

Документ подписан простой электронной подписью
Информация о владельце:
ФИО: Локтионова Оксана Геннадьевна
Должность: проректор по учебной работе
Дата подписания: 09.09.2021 10:33:20
Уникальный программный ключ:
0b817ca911e6668abb13a5d426d39e5f1c11eabbf73e943df4a4851fda56d089

МИНОБРАЗОВАНИЯ РОССИИ

ФГБОУ ВО «Юго-Западный государственный университет»

УТВЕРЖДАЮ:
Заведующий кафедрой
международных отношений и
государственного управления



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«08» 12 2021 г.

ОЦЕНОЧНЫЕ СРЕДСТВА
для текущего контроля успеваемости
и промежуточной аттестации обучающихся
по дисциплине

Профессиональный иностранный язык
(наименование дисциплины)

13.04.02 Электроэнергетика и электротехника
(код и наименование ОПОП ВО)

1 ОЦЕНОЧНЫЕ СРЕДСТВА ДЛЯ ТЕКУЩЕГО КОНТРОЛЯ УСПЕВАЕМОСТИ

1.1 ВОПРОСЫ ДЛЯ СОБЕСЕДОВАНИЯ

Тема 1 - «*Generation of Electricity*»

Newton's Scientific Interests and First Discoveries

1. When Newton was twenty-one years old he came under the influence of an old man named Isaac Barrow. Professor Barrow had been recently appointed to the university's famous Lucasian Chair of Mathematics, named after Henry Lucas who provided the money to endow the professorship. Barrow soon saw that Isaac Newton showed unusual talent as a scientist—or "natural philosopher" as scientists were called in Newton's time. Barrow befriended and encouraged young Newton.
2. Barrow was astonished at the young man's quick progress. Later, when Barrow was to publish his lectures on optics, he turned to his brilliant student for help. It was also Barrow who saw that Newton had a genius for mathematics, and urged him really to study Euclid's geometry.
3. Isaac's mind was also busy with refraction or the bending of light. He was experimenting with his lenses and thinking about things Professor Barrow told him. Ever since his school days, Isaac had been an experimenter, who liked to put his thoughts to proof. He wanted particularly to understand the events that took place naturally in the world around him – motions of planets and comets, the changing of the tides, the beautiful colours in soap bubbles, the resistance of the air, the laws of motion, and the transmitting or changing of one metal into another.
4. Things in nature behaved either in certain ways, or they didn't, Isaac decided. If one thing didn't work, perhaps another would. Supplied with books and scientific equipment at Trinity Newton began experimenting. And for relaxation, he

always turned to alchemy – the recombining of one natural substance into another – which, while it was not a science, was the forerunner of modern chemistry.

Tema 2 - «Resistance»

Michael Faraday – English Physicist and Chemist

1. Faraday (1791 – 1867) was one of the ten children of a black-smith, who moved with his family to London. It is a rare labouring family with ten children that is rich, so there was no question of an education for young Faraday and he was apprenticed to a bookbinder.

2. This, as it happened, was a stroke of luck, for he could read books there. Faraday's second stroke of luck was that his employer was sympathetic to the young man's desire for learning and allowed him to read books and to attend scientific lectures.

3. In 1812 a customer³ gave Faraday tickets to attend the lectures of Humphry Davy at the Royal Institution. Young Faraday took careful notes which he further elaborated with coloured diagrams and these, sent to president of the Royal Society in the hope of getting a job that would bring him into closer contact with science. Getting no answer he sent others to Davy himself along with an application for a job as his assistant. Davy was enormously impressed by the clear ability of the youngster. When an opening as his assistant occurred, he offered the young man the job. Faraday took it in 1813, at the age of twenty-two – at a salary that was smaller than the one he had been earning as a book-binder. Almost at once Davy left for his grand tour of Europe and took Faraday with him as a secretary.

4. Faraday became director of a laboratory in 1825, and in 1833 the one-time bookbinder's apprentice became professor of chemistry at the Royal Institution.

Tema 3 - «Electromagnetism»

Faraday's Experiment

1. Faraday knew from his long study of electricity that magnetism should be able to produce a current, as well as vice versa. In spite of his various failures, the idea of producing a current directly by magnetic action remained firm in his thoughts. One of his friends said later how at this period of his long life Faraday used to carry about with him in his pocket a small rough model of electro-magnetic apparatus. This consisted simply of an inch-long straight iron rod, or core, with some turns of copper wire wound round it.

2. The basic idea he had in mind was this: if an electric current in a wire can produce a magnetic effect, why should not a magnet near a conducting wire produce an electric current? It was really a simple reversal of Oersted's 1820 discovery.

3. On August 29 1831, Michael Faraday made his first successful experiment. By a happy choice, he decided to work not with a straight bar or even a horseshoe magnet, but with a ring. He made a soft iron ring, nearly an inch thick and six inches in external diameter. On opposite sides of this ring he had wound long coils of fine copper wire, separating each turn by string and each layer by calico, for insulation purposes. The ends of the left-hand coil he connected to his galvanometer three feet away, while the ends of the right-hand coil were connected up to a battery. When he switched on the battery circuit, there was immediately a slight reaction on the magnetic needle connected to the other coil. In his own words: "It oscillated and settled at last in its original position". On switching off the battery again, there was "a deflection of the needle", but while the so-called voltaic current was flowing through the wire there was no reaction on the galvanometer. This happened many times: each time the battery current came on, the needle linked to the

opposite, unconnected coil deflected and then came to rest; each time the circuit was broken, the same effect was noticed.

4. Faraday was a little disappointed, having expected to get a positive deflection of the needle all the time his battery current was switched on. Instead he got it only when the magnetic field in the iron ring was changing – either switching on or switching off.

Тема 4 - «Electromagnetic Induction»

Ernest Rutherford

1. Ernest Rutherford, whose work on the structure of atoms laid the foundation of the study of atomic science, was born in New Zealand. Educated at Nelson College at the Canterbury College of the University of New Zealand, his talents were soon noticed and he was awarded a research scholarship to study experimental physics at Cambridge University.

2. Rutherford's interest in radioactivity and the structure of the atom began when he was working under Professor J. J. Thompson in the Cavendish Laboratory. His use of X-rays (discovered by Rontgen in 1895) led him to his own discovery of two other types of rays – alpha and beta rays – made up of tiny particles; and distinguished by their penetration strengths.

3. In 1898 Rutherford became Professor of Physics at the University in Montreal and in the following year he published his first paper on radioactivity. He returned to England in 1907 to become Professor of Physics at Manchester University. He was burdened with many teaching or administrative duties and in his well-equipped laboratory, helped by younger physicists from all over the world, including Geiger, Nils Bohr and Henry Moseley, he made his greatest discoveries. An atom, he found, was made up of a positively-charged nucleus surrounded by revolving electrons. By 1919 he was able to produce definite evidence that when an

atom was bombarded by radioactive substances there was a reaction between this ray and the nucleus, causing artificial disintegration of the atom, that is, "splitting" it.

4. In 1919 Rutherford succeeded his old Professor, J. J. Thompson, as Cavendish Professor of Experimental Physics. He then began to study how other elements were transmuted by the penetration of rays. This work was extended in 1921 when he and Dr. J. Chadwick began to investigate the properties of the neutron – a particle discovered by Chadwick which had no electric charge and which could penetrate the nuclei of atoms and transmute them.

Тема 5 - «Alternating Current Generator»

James Maxwell and his Electromagnetic Theory

1. In the decade 1860–1870, James Maxwell formulated his classical electromagnetic theory. He showed that light was a form of wave motion travelling with a speed dependent on the electric and magnetic properties of the medium through which it is transmitted. He also predicted that waves longer than those of light could exist.

2. Even before Maxwell advanced the theory that electromagnetic waves should exist, men were making use of them for other purposes besides vision. For instance, the short ultraviolet rays in sunlight provided suntans; and the heat of the sun – provided by the long infra-red rays – was often concentrated by means of a lens to start fires. After the existence of electromagnetic waves had been proved by Hertz it was discovered that they range in length from hundreds of miles down to less than a billionth of an inch. The long waves could be used to carry sounds through space; as a consequence radio was developed.

3. A more recent development, which is related to radio, is television. Not only sounds but pictures can be transmitted at a distance because of electromagnetic waves.

4. Another modern device, developed to send out electromagnetic waves and to receive the echoes when they return, is radar, since the speed of electromagnetic waves is known, the time it takes for an echo to return to the radar set can tell the operator how far away a plane is from his set. Radar is given the credit for saving Great Britain during World War II, for it warned of enemy planes. Thus James Maxwell had made discoveries that later protected his homeland. Today with radio, television, radar, and communication with outer space making use of these waves, it is easy to realize why James Maxwell is now considered one of the great scientists of all time.

Тема 6 - «Three-Phase Generator»

Some Facts of the History of Electrical Engineering in Russia

1. In the capital of Russia at the end of the second half of the XIXth century not only the higher educational and research institutions carried on scientific work; scientific societies were likewise engaged. Among them a special place is occupied by the Russian Society of Physics and Chemistry, and the Russian Technical Society. The first was connected with the St. Petersburg University and the second was an independent scientific corporation. It was at this time that the Sixth Department (Electrotechnical) of the Russian Technical Society was established with its journal Electricity.

2. In the history of electrical engineering in Russia, the part played by the Sixth Department of the Russian Technical Society is outstanding. In prerevolutionary Russia there were only a few special scientific research institutions, especially of the applied type, and therefore Russian scientific societies had to use their own

money for the elaboration of scientific problems because the funds that were allotted for scientific purposes were insignificant; they had to coordinate the efforts of individual investigators and at the same time conduct a broad programme of spreading scientific knowledge. In this respect, the activities of the Sixth Department are especially characteristic.

3. During the very first year of its existence the Sixth Department organized an electrical exhibition in St. Petersburg.

4. The exhibition consisted of eight sections: telegraphy and telephony, electric lighting and electro-mechanics, electricity in the army and navy, galvanoplastics, electricity in education, electrical measuring instruments, electrophony and, finally, literature and pictorial material on electricity. The works of such Russian inventors as Yablochkov, Lodygin, Rikhter, Ragozin and Teplov were represented in all these sections.

Тема 7 - «Transmitting Alternating Current»

Generating an Electric Current

1. The first method used in producing an electric current was chemical in nature. Credit for its discovery is given¹ to an Italian physician named Aloisio Galvani (1737–1798). One day while engaged in dissecting a frog, Galvani noticed the leg muscles contract whenever a nearby electric machine was in operation. Further investigation showed the same twitching effect² to be obtained by simply connecting the nerve and muscle of the leg to dissimilar metals. But no such result was obtained if only one metal was used or if non-conductors were employed. There were obviously two possible sources of the phenomenon. Either the current was set up at the junction of the two metals or it was a property of the animal tissues.³ Galvani favoured the latter view and in 1791 announced his discovery, attributing the current to what he called "animal electricity" or as it came to be known, "galvanism".

Galvani is an excellent example of a scientist who behaved most unscientifically with regard to a hypothesis which he himself had advanced. He became so prejudiced in favour of his animal magnetism theory that it was quite impossible for him to view objectively later evidence which definitely contradicted it and finally caused it to be discarded.

2. Another Italian, Alessandro Volta (1745–1827), a professor of physics in the University of Pavia, established the true source of the electric current. He demonstrated that it could be produced by (the action of dissimilar metals without the presence of animal tissue of any sort.

3. In the course of his experiments in 1800 he developed the first electric battery, a device known as a voltaic pile.⁴ Although he tried a number of different materials he found that the best results were obtained when he used silver and zinc as the two metals. The pile consisted of a series of small discs of these and of cardboard, the latter having been soaked in a salt solution. Then he piled the discs up one on another in the order silver, zinc, cardboard, and so forth, ending with zinc. By connecting wires to the top and bottom discs he was able to get continuous electric currents which were of substantial size.

4. All the essentials of a modern electric cell or battery were present in the voltaic pile. Developments since that time have been largely directed toward making cells more convenient to use and toward eliminating various undesirable chemical reactions.

Tema 8- «Alternating Current Motors»

Electromagnetic Machines

1. Before Faraday's discoveries the only usable source of electricity was the galvanic battery, and it made possible some practical applications, including the electric light and the electric telegraph. But the practical supply of electricity on a

large scale was only possible by the development of electromagnetic machines, generators and transformers.

2. For the use of electricity to produce mechanical power where it is wanted, another electromagnetic machine – the electric motor – still remains the most effective method.

3. What made all this possible? It needed not only the discovery and understanding of the basic laws (by Faraday), but also the discovery of materials with suitable properties. It is really very fortunate that high magnetic fields can be sustained in a material as cheap as iron. Without iron, the whole economics of electromagnetic machines and of electrical-power applications would be quite different.

4. The electromagnetic machine is still developing in other respects. Using iron, it is cheap to produce the magnetic field, but an important limitation is imposed by saturation. This limit can be overcome by using superconductors at very low temperatures to carry very high currents and produce much stronger magnetic fields – without using iron. This development opens up a new field for machine designs and applications, and it offers a different set of limits from those of the copperiron machine.

Тема 9- «Закрепление изученного материала»

The Development of Electric Motor

1. The engine which could convert electric energy into mechanical power was already in existence. As early as 1822 Faraday outlined the way in which an electric motor could work: by placing a coil, or armature, between the poles of an electromagnet; when a current is made to flow through the coil the electromagnetic force causes it to rotate – the reverse principle, in fact, of the generator.

2. The Russian physicist, Jacobi built several electric motors during the middle decades of the XIXth century. Jacobi even succeeded in running a small, battery-powered electric boat on the Neva river in St. Petersburg. All of them, however, came to the conclusion that the electric motor was a rather uneconomical machine so long as galvanic batteries were the only source of electricity. It did not occur to them that motors and generators could be made interchangeable.

3. In 1888, Professor Galileo Ferraris in Turin and Nikola Tesla – the pioneer of high-frequency engineering—in America invented, independently and without knowing of each other's work, the induction motor. This machine, a most important but little recognized technical achievement, provides no less than two-thirds of all the motive power for the factories of the world, and much of modern industry could not do without it. Known under the name of "squirrel-cage motor" – because it resembles the wire cage in which squirrels used to be kept—it has two circular rings made of copper or aluminium joined by a few dozen parallel bars of the same material, thus forming a cylindrical cage.

4. Although the induction motor has been improved a great deal and its power increased many times ever since its invention, there has never been any change of the underlying principle. One of its drawbacks was that its speed was constant and unchangeable.

1.2 ЗАДАНИЯ ДЛЯ САМОСТОЯТЕЛЬНОЙ РАБОТЫ

Тема 1 - «Generation of Electricity»

Newton's Scientific Interests and First Discoveries

1. Переведите и запомните следующие слова и словосочетания: substance, to figure, motion, multiplication, to multiply, to substitute, formula;

to substitute the members for the letters, the plus and minus signs of the formula, to work out a basic formula, the binomial theorem, to be multiplied by themselves, to bring the highest mathematical honour to his own university.

2. Прочтите четвертый абзац текста и скажите, какие проблемы интересовали Ньютона (используйте слова tide, light, soap, air, metal, comet).
3. Прочтите шестой абзац текста и скажите, какому университету принес Ньютон славу в области математики.
4. Прочтите седьмой абзац и дайте определение «the binomial theorem».
5. Прочтите седьмой и восьмой абзацы, определите функции глаголов to be (to) и to have (to) и скажите, какая информация передана этими глаголами.
6. Прочтите восьмой и девятый абзацы и скажите, как математики работали с цифрами до того, как Ньютон вывел «basic formula».
7. Расскажите о Ньюtone как о талантливом математике, используя следующие слова и выражения: unusual, to work out a formula, to receive a degree и др.
8. Расскажите о любознательности Ньютона, используя следующие слова и выражения: to understand, event, natural optics, to experiment, motion.
9. Расскажите о применении биннома Ньютона, используя следующие слова и выражения: a number, to substitute for, a sign, to multiply, correct.

Тема 2 - «Resistance»

Michael Faraday – English Physicist and Chemist

1. Переведите и запомните следующие слова и словосочетания: interaction, structure, view, to decline, to elaborate, application, to announce, ability, capacitance; lines of force, to bring into closer contact with science, the one-time

bookbinder's apprentice, to play a key role, molecular structure, the quantity of electricity, to liberate an «equivalent weight», the unit of electrostatic capacitance.

2. Прочтите первый–четвертый абзацы текста и скажите, какую карьеру сделал Фарадей.

3. Расскажите о Фарадее как о человеке, стремящемся к науке с юных лет.

4. Используя слова first, the first, a pioneer, расскажите об одном из важнейших открытий Фарадея.

5. Прочтите текст с пятого по восьмой абзацы и выпишите слова и словосочетания, относящиеся к областям химии и физики.

6. Прочтите шестой и седьмой абзацы текста и скажите, о каких достижениях Фарадея вы узнали.

7. Прочтите текст и скажите, к каким периодам жизни Фарадея относятся слова и словосочетания a bookbinder, a stroke of luck, attend scientific lectures; grand tour of Europe; methods for liquefying gases, cryogenics, a key role, electrochemistry; knighthood.

8. Прочтите седьмой абзац текста и скажите, как отмечены достижения Фарадея в области электрохимии.

9. Прочтите текст и скажите, основы каких современных исследований в области физики и химии заложил Фарадей в начале XIX века.

Тема 3 - «Electromagnetism»

Faraday's Experiment

1. Найдите значения терминов и запомните их: copper, core, defect, external, feed, inch, induce, insulation, layer, leakage, link, ascillate, rod, switch on, voltaic, turn, current.

2. Прочтите и переведите текст; найдите описание модели электромагнитного аппарата, используйте слова small, inchlong, copper wire в ответе.

1. Faraday knew from his long study of electricity that magnetism should be able to produce a current, as well as vice versa. In spite of his various failures, the idea of producing a current directly by magnetic action remained firm in his thoughts. One of his friends said later how at this period of his long life Faraday used to carry about with him in his pocket a small rough model of electro-magnetic apparatus. This consisted simply of an inch-long straight iron rod, or core, with some turns of copper wire wound round it.

2. The basic idea he had in mind was this: if an electric current in a wire can produce a magnetic effect, why should not a magnet near a conducting wire produce an electric current? It was really a simple reversal of Oersted's 1820 discovery.

3. On August 29 1831, Michael Faraday made his first successful experiment. By a happy choice, he decided to work not with a straight bar or even a horseshoe magnet, but with a ring. He made a soft iron ring, nearly an inch thick and six inches in external diameter. On opposite sides of this ring he had wound long coils of fine copper wire, separating each turn by string and each layer by calico, for insulation purposes. The ends of the left-hand coil he connected to his galvanometer three feet away, while the ends of the right-hand coil were connected up to a battery. When he switched on the battery circuit, there was immediately a slight reaction on the magnetic needle connected to the other coil. In his own words: "It oscillated and settled at last in its original position". On switching off the battery again, there was "a deflection of the needle", but while the so-called voltaic current was flowing through the wire there was no reaction on the galvanometer. This hap-

pened many times: each time the battery current came on, the needle linked to the opposite, unconnected coil deflected and then came to rest; each time the circuit was broken, the same effect was noticed.

4. Faraday was a little disappointed, having expected to get a positive deflection of the needle all the time his battery current was switched on. Instead he got it only when the magnetic field in the iron ring was changing – either switching on or switching off.

5. Nevertheless, he had produced electricity through magnetism, which had never been done before. There was no connection between the left-hand coil on the ring and the right-hand coil fed from the battery, nor was there any leakage of current from one side to the other. Yet as the galvanometer needle showed, electricity, however weak, had flowed momentarily each time through the left-hand coil. It was new electricity where none existed before, and it had been produced, or induced, by electromagnetism.

Примечания

1 remained firm in his thoughts – не оставляла его мыслей

2 by a happy choice – по счастливой случайности

3 three feet away – расположенный на расстоянии трех футов

4. В чем был убежден Фарадей на основе своего длительного и глубокого изучения электричества? Используйте слова magnetism, produce, current.

5. В каком абзаце текста говорится о главной мысли, которая не давала покоя Фарадею?

6. Используйте следующие слова для описания устройства, которое использовал Фарадей для своего эксперимента: a ring, inch, in external diameter,

to wind, coil, copper, wire, to separate, turn, string, layer, insulation, to connect, ends, battery.

7. Прочтите текст еще раз и расскажите, как Фарадей проводил свой эксперимент.

8. Используя слова to get, to produce, electricity, weak, to flow, to exist, расскажите о результатах опыта.

9. Расскажите, почему Фарадей чувствовал разочарование при проведении своего опыта.

10. На основании прочитанного скажите, какие знания об электричестве стали известны благодаря опытам Фарадея.

Тема 4 - «Electromagnetic Induction»

Ernest Rutherford

1. Переведите и запомните следующие слова и словосочетания:

science, research, radioactivity, X-rays, discovery, substance, nucleus, artificial, disintegration, to investigate, to penetrate, to revolve, to transmute; alpha and beta rays, positively-charged nucleus, penetration strength, to be burdened with, to bombard by, to make up, numerous honorary degrees, well-equipped laboratory.

2. Прочтите и переведите текст, в первых двух абзацах найдите информацию о начале научной деятельности Резерфорда.

1. Ernest Rutherford, whose work on the structure of atoms laid the foundation of the study of atomic science, was born in New Zealand. Educated at Nelson College at the Canterbury College of the University of New Zealand, his talents were

soon noticed and he was awarded a research scholarship to study experimental physics at Cambridge University.

2. Rutherford's interest in radioactivity and the structure of the atom began when he was working under Professor J. J. Thompson in the Cavendish Laboratory. His use of X-rays (discovered by Rontgen in 1895) led him to his own discovery of two other types of rays – alpha and beta rays – made up of tiny particles; and distinguished by their penetration strengths.

3. In 1898 Rutherford became Professor of Physics at the University in Montreal and in the following year he published his first paper on radioactivity. He returned to England in 1907 to become Professor of Physics at Manchester University. He was burdened with many teaching or administrative duties and in his well-equipped laboratory, helped by younger physicists from all over the world, including Geiger, Nils Bohr and Henry Moseley, he made his greatest discoveries. An atom, he found, was made up of a positively-charged nucleus surrounded by revolving electrons. By 1919 he was able to produce definite evidence that when an atom was bombarded by radioactive substances there was a reaction between this ray and the nucleus, causing artificial disintegration of the atom, that is, "splitting" it.

4. In 1919 Rutherford succeeded his old Professor, J. J. Thompson, as Cavendish Professor of Experimental Physics. He then began to study how other elements were transmuted by the penetration of rays. This work was extended in 1921 when he and Dr. J. Chadwick began to investigate the properties of the neutron – a particle discovered by Chadwick which had no electric charge and which could penetrate the nuclei of atoms and transmute them.

5. Rutherford was given numerous honorary degrees and as well as his peerage (received in 1931) he was awarded the Nobel Prize for Physics in 1908 and the Order of Merit in 1925. His immense enthusiasm transmitted itself to the students and colleagues who worked with him. His many lecture tours and over 150 papers and published addresses spread the influence of his ideas all over the world.

4. Из первых двух абзацев дайте примеры употребления существительных в роли определения.

5. Выпишите из текста термины, относящиеся к разделу атомной физики.

6. Во втором абзаце текста найдите описание свойств альфа и бета лучей и их отличительных особенностей.

7. Прочтите второй и третий абзацы текста и скажите с именами каких ученых связаны названия X-rays, alpha and beta rays.

8. Прочтите третий абзац и скажите, как устроен атом.

9. Прочтите третий и четвертый абзацы и скажите, на какую область физики указывают такие слова, как *splitting*, *neutron*, *particle*, *atom*, *transmute*.

10. Прочтите текст еще раз и расскажите о последовательности научных открытий Резерфорда; используйте в ответе слова *the structure of the atom*, *to lead to one's discovery*, *penetration strength*, *well-equipped laboratory*, *a positively-charged nucleus*, *to bombard*, *artificial disintegration*.

11. Прочтите текст еще раз и скажите, кому принадлежит авторство в открытии нейтрона; расскажите о свойствах нейтрона.

Тема 5 - «Alternating Current Generator»

James Maxwell and his Electromagnetic Theory

1. Read the text.

2. Переведите и запомните следующие слова и словосочетания: theory, light, speed, medium, electromagnetic, existence, discovery, communication, radar, wave motion, the long infra-red rays, electromagnetic waves, the short ultraviolet rays, to range in length, to carry sounds through space, because of electromagnetic rays, to give the credit for.

3. Прочтите и переведите текст и скажите, к какому источнику энергии относятся следующие слова infra-red rays и ultraviolet rays.

1. In the decade 1860–1870, James Maxwell formulated his classical electromagnetic theory. He showed that light was a form of wave motion travelling with a speed dependent on the electric and magnetic properties of the medium through which it is transmitted. He also predicted that waves longer than those of light could exist.

2. Even before Maxwell advanced the theory that electromagnetic waves should exist, men were making use of them for other purposes besides vision. For instance, the short ultraviolet rays in sunlight provided suntans; and the heat of the sun – provided by the long infra-red rays – was often concentrated by means of a lens to start fires. After the existence of electromagnetic waves had been proved by Hertz it was discovered that they range in length from hundreds of miles down to less than a billionth of an inch. The long waves could be used to carry sounds through space; as a consequence radio was developed.

3. A more recent development, which is related to radio, is television. Not only sounds but pictures can be transmitted at a distance because of electromagnetic waves.

4. Another modern device, developed to send out electromagnetic waves and to receive the echoes when they return, is radar, since the speed of electromagnetic

waves is known, the time it takes for an echo to return to the radar set can tell the operator how far away a plane is from his set. Radar is given the credit for saving Great Britain during World War II, for it warned of enemy planes. Thus James Maxwell had made discoveries that later protected his homeland. Today with radio, television, radar, and communication with outer space making use of these waves, it is easy to realize why James Maxwell is now considered one of the great scientists of all time.

4. Прочтите второй абзац и скажите, кому принадлежит доказательство существования электромагнитных волн.

5. Расскажите об инфракрасных и ультрафиолетовых лучах, используя следующие слова и словосочетания: electromagnetic waves, the short rays, the long rays, to discover, an inch, to carry sounds, as a consequence.

6. Прочтите последний абзац текста и скажите, каким образом научные открытия Дж. Максвелла помогли Великобритании во время второй мировой войны; обратите внимание на значения слова for.

7. Прочтите второй абзац и обратите внимание на функции слова provided в объяснении свойств ультрафиолетовых и инфракрасных лучей.

8. Прочтите текст и скажите, какие разработки стали возможными после научных открытий, сделанных Дж. Максвеллом.

9. Выпишите из текста существительные с определениями, относящиеся к открытиям, сделанным за период 1860–1870 гг. Дж. Максвеллом.

10. Прочтите текст и скажите, к каким разработкам (согласно тексту) относятся следующие словосочетания: dependent on, making use of, by means of, related to, to send out, far away.

11. Прочтите текст и скажите, какое изобретение послужило источником изучения для Дж. Максвелла, используйте в ответе словосочетания tide wave, heat wave, light wave, sound wave, sea wave, wave motion.

Тема 6 - «Three-Phase Generator»

Some Facts of the History of Electrical Engineering in Russia

1. Переведите и запомните следующие слова и словосочетания: institution, chemistry, physics, technical, journal, revolutionary, re-search, lighting, galvanoplastics, electrophony, magnetism, exhibition; to belong to, to carry on, to consist of; scientific societies, scientific corporation, technical society, electrical engineering, elaboration of scientific problems, electrical measuring instruments, pictorial material on electricity, honoured professor.
2. Прочтите третий и четвертый абзацы и скажите, что вы узнали о выставке, организованной в Санкт-Петербурге.
3. Расскажите о финансовом положении научно-технических обществ конца XIX века.
4. Прочтите текст еще раз и скажите, в чем выражалась просветительская деятельность Русского технического общества.
5. Прочтите последний абзац текста и расскажите о популярности деятельности Русского технического общества.
6. Прочтите текст и скажите, по каким направлениям науки, техники, образования велись работы известными российскими учеными.
7. Расскажите об истории работы Шестого департамента.

8. Определите разницу в положении Русского физического и химического общества и русского технического общества в России на конец XIX в.

9. Выскажите свое мнение о роли Шестого департамента Русского технического общества в развитии электротехники до революции в России.

Тема 7 - «Transmitting Alternating Current»
Generating an Electric Current

1. Read the text.

2. Переведите и запомните следующие слова и словосочетания: solution, property, hypothesis, evidence, muscle, to advance, to attribute, to cause, to direct, to eliminate, to end, to favour, to set up;

a number of, with regard to, to be in operation, dissimilar metals, in favour of, «animal electricity», electric current, electric battery, continuous current, undesirable chemical reactions.

3. Прочтите и переведите текст; из первого абзаца выпишите слова с отрицательными приставками, относящиеся к открытию, совершенному А. Гальвани.

1. The first method used in producing an electric current was chemical in nature. Credit for its discovery is given¹ to an Italian physician named Aloisio Galvani (1737–1798). One day while engaged in dissecting a frog, Galvani noticed the leg muscles contract whenever a nearby electric machine was in operation. Further investigation showed the same twitching effect² to be obtained by simply connecting the nerve and muscle of the leg to dissimilar metals. But no such result was obtained if only one metal was used or if non-conductors were employed. There were obviously two possible sources of the phenomenon. Either the current was set up at the junction of the two metals or it was a property of the animal tissues.³ Galvani

favoured the latter view and in 1791 announced his discovery, attributing the current to what he called "animal electricity" or as it came to be known, "galvanism". Galvani is an excellent example of a scientist who behaved most unscientifically with regard to a hypothesis which he himself had advanced. He became so prejudiced in favour of his animal magnetism theory that it was quite impossible for him to view objectively later evidence which definitely contradicted it and finally caused it to be discarded.

2. Another Italian, Alessandro Volta (1745–1827), a professor of physics in the University of Pavia, established the true source of the electric current. He demonstrated that it could be produced by (the action of dissimilar metals without the presence of animal tissue of any sort.

3. In the course of his experiments in 1800 he developed the first electric battery, a device known as a voltaic pile.

4 Although he tried a number of different materials he found that the best results were obtained when he used silver and zink as the two metals. The pile consisted of a series of small discs of these and of cardboard, the latter having been soaked in a salt solution. Then he piled the discs up one on another in the order silver, zink, cardboard, and so forth, ending with zinc. By connecting wires to the top and bottom discs he was able to get continuous electric currents which were of substantial size.

4. All the essentials of a modern electric cell or battery were present in the voltaic pile. Developments since that time have been largely directed toward making cells more convenient to use and toward eliminating various undesirable chemical reactions.

4. Из четвертого абзаца текста выпишите причастия, относящиеся к истории разработки первой электрической батареи.
5. Прочтите первый абзац и скажите об отношении Гальвани к своему изобретению, какое явление происходило на самом деле во время опытов с лягушкой.
6. Кто совершил открытие в области электричества, т. е. открыл постоянный ток.
7. Расскажите о работе А. Гальвани, используя слова *physician, a frog, muscles, electric machine, metals, non-conductor, «galvanism»*.
8. Расскажите об экспериментах А. Вольта, используя глаголы в *Past Simple*.
9. Найдите пример конверсии в описании работы над изобретением А. Вольта.
10. Прочтите текст еще раз и расскажите об устройстве первой электрической батареи.
11. Выскажите свое мнение по вопросу важности для науки экспериментов, проведенных А. Гальвани.

Тема 8- «Alternating Current Motors»

Electromagnetic Machines

1. Переведите и запомните следующие слова и словосочетания: *discovery, application, development, property, limitation, super-conductor, convenience, programming; copper-iron machine, electromagnetic machine, electrical- power applications, magnetic fields, dominant factor, power/ weight ratio, automatic washing machine, method of producing mechanical power, different set of limits.*

2. Прочтите и переведите текст; расскажите о назначении galvanic battery и copperiron machine.

1. Before Faraday's discoveries the only usable source of electricity was the galvanic battery, and it made possible some practical applications, including the electric light and the electric telegraph. But the practical supply of electricity on a large scale was only possible by the development of electromagnetic machines, generators and transformers.

2. For the use of electricity to produce mechanical power where it is wanted, another electromagnetic machine – the electric motor – still remains the most effective method.

3. What made all this possible? It needed not only the discovery and understanding of the basic laws (by Faraday), but also the discovery of materials with suitable properties. It is really very fortunate that high magnetic fields can be sustained in a material as cheap as iron. Without iron, the whole economics of electromagnetic machines and of electrical-power applications would be quite different.

4. The electromagnetic machine is still developing in other respects. Using iron, it is cheap to produce the magnetic field, but an important limitation is imposed by saturation. This limit can be overcome by using superconductors at very low temperatures to carry very high currents and produce much stronger magnetic fields – without using iron. This development opens up a new field for machine designs and applications, and it offers a different set of limits from those of the copper-iron machine.

5. Nevertheless, the copper-iron machine is so simple and reliable that it is likely to continue for a very long time as the main method of producing mechanical power.

For many applications, the dominant factors are not efficiency and power/weight ratio but convenience and cleanliness, and with electricity one is really buying convenience rather than power. It seems likely that the main advances in domestic applications will be by developments of control and programming to give even greater convenience, a good present example being the automatic washing machine.

6. The electric motor is a superb machine to provide power, and its applications must expand for that reason alone.

4. Назовите основные причины использования железа в электротехнике.

5. Расскажите о недостатках в использовании железа при создании electromagnetic machine и их преодолении, употребите слова limit, overcome, superconductor, temperature, current.

6. Прочтите пятый и шестой абзацы текста и скажите, почему, по вашему мнению, имеют широкое применение copper-iron machines.

7. Прочтите текст еще раз и расскажите об электромагнитных механизмах; употребите в ответе следующие слова и словосочетания: practical supply, to produce, materials with suitable properties, fortunate, iron, quite different, limitation, saturation, nevertheless; to continue for a long time, convenience and cleanliness, the main advances, a superb machine.

8. На основании прочитанного расскажите о развитии электрической машины, используя слова и выражения to overcome, low, superconductors, temperature, stronger, to carry, high currents и др.

9. Выскажите свое мнение о преимуществах и недостатках электромагнитной машины, употребите в ответе слова и выражения, данные в скобках (effective, reliable, iron, to make possible, magnetic fields, limitation, saturation, to produce).

10. Сообщите кратко о главных факторах в применении домашних электрических приборов, используйте слова и словосочетания, предложенные в скобках (efficiency, rather than, main, convenience, cleanliness, advantage, power/weight ratio).

Тема 9- «Закрепление изученного материала»

The Development of Electric Motor

1. Переведите и запомните следующие слова и словосочетания:

electromagnet, electricity, generator, achievement, aluminium; electric motor, induction motor, galvanic battery, squirrel-cage motor, circular rings, parallel bars, a cylindrical cage, far-reaching innovation, speed change, the pole-amplitude of the machine, high-frequency engineering, wire cage.

2. Прочтите и переведите текст; расскажите о значениях слова «it» в соответствии с содержанием текста.

1. The engine which could convert electric energy into mechanical power was already in existence. As early as 1822 Faraday outlined the way in which an electric motor could work: by placing a coil, or armature, between the poles of an electromagnet; when a current is made to flow through the coil the electromagnetic force causes it to rotate – the reverse principle, in fact, of the generator.

2. The Russian physicist, Jacobi built several electric motors during the middle decades of the XIXth century. Jacobi even succeeded in running a small, battery-

powered electric boat on the Neva river in St. Petersburg. All of them, however, came to the conclusion that the electric motor was a rather uneconomical machine so long as galvanic batteries were the only source of electricity. It did not occur to them that motors and generators could be made interchangeable.

3. In 1888, Professor Galileo Ferraris in Turin and Nikola Tesla – the pioneer of high-frequency engineering—in America invented, independently and without knowing of each other's work, the induction motor. This machine, a most important but little recognized technical achievement, provides no less than two-thirds of all the motive power for the factories of the world, and much of modern industry could not do without it. Known under the name of "squirrel-cage motor" – because it resembles the wire cage in which squirrels used to be kept—it has two circular rings made of copper or aluminium joined by a few dozen parallel bars of the same material, thus forming a cylindrical cage.

4. При чтении текста обратите внимание на следующие слова: battery-powered, high-frequency, «squirrel-cage», two-speeds, far-reaching, pole-amplitude – и скажите, с какими изобретениями они связаны.

5. Прочтите текст еще раз, расскажите о принципе работы электрического двигателя, употребите следующие слова и выражения: a coil, pole, to flow through, to cause, the reverse principle и др.

6. Расскажите об устройствах гальванического элемента и «a squirrel-cage motor».

7. Прочтите текст и скажите, какая разница между электродвигателем и асинхронным двигателем, используйте слова poles, current, coil, a wire cage, rings, copper or aluminium, parallel bars.

8. На основании полученной информации расположите в нужной последовательности открытия, сделанные учеными в области электричества и электротехники, скажите, в каких странах и в какое время это происходило.
9. Расскажите о причине постоянства основного принципа работы двигателя, очень важного, но малопризнанного.
10. Прочтите текст и скажите, какая инновация произошла с двигателем Г. Феррари и Н. Тесла в конце XIX века.
11. Расскажите о современном использовании электрических двигателей в быту и промышленности.

Шкала оценивания: 5-балльная.

Критерии оценивания:

5 баллов (или оценка «отлично») выставляется обучающемуся, если он принимает активное участие в беседе по большинству обсуждаемых вопросов (в том числе самых сложных); демонстрирует сформированную способность к диалогическому мышлению, проявляет уважение и интерес к иным мнениям; владеет глубокими (в том числе дополнительными) знаниями по существу обсуждаемых вопросов, ораторскими способностями и правилами ведения полемики; строит логичные, аргументированные, точные и лаконичные высказывания, сопровождаемые яркими примерами; легко и заинтересованно откликается на неожиданные ракурсы беседы; не нуждается в уточняющих и (или) дополнительных вопросах преподавателя.

4 балла (или оценка «хорошо») выставляется обучающемуся, если он принимает участие в обсуждении не менее 50% дискуссионных вопросов; проявляет уважение и интерес к иным мнениям, доказательно и корректно защищает свое мнение; владеет хорошими знаниями вопросов, в обсуждении которых принимает участие; умеет не столько вести полемику, сколько участвовать в ней; строит логичные, аргументированные высказывания, сопровождаемые подходящими примерами; не всегда откликается на неожиданные ракурсы беседы; не нуждается в уточняющих и (или) дополнительных вопросах преподавателя.

3 балла (или оценка «удовлетворительно») выставляется обучающемуся, если он принимает участие в беседе по одному-двум наиболее простым

обсуждаемым вопросам; корректно выслушивает иные мнения; неуверенно ориентируется в содержании обсуждаемых вопросов, порой допуская ошибки; в полемике предпочитает занимать позицию заинтересованного слушателя; строит краткие, но в целом логичные высказывания, сопровождаемые наиболее очевидными примерами; теряется при возникновении неожиданных ракурсов беседы и в этом случае нуждается в уточняющих и (или) дополнительных вопросах преподавателя.

2 балла (или оценка «неудовлетворительно») выставляется обучающемуся, если он не владеет содержанием обсуждаемых вопросов или допускает грубые ошибки; пассивен в обмене мнениями или вообще не участвует в дискуссии; затрудняется в построении монологического высказывания и (или) допускает ошибочные высказывания; постоянно нуждается в уточняющих и (или) дополнительных вопросах преподавателя.

2 ОЦЕНОЧНЫЕ СРЕДСТВА ДЛЯ ПРОМЕЖУТОЧНОЙ АТТЕСТАЦИИ ОБУЧАЮЩИХСЯ

2.1 БАНК ВОПРОСОВ И ЗАДАНИЙ В ТЕСТОВОЙ ФОРМЕ

1 Вопросы в закрытой форме

1. The Internet _____ as harmless as it may seem.
 1. is
 2. has been
 3. is not
 4. is not been
2. He does _____ but play computer games all days.
 1. everything
 2. nothing
 3. anything
 4. something
3. I arrived _____ the airport with plenty of time to check in.
 1. for
 2. to
 3. at
 4. in

4. John has been to India, _____?
1. is not it
 2. has not he
 3. has not John
 4. does not he
5. I am going to my dentist _____.
1. one of these days
 2. another day
 3. another of these days
 4. the other day
6. In spite of Shakespeare`s fame we know very _____ about his life.
1. little
 2. a little
 3. few
 4. less
7. Neither Helen nor Andrew _____ to go the museum.
1. is wanting
 2. wants
 3. does not want
 4. do not want
8. The first film of this director is much more interesting _____ the second one.
1. then
 2. than
 3. that
 4. as
9. By the time we got home, Alice _____ a delicious dinner.
1. prepared
 2. has prepared
 3. had prepared
 4. has been prepared
10. Nobody _____ being shouted at.
1. likes
 2. does not like
 3. is like
 4. like
11. I do not know who _____ your bike.
1. stealed

2. has stoled
 3. did stole
 4. has stolen
12. She _____ at the bus stop when a young man took her bag and ran away.
1. was waiting
 2. has been waiting
 3. is waiting
 4. had waited
13. I _____ an essay by six o` clock yesterday.
1. have written
 2. had written
 3. wrote
 4. was written
14. This newspaper is not very popular _____ - young people.
1. for
 2. with
 3. about
 4. over
15. Michelangelo Buonarroti was _____ artists in history.
1. a very famous
 2. one of the most famous
 3. the most famous
 4. one of famousest
16. Shakespeare is _____ to understand than Agatha Christie.
1. difficult
 2. more difficult
 3. most difficult
 4. the most difficult
17. I took a shower, shaved and _____ my best suit.
1. wore
 2. dressed
 3. put on
 4. took off
18. Who _____ America?
1. discovered
 2. did discover
 3. did discovered

4. discovers
19. St. Basil's Cathedral _____ in the middle of 18 century in memory of the victory over Kazan.
1. built
 2. was built
 3. was builded
 4. had been built
20. She has got 3 children and her _____ has just started school.
1. oldest
 2. eldest
 3. the eldest
 4. the oldest
21. I usually go to school _____ foot.
1. in
 2. with
 3. on
 4. by
22. A secretary is a person who _____ letters.
1. is typing
 2. types
 3. typed
 4. will type
23. Neither Alex nor Nick _____ German
1. know
 2. are knowing
 3. do not know
 4. knows
24. Our planet is in grave danger _____ human activity.
1. because
 2. the reason why
 3. for
 4. as a result of
25. My parents have _____ lived in London.
1. always
 2. usually
 3. from time to time
 4. never
26. It was _____ a boring film that I fell asleep in the middle of it.

1. so
 2. such
 3. too
 4. very
27. When I _____ at Baker Street, Holmes was sitting by the fire.
1. reached
 2. entered
 3. arrived
 4. came
28. We ate _____ cake. It was delicious.
1. the all
 2. the whole
 3. the every bit
 4. each
29. _____ difficult work!
1. which
 2. what
 3. what a
 4. how
30. Tom _____ Ann since childhood.
1. is loving
 2. was loving
 3. has been loving
 4. has loved
31. There is no doubt that computers have _____ our lives easier.
1. done
 2. got
 3. become
 4. made
32. You will be here tomorrow, _____.
1. is not it
 2. will not you
 3. will you
 4. will you be
33. There was _____ to eat and drink after the party.
1. many
 2. lot of
 3. a lot

4. lots of
34. _____ that strange man sitting over there?
1. whose
 2. which
 3. who is
 4. who
35. Is there _____ in the room?
1. somebody
 2. something
 3. anybody
 4. anywhere
36. The telephone was _____ by Alexander Graham Bell.
1. discovered
 2. invented
 3. explored
 4. studied
37. This program _____ me a lot of money.
1. cost
 2. costed
 3. had costed
 4. was cost
38. It happened _____ our way home.
1. in
 2. on
 3. for
 4. about
39. By the time, we arrived at the station, the train _____.
1. left
 2. has left
 3. had left
 4. was left
40. Mount Everest is _____ mountain in the world.
1. high
 2. highest
 3. the higher
 4. the highest
41. Rome is famous for its _____ archaeological sites.
1. ancient

2. old
 3. old-fashioned
 4. modern
42. When did he arrive _____ Moscow?
1. at
 2. on
 3. in
 4. for
43. Nobody _____ why people walk or talk in their sleep.
1. know
 2. knows
 3. knew
 4. is knowing
44. There is oxygen on this planet! We _____ to breathe.
1. can
 2. will can
 3. be able
 4. will be able
45. What will _____ be like tomorrow?
1. the weather
 2. a weather
 3. weather
 4. the weathers
46. The Sahara is _____ desert in the world.
1. the hottest
 2. hottest
 3. the most hot
 4. the hotter
47. John is not interested _____ politics.
1. about
 2. in
 3. for
 4. over
48. I am sure we _____ before.
1. have never met
 2. have not never met
 3. did not met
 4. had met

49. They were in Spain last summer, _____?
1. were they
 2. is not it
 3. did not they
 4. were not they
50. New Year Day is _____ popular in Britain than Christmas.
1. more less
 2. more little
 3. less
 4. little
51. _____ Michelangelo began painting the ceiling of the Sistine Chapel.
1. at the age of 33
 2. at 33 years
 3. at the age of 33 years
 4. at the age of 33 year
52. The cost of living in our country has _____ again.
1. rose
 2. raised
 3. picked up
 4. risen
53. What _____ we are having!
1. the rainy weather
 2. a rainy weather
 3. rainy weathers
 4. rainy weather
54. Who _____ to go to the cinema with us?
1. want
 2. does want
 3. wants
 4. is wanting
55. I think that John Lennon is _____ musicians in the world.
1. greatest one of
 2. the greatest
 3. one of greatest
 4. one of the greatest
56. I do not like coffee with _____.
1. the milk

2. a milk
 3. milk
 4. milks
57. I usually go to school _____ bus.
1. on
 2. by
 3. in
 4. at
58. I do not want to go to the country; I would rather _____ at home.
1. staying
 2. stay
 3. to stay
 4. will stay
59. Everyone _____ of Bill Gates, the icon of American business and the richest man in the world.
1. have heard
 2. has heard
 3. is hearing
 4. has been heard
60. It was _____ cold that I put on my coat.
1. too
 2. such
 3. very
 4. so

2 Вопросы в открытой форме

- 1 He _____ (to clean) his teeth every day.
- 2 We _____ (to play) snowballs last winter.
- 3 Tom _____ (to get) a letter yesterday.
- 4 I often _____ (to visit) my friend in Moscow.
- 5 Helen usually _____ (to do) her homework at 7 pm.
- 6 Five months ago I _____ (to swim) in the river.
- 7 Now he _____ (to be) at the zoo.
- 8 _____ he _____ visit his granny yesterday?

- 9 _____you _____ (to play) computer games every day?
- 10 _____he_____ (to play) computer games every day?
- 11 I_____ (not to watch) TV yesterday.
- 12 Tim _____ (not to drink) hot milk every day.
- 13 We _____ (not to visit) friends every Sunday.
- 14 I_____ (not to be) at the park now.
- 15 Boris _____ (not to be) at home now.
- 16 I and my friend _____ (not to be) at the zoo a week ago.
- 17 Do you have (some, any) work to do?
- 18 My son has (some, any) French books at home.
- 19 I haven't got (some, any) questions.
- 20 Please, bring me (some, any) chalk.
- 21 (Some, any) children don't like to play football.
- 22 Do you learn (some, any) foreign languages?
- 23 She was ready to get (some, any) job.
- 24 There isn't (some, any) paper on the desk.
- 25 The (children) room is upstairs.
- 26 (Steve) school is very old.
- 27 My (parents) car was not expensive.
- 28 It's my (neighbour) cat.
- 29 They are our (doctors) glasses.
- 30 (Mr. Jones) secretary is here.
- 31 The (babies) toys are funny.
- 32 We love (Grandma) cookies.
- 33 The (women) boyfriends are late.

- 34 Can you see (Mrs. Sally) hat?
- 35 (The Browns) house is for sale.
- 36 (The America) Cup is a trophy awarded to the winner of the races between two sailing yachts.
- 37 A (minute) delay can be very dangerous in such circumstances.
- 38 Those are (ladies) shoes.
- 39 I ate (a cookies / tree cookies).
- 40 I want (tea / some tea).
- 41 He bought ten bottles of (beer / beers).
- 42 Do you wear (two glasses / glasses)?
- 43 There is (some juice / little juice) in the glass.
- 44 My friend Tom doesn't eat (meat / meats).
- 45 Would you like (a piece of cake / some cake)?
- 46 I need your (advices / some advice).
- 47 You _____ (buy) this book yesterday?
- 48 Last Friday Jill _____ (go) home early because she _____ (want) to see a film.
- 49 When your brother usually _____ (get) home in the evening?
- 50 Jane always _____ (bring) us a nice present.
- 51 What those people _____ (do) in the middle of the road?
- 52 You _____ (read) this book?
- 53 While Fred _____ (sleep), Judy _____ (watch) TV.
- 54 When I _____ (be) young, I _____ (think) Mary _____ (be) nice — but now I _____ (think) she's fantastic.
- 55 Look there! Sue and Tim _____ (run) to school.
- 56 Jack's father _____ (not work) in London — he _____ (not speak) English.
- 57 Joe _____ (buy) a car yesterday.

- 58 Their father often _____ (go) to rock concerts.
- 59 When you _____ (know) your examination results?
- 60 Kathy _____ (travel) to Caracas next month to attend a conference.
- 61 Do you have any plans for lunch today? — I _____ (meet) Shannon at the Sham Cafe in an hour. Do you want to join us?
- 62 I _____ (buy) a bicycle for my son for his birthday next month. Do you know anything about bikes for kids? — Sure. What do you want to know?
- 63 How do you like your new job? — I don't start it until tomorrow. I _____ (give) you an answer next week.
- 64 I suppose he _____ (talk) about his new invention.
- 65 Why are you packing your suitcase? — I _____ (leave) for Los Angeles in a couple of hours.
- 66 My regular doctor, Dr. Jordan, _____ (attend) a conference in Las Vegas next week.
- 67 What time class _____ (begin) tomorrow morning? — It _____ (begin) at eight o'clock sharp.
- 68 The coffee shop _____ (open) at seven o'clock tomorrow morning. I'll meet you there at 7:15. — Okay. I'll be there.

Шкала оценивания результатов тестирования: в соответствии с действующей в университете балльно-рейтинговой системой оценивание результатов промежуточной аттестации обучающихся осуществляется в рамках 100-балльной шкалы, при этом максимальный балл по промежуточной аттестации обучающихся по очной форме обучения составляет 36 баллов, по очно-заочной и заочной формам обучения – 60 баллов (установлено положением П 02.016).

Максимальный балл за тестирование представляет собой разность двух чисел: максимального балла по промежуточной аттестации для данной формы обучения (36 или 60) и максимального балла за решение компетентностно-ориентированной задачи (6).

Балл, полученный обучающимся за тестирование, суммируется с баллом, выставленным ему за решение компетентностно-ориентированной задачи.

Общий балл по промежуточной аттестации суммируется с баллами, полученными обучающимся по результатам текущего контроля успеваемости в течение семестра; сумма баллов переводится в оценку по дихотомической шкале (для зачета) или в оценку по 5-балльной шкале (для экзамена) следующим образом:

Соответствие 100-балльной и дихотомической шкал

<i>Сумма баллов по 100-балльной шкале</i>	<i>Оценка по дихотомической шкале</i>
100–50	зачтено
49 и менее	не зачтено

Соответствие 100-балльной и 5-балльной шкал

<i>Сумма баллов по 100-балльной шкале</i>	<i>Оценка по 5-балльной шкале</i>
100–85	отлично
84–70	хорошо
69–50	удовлетворительно
49 и менее	неудовлетворительно

Критерии оценивания результатов тестирования:

Каждый вопрос (задание) в тестовой форме оценивается по дихотомической шкале: выполнено – **2 балла**, не выполнено – **0 баллов**.

2.2 КОМПЕТЕНТНОСТНО-ОРИЕНТИРОВАННЫЕ ЗАДАЧИ

Компетентностно-ориентированная задача № 1

Give a short summary of the text.

Education in Russia

Children start school at the age of six or seven in Russia. The course of studies at school is eleven years now: four years of primary school and seven years of secondary school. Previously it was only ten years: three years of primary school and seven years of secondary school. Children under the age of six are taken to crèches and nursery schools.

There is a wide choice of schools nowadays: state schools, private schools, lycées and gymnasiums. The majority of schools is free of charge, but in some (usually private ones) parents have to pay for the education of their children. In ordi-

nary schools parents sometimes pay for additional subjects in the curriculum, such as a foreign language or arts. Though it is generally not a demand, most children can already read and write when they start their school: this makes education much easier for them.

In primary school there are three or four lessons a day, they are Reading, Writing and Arithmetic. A lesson lasts forty minutes. During the first term children get used to learning and adapt to school regulations. Beginning with the second term of the first year at school, children also take Handicrafts, Drawing, Music and Physical Education. The list of subjects under study is further extended during the second, third and fourth years and includes the World History of Arts, fundamentals of Security, History, Geography, and others. At primary schools all lessons are usually conducted by one teacher.

At the age of ten children pass to the second stage of education, known as secondary school. In secondary school there is a wide variety of subjects under study. The transition from primary to secondary school is sometimes difficult for children. After finishing the ninth form and getting the Certificate of Basic Secondary Education, schoolchildren may either continue their education in the tenth form, or leave school and go to technical (vocational) schools and colleges.

After eleven years at school the school leavers take examinations and get the Certificate of Complete Secondary Education. Those who have only excellent marks in the Certificate get a gold medal, which gives the right to enter higher school taking only one examination.

The admission to higher school is competitive and based on the system of entrance examinations, usually three or four. During the examinations the school leavers must show their abilities in the chosen field. Young people also have an option to get specialized secondary education in vocational schools after leaving the eleventh form.

Among higher educational establishments are institutes (colleges), academies and universities. The term of studying in higher school is from four to six years. Students can be involved in scientific research while studying. At the end of their final year at college, university or academy they take final examinations and get a diploma. Besides they can take postgraduate courses in the chosen field.

Give a short summary of the text.

Leisure

Leisure or free time is a period of time spent out of work and domestic activity. It is also the period of recreational time before or after compulsory activities such as eating and sleeping, going to work or running a business, attending school and doing homework or housework. Leisure time is the time when you can forget about day-to-day stress and stressful activities and relax. These activities can be our hobby.

Nowadays people work all day long and rarely have spare time to rest and to do something they like. But if they have it they try to spend it in the way they prefer. And there are a lot of possibilities to do it perfect. There are plenty of things to do that can help you not to feel bored. Any activity is much better than doing nothing.

I'd like to notice that there are two main ways of spending free time: the one is to do some physical activities (often outdoors), for example, football, swimming, hockey, skiing; and another way is to enjoy something relaxing at home or in special places: reading, watching TV, knitting, engaging in hand-made. At any rate, hobby is a matter of taste, and everybody should choose it according to the personal preferences.

To the point, the way how people pass their free time depends on the culture and social status. For example, American favorite leisure activity now is participating in experiences that they know aren't real, they turn to imagination – to worlds created by others, such as books, games, movies and television. Also public researches show that the average amount of weekly free time of many people fell; while the average amount of time spent working is now up. It can be explained by the fact of extra time spent on mobile phones or computers, and infrastructure development (the problem of traffic jams in big cities). As well, preferences of people to spend their time have also changed over the past years: instead of team activities more and more people choose solo activities.

Anyway, in the life of any person there are periods of time when he feels extremely bored. It happens because this person doesn't know what to do with his time and can't find anything interesting to do, or because he doesn't like what he is doing. Well, this problem has hundreds of ways of solution. The simplest is to find something interesting to do.

Компетентностно-ориентированная задача № 3

Give a short summary of the text.

The World Environment

The world environment means simply what is around us. Some people live in towns, others live in the country. There are a lot of ecological problems. The most serious ecological problems are: noise from cars and buses; destruction of wildlife and countryside beauty; shortage of natural resources; the growth of population; pollution in its many forms, for example, water pollution: water is everywhere, but there is no ocean or sea which is not used as a dump. Many rivers and lakes are poisoned too. Fish and reptiles can't live in them. People can't drink this water. So, we have to clean the water environment. But it is not the only problem with pollution. Another problem is air pollution. Air pollution influences the health of people. There are a lot of danger. For example: ultraviolet radiation from the sun can cause skin cancer. Normally the ozone layer in the atmosphere protects us from such radiation, but if there are holes in the ozone layer ultraviolet radiation can get to the earth. Many scientists think that these holes are the result of air pollution. Also, we have problems with nuclear pollution. Nuclear pollution cannot be seen but its effect can be terrible. To make air clean again we need good filters at nuclear power stations, at factories, in cars and buses. Another problem is growth of population. They don't have enough places to live. They need more water, more food. So, it is the reason of the shortage of the natural resources. It is very difficult to solve this problem. Also one of the most serious problems is green house effect. It works like this: sunlight gives us heat. Some of the heat warms the atmosphere and some of the heat goes back into space. Nowadays the heat can't go into space. That's why winter and summer temperatures in many places have become higher. If the temperature continues growing up the snow on the mountains and ice will

melt, so the most of the earth will be under water. So, every person must understand how important to solve these problems, that endanger people's life.

Компетентностно-ориентированная задача № 4

Give a short summary of the text.

Business Trips

Never before in the history of the world businessmen travelled as much as they do today. It is not surprising because we are living in a world of growing international trade and expanding economic and technical cooperation. Though it is fascinating for tourist travelling, it has become the most tiring of all occupations for many businessmen and experts. Therefore, choosing a comfortable hotel to stay at is a matter of big importance. There are plenty of good hotels, motels and guest houses in the world, which are conveniently located in major business centers.

Many developing countries, such as India, Egypt, Nigeria etc. have excellent hotels. Their numerous facilities include both large and small cocktail bars, barber's shops and conference halls equipped with simultaneous, multilingual translation systems. There are parking areas which can accommodate a lot of cars. It might be useful for travelling businessmen and tourists to know that tailor shops, shoe repair shops, laundry and dry cleaning services are available for guests. People in the office help guests to book train or steamer tickets and rent a car. They are also ready to give all necessary information. Nowadays people who go on business mostly travel by air as it is the fastest means of travelling. Passengers are requested to arrive at the airport 2 hours before the departure time on international flights and an hour on domestic flights, as there must be enough time to complete the necessary airport formalities. Passengers must register their tickets, weigh and register the luggage.

Most airlines have at least 2 classes of travel: the first-class and economy class which is cheaper. Each passenger of more than 2 years of age has a free luggage allowance. Generally, this limit is 20kg for economic class passenger and 30kg for the first-class passenger. Excess luggage must be paid for except for some articles that can be carried free of charge. Each passenger is given a boarding card to show at departure gate and again to the stewardess when boarding the plane. The electric

sign flashes when you are on board, when the «Fasten Seat Belts» sign goes on do it promptly and also obey the «No Smoking» signal. Do not forget your personal effects when leaving the plane.

Шкала оценивания решения компетентностно-ориентированной задачи: в соответствии с действующей в университете балльно-рейтинговой системой оценивание результатов промежуточной аттестации обучающихся осуществляется в рамках 100-балльной шкалы, при этом максимальный балл по промежуточной аттестации обучающихся по очной форме обучения составляет 36 баллов, по очно-заочной и заочной формам обучения – 60 (установлено положением П 02.016).

Максимальное количество баллов за решение компетентностно-ориентированной задачи – 6 баллов.

Балл, полученный обучающимся за решение компетентностно-ориентированной задачи, суммируется с баллом, выставленным ему по результатам тестирования.

Общий балл по промежуточной аттестации суммируется с баллами, полученными обучающимся по результатам текущего контроля успеваемости в течение семестра; сумма баллов переводится в оценку по дихотомической шкале (для зачета) или в оценку по 5-балльной шкале (для экзамена) следующим образом:

Соответствие 100-балльной и дихотомической шкал

<i>Сумма баллов по 100-балльной шкале</i>	<i>Оценка по дихотомической шкале</i>
100–50	зачтено
49 и менее	не зачтено

Соответствие 100-балльной и 5-балльной шкал

<i>Сумма баллов по 100-балльной шкале</i>	<i>Оценка по 5-балльной шкале</i>
100–85	отлично
84–70	хорошо
69–50	удовлетворительно
49 и менее	неудовлетворительно

Критерии оценивания решения компетентностно-ориентированной задачи:

6-5 баллов выставляется обучающемуся, если решение задачи демонстрирует глубокое понимание обучающимся предложенной проблемы и разностороннее ее рассмотрение; свободно конструируемая работа представляет собой логичное, ясное и при этом краткое, точное описание хода решения задачи (последовательности (или выполнения) необходимых трудовых действий) и формулировку доказанного, правильного вывода (ответа); при этом обучающимся предложено несколько вариантов решения или оригинальное, нестандартное решение (или наиболее эффективное, или наиболее рациональное, или оптимальное, или единственно правильное решение); задача решена в установленное преподавателем время или с опережением времени.

4-3 балла выставляется обучающемуся, если решение задачи демонстрирует понимание обучающимся предложенной проблемы; задача решена типовым способом в установленное преподавателем время; имеют место общие фразы и (или) несущественные недочеты в описании хода решения и (или) вывода (ответа).

2-1 балла выставляется обучающемуся, если решение задачи демонстрирует поверхностное понимание обучающимся предложенной проблемы; осуществлена попытка шаблонного решения задачи, но при ее решении допущены ошибки и (или) превышено установленное преподавателем время.

0 баллов выставляется обучающемуся, если решение задачи демонстрирует непонимание обучающимся предложенной проблемы, и (или) значительное место занимают общие фразы и голословные рассуждения, и (или) задача не решена.