blades	- крылья двигателя
governor	- регулятор
radial – stage turbine	- радиально расположенная турбина
rotating shaft	- двигательный вал

Exercises:

I. Put up questions to the italicized parts of the following sentences.

1. R. Diesel carried out all experimental work with liquid fuel. 2. Air –craft engines cooled by air are manufactured today in sizes ranging from 50 to 500 h. p.

II. Define the following notions.

Combustion, casing, rotor, axial – flow turbines, pumping systems, rotating shaft, reciprocating engine.

III. Answer the questions.

1. What is a turbine? 2. What are the most widely used working fluids? 3. What is a steam turbine? 4. What is a radial-stage turbine? 5. What is a steam turbine? 6. When did the reciprocating steam engine come into its own? 7. In what turbines is gas used as a working fluid?

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