

МИНИСТЕРСТВО ОБРАЗОВАНИЯ РЕСПУБЛИКИ БЕЛАРУСЬ

УЧРЕЖДЕНИЕ ОБРАЗОВАНИЯ
«БЕЛОРУССКИЙ ГОСУДАРСТВЕННЫЙ УНИВЕРСИТЕТ ТРАНСПОРТА»

Кафедра иностранных языков

С.А. НАПРЕЕВА, Е. И. БУЛАНОВА

АНГЛИЙСКИЙ ЯЗЫК

Пособие по выполнению контрольных заданий № 4, 5
для студентов факультета безотрывного обучения специальности
«Автоматика, телемеханика и связь на транспорте»

Гомель 2004

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Под редакцией *Н. А. Гришанковой*

Одобрено методической комиссией ФБО

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Каждая контрольная работа включает пять вариантов и является продолжением контрольных заданий № 1, 2, 3 для студентов I курса ФБО всех специальностей.

Цель данного пособия – обучить студентов ФБО чтению и переводу литературы на английском языке по специальности, усвоению особенностей грамматического строя английского языка, необходимого для перевода и понимания текстов, обогатить специальными терминами словарный запас студента.

Предназначено для студентов ФБО, изучающих специальность Т. 11.05.00 "Автоматика, телемеханика и связь на транспорте".

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КОНТРОЛЬНОЕ ЗАДАНИЕ № 4

Чтобы правильно выполнить задание № 4, необходимо повторить грамматический и лексический материал предыдущих заданий, прочесть и перевести тексты методических указаний, рекомендуемых кафедрой, закрепить слова, выражения, усвоить следующие грамматические темы:

1 Сложные формы инфинитива (Passive Infinitive). Обороты, равнозначные придаточным предложениям: объектный инфинитивный оборот, субъектный инфинитивный оборот.

2 Причастия (Participle I, II). Независимый (самостоятельный) причастный оборот.

3 Условные предложения.

4 Функции инфинитива (повторение).

Вариант I

I Перепишите и письменно переведите на русский язык следующие предложения, обращая внимание на объектный и субъектный инфинитивные обороты:

1 We know metal to conduct electricity.

2 He ordered these devices to be repaired as soon as possible.

3 The theoretical analysis of electrical phenomena is known to have been made by M. Lomonosov.

4 The circuit is said to open when no charges can move due to a break in the path.

II Перепишите предложения; подчеркните Participle I, Participle II, установите функции каждого из них, т. е. укажите, является ли оно определением, обстоятельством или частью глагола-сказуемого. Переведите предложения на русский язык.

1 The exchanges operating automatically are of great value.

2 When assembling an integrated circuit different approaches may be utilized.

3 Data estimated were used in designing the new system.

4 When insulated the wire may be used as a conductor.

III Перепишите предложения, переведите их на русский язык. Обратите внимание на условные предложения.

1 If they receive all the necessary information, the experimental data will be obtained in time.

2 If the speed of the train were 120 km/h, it would cover the distance in 4 hours.

3 If the ends of a wire are at different potentials, the amount of force available or the electromotive force is governed by the potential difference.

4 If the transmitter is connected in series with a battery, the variations in resistance modulate the direct current.

5 Provided the device was adjusted the problem would be solved at once.

IV Перепишите и письменно переведите на русский язык следующие предложения, обратив внимание на перевод зависимого и независимого причастного оборота:

1 A simple component having failed, the whole cable system was repaired.

2 Being constructed in a new way the device has high reliability.

3 Microelectronics surrounds the entire body of electronics, the term it self-appearing in many forms.

4 A component designer developing components tries to increase their reliability.

V Перепишите следующие предложения, определите в них функцию инфинитива и переведите предложения на русский язык:

1 Samuel Morse was the first to produce a practical telegraph.

2 The computer to be introduced will be of great importance for our research.

3 To increase the voltage, an introduction coil is introduced.

4 The problem to be solved is to speed up the movement of the trains in this district.

VI Прочитайте, перепишите и письменно переведите 1 – 3-й абзацы текста.

ELECTROMOTIVE FORCE

1 The electromotive force (e.m.f.) is that force which tends to cause a movement of electricity in a circuit.

2 The potential difference is a difference between the electrical states existing at two points tending to cause a movement of electricity from one point to the other.

3 The principal unit of measurement of (e.m.f.) and potential difference is the Volt. Potential difference is best explained by an analogy. If two tanks of water at different levels are connected by a pipe, there is a potential difference in pressure. If one tank is 40 feet and the other 50 feet above the sea level it can be said that there is potential difference of 10 feet. Similarly, if the ends of a wire are at different potentials, the amount of force available or the electromotive force is governed by the potential difference. Thus, if two spheres are changed to potentials of 40 and 50 Volts respectively, and connected by a wire, there is a difference of potential of 10 Volts between the ends of the wire available for doing work and an electric current will therefore flow from the sphere of higher potential to the one of lower potential.

4 One of the simple ways of obtaining this energy is by means of a simple cell comprising a plate of copper and a plate of zinc immersed in a solution of dilute sulphuric acid. When the terminals of the cell are connected by a copper wire to a current measuring instrument it will be seen to register a current flow.

5 The current is being produced by the chemical action, which is going on inside the cell. The current flowing from all types of cell is known as a directed current.

VII Ответьте письменно на следующие вопросы к тексту:

- 1 What is the principal unit of measurement of e.m.f.?
- 2 What is the simplest way of obtaining energy?
- 3 How is the current being produced?

Вариант II

I Перепишите и письменно переведите на русский язык следующие предложения, обратив внимание на объектный и субъектный

инфинитивные обороты:

- 1 They supposed this system to be out of order.
- 2 The experiment proves the two messages to be equivalent.
- 3 The rough nature of an ergodic process is considered to be easily understood.
- 4 One is said to be interested in a continuous signal.

II Перепишите предложения; подчеркните Participle I и Participle II, установите функции каждого из них, т. е. укажите, является ли оно определением, обстоятельством или частью глагола-сказуемого. Переведите предложения на русский язык.

- 1 Having obtained the necessary data he began his work.
- 2 The increasing importance of radio broadcasting is evident nowadays.
- 3 When reading the article he made some notes.
- 4 Electronics systems are spreading widely all over the world.

III Перепишите предложения, переведите их на русский язык. Обратите внимание на условные предложения.

- 1 If the line circuit were a long one, the variation of line current would be small.
- 2 If all the requirements were met, the efficiency of the mechanism would be increased.
- 3 If we obtained all the necessary data we should have completed the experiment in time.
- 4 If you are interested in the design of the machine, you will get all the necessary information in that reference book.
- 5 Provided the temperature was increased, the velocity of the molecular motion would be increased.

IV Перепишите и письменно переведите на русский язык следующие предложения, обратив внимание на перевод зависимого и независимого причастного оборота:

- 1 The conductor having the form of a coil, the inductance increased.
- 2 When assembling an integrated circuit different approaches may be utilized.
- 3 The effect is highly depended upon frequency the lower frequencies showing less noise.
- 4 Having been given the wrong data he failed the experiment.

V Перепишите следующие предложения, определите в них функцию инфинитива и переведите предложения на русский язык:

- 1 To communicate information of some sort must be transferred.
- 2 To measure in formation means to define the logarithm of the number of available choices.
- 3 The function of the transmitter is to encode the message.
- 4 It is necessary for students to study all types of amplifiers

VI Прочтите, перепишите и письменно переведите с 1 – 3-й абзацы текста.

THE TELEPHONE TRANSMITTER

1 The way is referred as an electro-mechanical device designed to convert sound waves or vibrations into electrical waves or vibrations for transmission over a telephone or similar circuit. Carbon granule telephone transmitter consists of a small chamber containing carbon granules in which two polished carbon electrodes are immersed.

2 A conical-shaped diaphragm made of aluminium has a hollow cylinder of similar metal affixed to its centre. This cylinder, which holds one of the carbon electrodes, projects through mica and silk washers into the granule chamber. It, therefore, acts as a piston free to move laterally inside the cylinder formed by the granule chamber, and constitutes the moving electrodes. The other carbon electrode is fixed to, but insulated from, the outer casing at the rear of the granule chamber so that the faces of the two electrodes are parallel and spaced 78-81 mils apart.

3 Movement of the diaphragm caused the layer of the carbon granules between the faces of the two electrodes to suffer variations in pressure. The outer casing of the transmitter is in detect electrical contact with the moving electrode so that all surfaces inside the granule chamber, except the electrode faces, must be covered with insulating enamel to prevent the electrodes being shunted.

4 A hole is drilled through the centre of the rear electrode to permit the atmospheric pressure at both sides of the diaphragm to be the same, the carbon granules being prevented from escaping through this hole by means of a filter pad. At the open end, this hole enlarged to accommodate a plug which effects the electrical connection to the fixed electrode being made by a spring which bears on the transmitter case. The outer surface of the diaphragm is covered with en 7 :vent corrosion, while a metal

grid is fixed over the diaphragm to prevent mechanical damage.

VII Ответьте письменно на следующие вопросы к тексту:

- 1 What is a transmitter?
- 2 What does movement of diaphragm cause?
- 3 Why is the outer surface of the diaphragm covered?

Вариант III

I Перепишите и письменно переведите на русский язык следующие предложения, обращая внимание на объектный и субъектный инфинитивные обороты:

- 1 Letters or musical notes rather than words may be proved to be a sequence of symbols according to certain probabilities
- 2 In this case we may suppose the chain of symbols to be endless.
- 3 They believe the data to be reliable.
- 4 The human voice is known to contain high frequencies.

II Перепишите предложения; подчеркните Participle I и Participle II, установите функции каждого из них, т. е. укажите, является ли оно определением, обстоятельством или частью глагола-сказуемого. Переведите предложения на русский язык.

- 1 Scientific information is growing very fast.
- 2 The system is transmitting a large number of telephone calls.
- 3 The filters noise level are used in satellites communication systems of various kind.
- 4 Integrated circuitry are widely used nowadays.

III Перепишите предложения, переведите их на русский язык. Обратите внимание на условные предложения.

- 1 If I were in his place, I should carry out the experiment.
- 2 If this new method had been applied, you would have got good results a month ago.
- 3 If alternating current were used for heating, the different parts of the cathode would not be at constant potential.
- 4 If you had filament had been heated, we should have obtained the electron emission.

IV Перепишите и письменно переведите на русский язык следующие предложения, обратив внимание на перевод зависимого и независимого причастного оборота:

1 The semiconductors material being used to fabricate component parts within a single piece of semiconductors, the latter becomes an entire circuit or part of a circuit.

2 Having computed the data the operator used the results obtained.

3 Achieving small size the component designer reduced the cost of the whole system.

4 Reduced weight and size are particularly important, miniaturization becoming the necessity in order to reach high speed.

V Перепишите следующие предложения, определите, в них функцию инфинитива и переведите предложения на русский язык:

1 Specialists face many difficulties to solve the technical problems in the field of communication.

2 During the industrial revolution new communication techniques began to evolve.

3 It is necessary for specialistes to get rid of noise.

4 There are many means of communication to meet the requirements of the national economy.

VI Прочтите, перепишите и письменно переведите 1-й и 3-й абзацы текста.

REQUIREMENTS OF A TELEPHONE TRANSMISSION SYSTEM

1 It is now necessary to formulate the requirements of a telephone transmission system that small be capable of transmitting intelligible speech by electrical means.

2 Firstly, a sufficient portion of the originated sound energy must reach the diaphragm of the transmitter. This sound energy reaching the transmitter diaphragm must then be converted into electrical energy, transmitted over the intervening (промежуточный) network of electrical connections to the diaphragm of the receiver at the distant end, and there it must be reconverted into sound energy. The efficiency of each portion of this system and of the system considered overall, must be such as to give sufficient loudness to the listener holding the receiver to this ear.

The instruments and the connec 9 circuits must be so designed as to

transmit, without distortion (искажение, нарушение), the telephone band of frequencies (полоса частот). Distortion can be of two kinds, phase distortion when the relative phase of the fundamental (основная часть) and its components differs after transmission from that at the commencement, and amplitude distortion, where the relative amount of energy contained in the various components of the complex wave is different from that at the commencement. Both these forms of distortion must be kept to a minimum, although with regard to phase distortion, the function of the ear as an analyser assists considerably in increasing the permissible amount of distortion without loss of intelligibility (понятность).

4 Finally, the transmission of the speech-energy in sufficient volume and of a satisfactory quality must not be appreciably disturbed (мешать). The system must therefore be free from extraneous (чуждый, посторонний) noise, such as cross talk and noise from other neighbouring system or from any other cause.

VII Ответьте письменно на следующие вопросы к тексту:

1 How are instrument and connecting circuits designed?

2 What kinds of distortion can be?

3 What are the main requirements of a phone transmission system?

Вариант IV

I Перепишите и письменно переведите на русский язык следующие предложения, обращая внимание на объектный и субъектный инфинитивные обороты:

1 The word "information" in communication theory is assumed to relate to what you could say.

2 They supposed this system to be out of order.

3 We know the receiver to change the signal back into a message.

4 The sound from the telephone is transmitted over long distances.

II Перепишите предложения; подчеркните Participle I и Participle II, установите функции каждого из них, т. е. укажите, является ли оно определением, обстоятельством или частью глагола-сказуемого. Переведите предложения на русский язык.

1 Controlling equipment is set up in planes and rockets.

2 Due to reduced size and weight 10 electronics may be used to increase the speed of equipment.

- 3 Special attention is paid to the quality of measuring instruments.
- 4 When working with a new instrument he made some notes.

III Перепишите предложения, переведите их на русский язык. Обратите внимание на условные предложения.

- 1 We shall carry out our plans in time, provided the failure of the experimental equipment does not occur.
- 2 If the electrodes in a cell are of the same material they became charged.
- 3 If my experiment had taken less time I should have come earlier.
- 4 They would finish their work earlier, if they could get the necessary equipment.
- 5 If I were you, I should do it at once.

IV Перепишите и письменно переведите на русский язык следующие предложения, обратив внимание на перевод зависимого и независимого причастного оборота:

- 1 The effect is highly depended upon frequency, the lower frequencies showing less noise.
- 2 If used properly this method may be of great help.
- 3 Having placed a third electrode between the cathode and anode we got a new kind of tube known as a triode.
- 4 A laboratory for the experiment having been chosen, the work started.

V Перепишите следующие предложения, определите в них функцию инфинитива и переведите предложения на русский язык:

- 1 It was decided to use "a bit" as a unit of information.
- 2 They are installing digital computer system to view the results of each day's operation.
- 3 To obtain the necessary data was difficult.
- 4 There are Markoff processes to be widely involved in the theory of communication.

VI Прочтите, перепишите и письменно переведите 1-й и 2-й абзацы текста.

CONSTRUCTION OF THE INDUCTION COIL

- 1 The induction coil is fitted in a telephone circuit. The core consists

of a bundle of soft iron wires over which are wound the primary and secondary windings, these windings being separated from each other and the core by layers of insulating materials. The core is fitted with wooden cheeks which carry the four tags on which the two windings are terminated.

2 The primary winding, which consists of 430, turns of relatively heavy gauge copper wire D.C. resistance (approximately 1 ohm) to prevent the variations in the resistance of the transmitter circuit. This winding is wound nearest the core so that its turns have a small mean diameter and a greater magnetic efficiency. Hence fewer turns are required in the primary winding to provide the necessary flux density in the core, while a winding of low resistance is obtained without resorting to the use of exceptionally heavy gauge copper wire.

3 The wire core assembly has the effect of limiting wasteful eddy currents in the core materials and by virtue of its open magnetic circuit, the iron does not become saturated by the passage of the direct current through the primary winding. This particular type of construction also assists in maintaining the impedance of both the primary and secondary windings at a minimum. Since the secondary winding is connected in series with the receiver, its impedance must be kept low so as not to interfere unduly with the passage of alternating speech currents round this circuit. The secondary winding is however, required to step up the alternating voltage generated by the transmitter to overcome the resistance of the line. The best results are found to be given by a secondary winding of 1,350 turns of relatively fine gauge copper wire having a resistance of 25 ohms.

VII Ответьте письменно на следующие вопросы к тексту:

- 1 What does the core consist of?
- 2 What is the effect of the wire core assembly?
- 3 What are the best results given by?

Вариант V

I Перепишите и письменно переведите на русский язык следующие предложения, обращая внимание на объектный и субъектный инфинитивные обороты :

1 We know the information to be low when the situation is highly organized.

2 The experiment proves the two messages to be equivalent.

3 Information is known to be a measure of one's freedom of choice in selecting a message.

4 The statistical nature of message was found to be determinate by the character of the source.

II Перепишите предложения; подчеркните Participle I и Participle II, установите функции каждого из них, т. е. укажите, является ли оно определением, обстоятельством или частью глагола-сказуемого. Переведите предложения на русский язык.

1 When conducting the experiment, he used up-to-date equipment.

2 The device tested in the laboratory was constructed by our engineer.

3 Applying new devices we get better results.

4 The law defining the properties of inertia was formulated by Newton.

III Перепишите предложения, переведите их на русский язык. Обратите внимание на условные предложения.

1 They will obtain good results provided they use these new methods.

2 If you press the button, the device will start working.

3 The experiment might have been carried out successfully, if he had used new data.

4 If they could solve this problem themselves, they would not ask for your help.

5 If he were here, he would have connected these circuit much quicker.

IV Перепишите и письменно переведите на русский язык предложения. Обратите внимание на перевод зависимого и независимого причастного оборота.

1 The designer changes some details while testing the device.

2 Computers represent a completely new branch of science, the first of them having appeared not so long ago.

3 Special attention being developed to new materials gave good results.

4 The inventor was demonstrating his new device, the workers watching its operation attentively.

V Перепишите следующие предложения, определите в них функцию инфинитива и переведите предложения на русский язык:

1 It is necessary for your "to tune in" to the desired broadcast.

2 The circuit can be broken to interrupt the flow of electricity.

3 It is misleading to say that one or the other message conveys the unit information.

4 To make a long story short they repeated the experiment and compared the results.

VI Прочтите, перепишите и письменно переведите 1-й и 2-й абзацы текста.

THE SIMPLE TELEPHONE CIRCUIT

1 Let us, describe what happens in each part of the circuit when subscriber A speaks to subscriber B.

2 Normally a direct current is flowing in the local circuit and when subscriber A speaks into the transmitter, the diaphragm vibrates due to the alternate compression and rarefactions (разрежение, разреженность) of the airwave caused by the sounds. The movement of the diaphragm alters the pressure between a large number of carbon granules, causing a variation in contact area which results in a corresponding variation in resistance of the transmitter. This forms the major part of the primary circuit resistance which, in varying, causes a fluctuating (колебаться, изменяться, быть неустойчивым) direct current to traverse the primary of the induction coil. This fluctuating direct current as a steady D.C. component upon which is superimposed a small alternating current.

3 The variations of potential at the terminals of the transmitter is small and, if it were applied direct to a circuit of fairly high impedance, the varying high impedance, the varying current received at the distant end would be inadequate for good transmission.

4 To increase the voltage applied to the circuit, an induction coil with a step-up ratio from primary to secondary is introduced. The varying D.C. in the primary gives rise to a varying flux which, linking with the turns of the secondary, produces an alternating e.m.f. (electromotive force) across the secondary terminals. There is, with a given line impedance, an optimum ration which gives the best transfer of energy to line. The introduction coil is designed to have a very low resistance primary winding to reduce the D.C. voltage drop it is to a minimum and so to allow the use of a small e.m.f. in the primary circuit

VII Ответьте письменно на следующие вопросы к тексту:

- 1 What does the movement of the diaphragm alter?
- 2 Why is an instruction coil with a step-up ratio from primary to secondary introduced?
- 3 By what is the steady flux of the permanent magnet modulated?

КОНТРОЛЬНОЕ ЗАДАНИЕ № 5

Чтобы правильно выполнить задание № 5, необходимо усвоить материал следующих разделов грамматического справочника:

- 1 Грамматические функции глаголов *should, would*.
- 2 Обороты с инфинитивом и причастием, равнозначным придаточным предложением.
- 3 Различные значения слов: *as, because, because of, due to, since, both, and, either... or, neither... nor*.
- 4 Герундий (повторение).
- 5 Бессоюзное подчинение.

Вариант I

I Перепишите предложения и переведите их на русский язык. Обратите внимание на слова *should, would*.

- 1 One should do one's experiments carefully to obtain good results.
- 2 They would finish their work earlier, if they could get the necessary equipment.
- 3 I should have come earlier, in case my experiment had taken less time.
- 4 It is necessary that the transformer efficiency should be as high as possible.

II Перепишите следующие предложения и переведите их на русский язык, обратив внимание на перевод оборотов с инфинитивом и причастием, равнозначных придаточным предложениям:

- 1 We watched the scientists carrying out the experiment.
- 2 I want the experiment to start at once.
- 3 We consider the results of their research work to be satisfactory.
- 4 I like you speaking about your experimental work.

III Перепишите предложения и переведите их на русский язык, обращая внимание на различные значения слов *as, because, because of, due to, for, since, both ... and, either ... or, neither ... nor*.

- 1 Electronic devices have found many uses because of their valuable properties.
- 2 According to a present accepted theory atoms have a nucleus which has a positive charge of electricity.
- 3 Due to thermal agitation the atom of semiconductor can transfer one of the outer electrons to another atom.
- 4 There is plenty of time for we must complete the calculation only by the end of April.

IV Перепишите следующие предложения и переведите их на русский язык, обращая внимание на функцию и перевод герундия:

- 1 Encoding is the function of the transmitter.
- 2 Visual and audible signals are used for conveying information.
- 3 Sometimes we speak of applying a still broader definition of communication.
- 4 The way of overcoming *this* drawback is not an easy one.

V Перепишите следующие предложения и переведите их на русский язык, обращая внимание на бессоюзное подчинение:

- 1 Energy production of hydroelectric stations is used for industry, agriculture and other needs of our country.
- 2 They believe our era began with the discovery of the electric current.
- 3 The message they are speaking about must be sent immediately.
- 4 We know Morse invention was followed by a number of new machines.

VI Прочтите текст. Перепишите и письменно переведите 1-й и 2-й абзацы текста.

RESISTORS

- 1 Two of the most common forms of fixed resistor in general use are the carbon-rod type and the wire-wound type.

2 The carbon-rod resistor consists of resistive material, usually a mixture of clay and carbon, baked at a high temperature and fitted with end caps or wires to afford connection. The resistance value of the resistor is determined by its cross-sectional area and length. This type of resistor is obtainable in a very range of values, and may be constructed dissipate between one and three watts of power, the power being generated within the resistor in the form of heat.

3 The wire-wound resistor is employed where it is necessary to dissipate more energy or when small values of resistance wire, an alloy in the main of copper, iron and nickel, on a former of clay, asbestos or other insulating heat-resisting material. Again end caps or wires are fitted for connecting purposes. The value of the resistor is, in this case, determined by the chemical constitution, cross-sectional area, and length of the resistance wire used. Wire-wound resistors are obtainable for all values of resistance, but are most commonly used for values lower than 2000 ohms where more than three watts of power must be dissipated.

4 Use of the carbon-rod resistor is to be preferred where little power is to be involved as it possesses practically no self-inductance and capacitance, in addition to its relatively low cost. Where considerable power must be handled, the wire-wound resistor is preferable in spite of its high self-inductance and capacitance. The former may be reduced by winding half of the resistance wire in one direction, and the remainder in the opposite direction (bifilar wound).

VII Ответьте на следующий вопрос к тексту:

What are the carbon-rod type and the wire-wound type of fixed resistor?

Вариант II

I Перепишите предложения и переведите их на русский язык. Обратите внимание на слова should, would.

- 1 This part should be replaced.
- 2 If alternating current were used for heating, the different parts of the cathode would not be at constant potential.
- 3 It is essential that a small air-gap should be left.
- 4 He suggested that the experiment should be postponed.

II Перепишите следующие предложения и переведите их на русский язык, обратив внимание на перевод оборотов с инфини-

тивом и причастием, равнозначных придаточным предложениям:

- 1 We watched a piece of metal conducting electricity.
- 2 We know him to work to in the field of electrical engineering.
- 3 We saw the scientists testing a new device.
- 4 We know high-speed electronic computers to be very effective.

III Перепишите предложения и переведите их на русский язык, обращая внимание на различные значения слов as, because, because of, due to, for, since, both ... and, either ... or, neither ... nor.

1 Since the system is controlled by computers they had to work out special programs.

2 Energy is defined as the ability to do work.

3 A cathode is an essential part of a radio tube because it supplies the electrons necessary for tube operations.

4 A transformer is a device for raising or lowering voltage.

IV Перепишите следующие предложения и переведите их на русский язык, обращая внимание на функцию и перевод герундия:

1 The signals over communication channel must be prevented from being distorted.

2 The information source of a communication system is used for selecting a desired message out of a set of possible messages.

3 Encoding is the function of the transmitter.

4 After discussing the three main communication problems we'll pass to a communication system.

V Перепишите следующие предложения и переведите их на русский язык, обращая внимание на бессоюзное подчинение:

1 The experiment we watched with great interest opens a new era in technology.

2 We know modern telegraph systems have been influenced by achievements of science and technology.

3 The message we are speaking about is very important.

4 The voices you have just heard are those of Bailey and Oswald.

VI Прочтите текст. Перепишите и письменно переведите 3-й и 4-й абзацы текста.

LAWS OF THE ELECTRICAL RESISTANCE OF A CONDUCTOR

1 The laws of resistance of a conductor may be summarized as follows:

The resistance of conductors varies directly as its length; thus, if one yard of copper wire has a resistance of 0.03 ohm, then lengths of 2 yards, and 0.5 yard will have resistances of 0.06 ohm, 1.2 ohms and 0.15 ohm respectively.

2 The resistance of a conductor varies inversely as its cross section; thus, if a wire has twice the cross section of another of the same material, and equal length be taken, it will have only half its resistance.

3 The resistance of a conductor depends on its temperature; thus good conductors, such as the metals, become worse conductors with an increase in the temperature. Carbon decreases in resistance, also insulators and electrolytes. Alloys increase their use for testing instruments. In ordinary calculations, where great accuracy is not required, the effects of temperature may, within reason, be neglected.

4 The resistance of a conductor depends upon the structure of the material, i. e. its specific resistance. Various conductors have differing values of specific resistance. It may be defined as the resistance offered between the opposite faces of a cube of a material the length of each being unity.

5 From these laws of resistance we can determine the resistance of a conductor thus: $R = \rho l/a$.

Where ρ is the specific resistance of the conductor;

l is the length of the conductor;

a is the area of cross section.

VII Ответьте на следующий вопрос к тексту:

What are the three laws of the electrical resistance of a conductor?

Вариант III

I Перепишите предложения и переведите их на русский язык. Обратите внимание на слова should, would.

1 Telephone and telegraph apparatus should be protected against the effects of lightning discharges.

2 He would have connected these circuits much quicker.

3 I said we should be glad to take part in the experiment.

4 If reception is not required during thunderstorms, the aerial should be disconnected from the receiver.

II Перепишите следующие предложения и переведите их на русский язык, обратив внимание на перевод оборотов с инфинитивом и причастием, равнозначных придаточным предложениям:

1 We know electronics to be widely used in industry.

2 I hear him explaining the physical law.

3 They believe us to have made all the necessary calculations.

4 His report is said to contain many important data about plastics.

III Перепишите предложения и переведите их на русский язык, обращая внимание на различные значения слов as, because, because of, due to, for, since, both ... and, either ... or, neither ... nor:

1 Because of the high temperature a tungsten cathode radiates much heat and light.

2 As the velocity of the electron increases its mass also increases.

3 Our age is called the age of polymers for they are now used for numerous purposes in our industry.

4 Since grid voltage is ordinarily much lower than anode voltage grid current is smaller than anode current.

IV Перепишите следующие предложения и переведите их на русский язык, обращая внимание на функцию и перевод герундия:

1 One cannot imagine the effectiveness problem without interrelating it with the semantic ones.

2 The signals over communication channel must be prevented from being distorted.

3 Our having mastered a foreign language help us in our work.

4 We suggested the experiment being stopped.

V Перепишите следующие предложения и переведите их на русский язык, обращая внимание на бессоюзное подчинение.

1 We know it is not the sound of the voice that travels over the wire when we talk over a telephone.

2 The new waterproof cable they have developed will help to solve all the problems.

3 The man you are looking at carried out experiments with a new type of insulating material.

4 This experiment seems not to give good results.

VI Прочтите текст. Перепишите и письменно переведите 2-й и 3-й абзацы текста.

SELF INDUCTION

1 Self induction (самоиндукция) is that property of an electric circuit which causes an e.m.f. to be induced by the variations of the circuit flux which follow changes of the circuit current.

The e.m.f. so induced is known as the e.m.f. of Self Induction.

2 The magnetic field due to a current in a conductor or a coil varies with the current strength. When the current increases the flux increases and vice versa (наоборот). This changing flux interlinks (сцеплять, пронизывать) the circuit or the turns of the coil and an e .m .f. is induced, opposing the changes in the current. The magnitude (величина) of this e.m.f. is proportional to the rate of change (скорость изменения) of the flux.

3 If the current is suddenly interrupted (прерывать), this induced e.m .f. may have an instantaneous value (мгновенное значение) many times greater than the original circuit e.m.f. Such an e.m.f. produces sparking (искрение) at contacts or arcing (искрение) at switches.

4 Every coil or circuit must necessarily have the property of self-induction to a greater or lesser extent, as a current-carrying conductor will always give rise to some degree of magnetic field strength in its neighborhoods (соседство).

5 A straight conductor shows this property to a small extent.

With a coil of a number of turns of wire, wound on an iron core, such as an electro-magnet, all the lines will interlink some or all the turns. The greater the number of interlink ages (междузвеньевое сцепление электрического и магнитного контуров), the greater will be the e .m .f. of self induction for the same rate of change of current.

VII Ответьте письменно на следующий вопрос к тексту:

What is self-induction?

Вариант IV

I Перепишите предложения и переведите. Обратите внимание на слова should, would.

1 The battery should not be charged or discharged at too high a rate.

2 If the temperature increases, molecular motion would be increased.

3 They suggested that he should measure the main current flow.

4 It is important that he should take part in the experiment.

II Перепишите следующие предложения и переведите их на русский язык, обратив внимание на перевод оборотов с инфинитивом и причастием, равнозначных придаточным предложениям:

1 We consider computers to be of great importance for our research.

2 Two scientists were heard discussing the results of their work.

3 We know Samuel Morse to be the first to produce a practical telegraph.

4 The problem was expected to be solved in time.

III Перепишите предложения и переведите их на русский язык, обращая внимание на различные значения слов as, because, because of, due to, for, since, both ... and, either ... or, neither ... nor:

1 Such instruments as thermometers and barometers can be found in any physical laboratory.

2 They could fulfill their plan much ahead of this time because they were supplied with new modern machinery.

3 Since the system is controlled by computers they had to work out special programs.

4 The chief engineer is either at the office or at the laboratory.

IV Перепишите следующие предложения и переведите их на русский язык, обращая внимание на функцию и перевод герундия:

1 He insisted on his device being tested.

2 For many centuries men were interested in obtaining new sources of energy.

3 You cannot obtain final results without comparing these data.

4 After conducting this experiment the engineer left the laboratory.

V Перепишите следующие предложения и переведите их на русский язык, обращая внимание на бессоюзное подчинение:

1 Each model of a tape recorder we study here has its own merits.

2 I believe it is an entirely new world of music.

3 A tuner you are speaking about selects a radio broadcasting signal.

4 The new post-office-designed equipment we spoke about is being introduced in Great Britain.

VI Прочтите текст. Перепишите и письменно переведите 1-й и 2-й абзацы текста.

MS-DOS AND ITS MAIN TERMS

1 The Microsoft MS-DOS operating system is like a translator between you and your computer. The programs in this operating system allow you communicate with your computer, your disk drives and your printer and use them. MS-DOS also helps you to work with programs and data. Once you have loaded MS-DOS into your computer memory, you can compose letters, run programs and languages and use printers and disk drives.

2 When you are introduced to some new idea, you must often learn some new words to understand it. Memory is the place in your computer where information is actively used. When you run a program, MS-DOS stores this program and the files it uses in the computer's memory.

3 Some programs and files use more memory than others, depending on how large and complex they are.

4 Devices. When you use your computer, you supply the information (input) and expect a result (output). Your computer uses pieces of hardware called devices to receive input and send output.

5 For example, when you type a command, your computer receives input from your keyboard and disc drive, and usually sends output to your screen. It can also receive input from a mouse or send output to a printer. Some devices, such as disc drives, perform both input and output.

VII Ответьте письменно на следующий вопрос к тексту:

How can your computer receive input?

Вариант V

I Перепишите предложения и переведите их на русский язык. Обратите внимание на слова should, would.

1 It is essential that the temperature should be measured.

2 Provided the device was adjusted the problem would be solved at once.

3 If the filament had been heated, we should have obtained the electron emission.

4 You should have taken part in the experiment.

II Перепишите следующие предложения и переведите их на русский язык, обратив внимание на перевод оборотов с инфинитивом и причасти 23 авнозначных придаточным предложениям:

1 The engineer expected the work to be done in time.

2 We saw new devices installing in our laboratory.

3 They considered the calculations to be of great importance.

4 The device was reported to be the best at the exhibition.

III Перепишите предложения и переведите их на русский язык, обращая внимание на различные значения слов as, because, because of, due to, for, since, both ... and, either ... or, neither ... nor:

1 Neither he nor I know how to use this device.

2 While electrons are more or less free to pass between the grid wires, the grid acts as an electrostatic shield.

3 The cathode can be heated so that it will emit electrons because of thermal energy.

4 Due to the invention of the radio.

IV Перепишите следующие предложения и переведите их на русский язык, обращая внимание на функцию и перевод герундия:

1 As a rule there is one simple on-and-off relay to be used for handing a unit information situation.

2 The data processing will be completed soon.

3 The scientists must think of minimizing of the desirable effects of noise.

4 Producing a sequence of symbols according to central probabilities is a process called a stochastic one.

V Перепишите следующие предложения и переведите их на русский язык, обращая внимание на бессоюзное подчинение:

1 The technical problems we are solving are concerned with the accuracy of transference from the sender to the receiver of sets of symbols.

2 A sequence of symbols mis system produces is called a stochastic process.

3 We believe the new method has agreed with theoretical predictions.

4 The receiver they spoke about decodes the message.

VI Прочтите текст. Перепишите и письменно переведите 1-3-й абзацы текста.

COMPUTER IN U.S. TO TEACH FOREIGN LANGUAGES

1 A computer that speaks two or more languages will begin teaching its first course in September at Stanford University. The institute of Mathematical Studies has designed a computer system that will assume the function of teaching of widely spoken languages, such as Spanish, French and German.

2 The use of computers in teaching is not new . Some universities offer computer-taught courses, in mathematical and scientific subjects. Stanford, a pioneer in the field, has for six years offered courses in logic and the theory of probability, some of which are taught entirely by computers.

3 The course requires no experience with computers. The student follows written instructions on how to begin operating the keyboard. Then the computer speaks to the student through headphones.

4 The computer congratulates the student if the answer is correct, but asks the student to repeat the exercise if it is wrong. If a student still has trouble, he or she can ask the computer to go over necessary material.

5 A three-year project involving Stanford and the State University of New York will develop an interchangeable program that could be transferred to other computer systems.

6 What about translating machines?

7 Translating machines have been built many times. None of them , however, has done its job well enough to be put into practical use. However, research on translating machines has gone on continuously. Electronic computers are the only kind of machine which could translate one language into another.

VII Письменно ответьте на следующий вопрос к тексту:

How do students communicate with computers?

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