Контрольная работа № 2

Для правильного выполнения контрольной работы № 2 необходимо знать следующие разделы английской грамматики:

1. Причастие I, Причастие II. Функции и перевод.
2. Независимый причастный оборот.
3. Инфинитив: функции и перевод.
4. Инфинитивные обороты Complex Subject и Complex Object. Независимый причастный оборот.
5. Герундий: функции и перевод.
6. Условные предложения.

Вариант 1

Задание 1. Прочитайте и перепишите предложения, используя нужную форму причастия, образованную от глагола в скобках. Переведите предложения на русский язык.

1. We need highly (to develop) electronics and new materials to make supercomputers.
2. New alloys (to appear) during the last decades, among them a magnesium-lithium alloy.
3. **(**To drive) a car a man tries to keep steady speed and watch the car in front of him.

Задание 2. Перепишите предложения. Письменно переведите их. Подчеркните причастие и в скобках укажите, какую функцию в предложении оно выполняет.

Model: The man **waiting** for you has come from Paris. – Человек, **ожидающий** вас, приехал из Парижа. **(Функция – определение).**

1. The high gas temperatures caused increased slagging of the boiler surface.
2. Valves are opened periodically and some of the boiler water is blown to sewer, thus carrying out of the system the impurities.
3. The boy writing a letter is my sister's son.
4. The man sitting at the window made an interesting report about the origin of the English language yesterday.

Задание 3. Прочитайте предложения. Переведите их письменно. Найдите и подчеркните в них независимый причастный оборот.

Model: My **colleague being away**, I had to take the decision myself. – Так как мой товарищ по работе отсутствовал, мне пришлось самому принять решение.

1. With water being cooled, the rate of the reaction was low.
2. The temperature being raised, the kinetic energy is increased.
3. The young physicist having discovered Newton's error, other scientists confirmed it.

Задание 4. Перепишите предложения. Подчеркните инфинитив и укажите, какую функцию в предложении он выполняет. Переведите предложения.

Model: He stopped **to speak** to Mary. – Он остановился, чтобы поговорить с Мэри. **(Функция – обстоятельство цели).**

1. To recover waste energy two major types of hardware are required: combustion equipment and heat transfer equipment.
2. Parameters to be measured in a control experiment include density and temperature of the fuel.
3. Our duty is to study well.
4. To develop the supercomputer, highly developed electronics and new materials were required.
5. Some materials with new useful properties may be produced in space.

Задание 5. Перепишите предложения. Подчеркните и определите **Complex Object/Complex Subject**. Предложения переведите.

Model: We know **Professor N. (him) to be** a good specialist in this field. – Мы знаем, что профессор Н. (он) хороший специалист в этой области. **(Complex Object)**

1. The film festival was reported to take place in July this year.
2. This region proved to be protected area.
3. *We saw the postman slip a thick envelope into the box.*
4. The house seems to have been damaged by the earthquake.

Задание 6. Перепишите предложения. Подчеркните герундий и определите его функцию в предложении. Предложения переведите.

Model: His favorite occupation is **reading**. – Его любимое занятие – чтение (читать). **(Функция – часть составного сказуемого).**

1. After having been subjected to severe testing the material was recommended for us.
2. They insisted on the questions being reconsidered.
3. Man invented machines and instruments for making his life easier.
4. Examining water quality is a work of a chemical laboratory.

5. The equipment for producing the fluid is divided into two major classes: pumps for handling liquids and fans, blowers and compressors for handling gases and vapors.

Задание 7. Перепишите и переведите условные предложения.

1. If farmers in developing countries were given a decent price for their produce they would be able to build a better future for their family, community and country.

2. If Belgium won the European Soccer Championship in the year **2020** the world would be amazed.

3. Consumers would be much better off if accurate product information were printed on the packaging.

Задание 8. Прочитайте текст. Перепишите его и переведите письменно 1-й, 3-й и 4-й абзацы.

Direct-Current (DC) Generators

1. If an armature revolves between two stationary field poles, the current in the armature moves in one direction during half of each revolution and in the other direction during the other half. To produce a steady flow of unidirectional, or direct, current from such a device, it is necessary to provide a means of reversing the current flow outside the generator once during each revolution.

2. In older machines this reversal is accomplished by means of a commutator, a split metal ring mounted on the shaft of the armature. The two halves of the ring are insulated from each other and serve as the terminals of the armature coil. Fixed brushes of metal or carbon are held against the commutator as it revolves, connecting the coil electrically to external wires. As the armature turns, each brush is in contact alternately with the halves of the commutator, changing position at the moment when the current in the armature coil reverses its direction. Thus there is a flow of unidirectional current in the outside circuit to which the generator is connected. DC generators are usually operated at fairly low voltages to avoid the sparking between brushes and commutator that occurs at high voltage. The highest potential commonly developed by such generators is 1500 V. In some newer machines this reversal is accomplished using power electronic devices, for example, diode rectifiers.

3. Modern DC generators use drum armatures that usually consist of a large number of windings set in longitudinal slits in the armature core and connected to appropriate segments of a multiple commutator. In an armature having only one loop of wire, the current produced will rise and fall depending on the part

of the magnetic field through which the loop is moving. A commutator of many segments used with a drum armature always connects the external circuit to one loop of wire moving through the high-intensity area of the field, and as a result the current delivered by the armature windings is virtually constant. Fields of modern generators are usually equipped with four or more electromagnetic poles to increase the size and strength of the magnetic field. Sometimes smaller interpoles are added to compensate for distortions in the magnetic flux of the field caused by the magnetic effect of the armature.

4. DC generators are commonly classified according to the method used to provide field current for energizing the field magnets. A series-wound generator has its field in series with the armature, and a shunt-wound generator has the field connected in parallel with the armature. Compound-wound generators have part of their fields in series and part in parallel. Both shunt-wound and compound-wound generators have the advantage of delivering comparatively constant voltage under varying electrical loads. The series-wound generator is used principally to supply a constant current at variable voltage. A magneto is a small DC generator with a permanent-magnet field.

Задание 9. Письменно ответьте на вопросы к вышеприведенному тексту.

1. How does the current in the armature move if it revolves between two stationary field poles?
2. Why DC generators usually operate at low voltages?
3. Why the fields of modern generator equipped with four or more electromagnetic poles?
4. How DC generators are commonly classified?

Задание 10. Используя данные слова, составьте предложения:

1) two, armature, poles, between, revolves, field, stationary;
2) operated, DC generators, low, are, fairly, voltages, at, usually;
3) DC generators, armatures, use, modern, drum.

Задание 11. Поставьте предложение в вопросительную и отрицательную формы.

DC generators are commonly classified according to the method used to provide field current.

Вариант 2

Задание 1. Прочитайте и перепишите предложения, используя нужную

форму причастия, образованную от глагола в скобках. Переведите предложения на русский язык.

1. Computer components (to produce) should be very clean.

2. Many countries have cable TV, a system (to use) wires for transmitting TV programs.

3. (To state) the laws of gravity, Newton was able to explain the structure of the Universe.

Задание 2. Перепишите предложения. Письменно переведите их. Подчеркните причастие и в скобках укажите, какую функцию в предложении оно выполняет.

Model: The man **waiting** for you has come from Paris. – Человек, **ожидающий** вас, приехал из Парижа. **(Функция – определение).**

1. These plants produce a great quantity of liquid and gaseous wastes containing chlorinated hydrocarbons.

2. As the oxidation rate increases, the temperature gradually rises, increasing the rate of oxidation and hence the rate of temperature rise.

3. When discussing the problem they argued a lot.

4. Speaking English, pay attention to the order of words.

Задание 3. Прочитайте предложения, письменно их переведите. Найдите и подчеркните в них независимый причастный оборот.

Model: My **colleague being away**, I had to take the decision myself. – Так как мой товарищ по работе отсутствовал, мне пришлось самому принять решение.

1. With the current being switched on, the machine automatically starts operating.

2. Silver being very expensive, we only rarely use it as a conductor.

3. The distance having been measured, the computer adjusts the car's speed.

Задание 4. Перепишите предложения. Подчеркните инфинитив и укажите, какую функцию в предложении он выполняет. Переведите предложения.

Model: He stopped **to speak** to Mary. – Он остановился, чтобы поговорить с Мэри. **(Функция – обстоятельство цели).**

1. To lower the temperature of the cooling water by artificial means would require additional energy.

2. An additional factor to be considered is the cost and maintenance of cooling system.

3. He hopes to get the book.

4. A special electronic device signals the engine to stop.

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

Задание 5. Перепишите предложения. Определите **Complex Object/ Complex Subject**. Предложения переведите.

Model: We know **Professor N. (him) to be** a good specialist in this field. – Мы знаем, что профессор Н. (он) хороший специалист в этой области. **(Complex Object).**

1. We believe it to be the best way out of this situation.
2. The environment was thought to be an unlimited source of resources.
3. People would like all ecological problems to have been solved.
4. She thought him to be a qualified specialist.

Задание 6. Перепишите предложения. Подчеркните герундий и определите его функцию в предложении. Предложения переведите.

Model: His favorite occupation is **reading**. – Его любимое занятие – чтение (читать). **(Функция – часть составного сказуемого).**

1. Programming is the process of preparing, testing and correcting instructions for a computer.
2. I'm glad to have the opportunity of talking to you, Doctor.
3. Is any metal capable of being drawn out into a wire?
4. The method for storing and transporting flue gases becomes criticized.
5. If steam is required for processing, a turbine may be modified by extracting the steam.

Задание 7. Перепишите и переведите условные предложения.

1. The children would be in a much better shape if they took my bike to go to school.
2. If I had a lot of money I would buy myself a car.
3. Helen would be very upset if she knew about John's past.

Задание 8. Прочитайте текст, перепишите его и переведите письменно 1-й, 2-й и 5-й абзацы.

Electric motors and generators

1. Electric motors and generators are used to convert mechanical energy into electrical energy, or electrical energy into mechanical energy, by electromagnetic means. A machine that converts mechanical energy into electrical energy is called

a generator, and a machine that converts electrical energy into mechanical energy is called a motor.

2. Two related physical principles underlie the operation of generators and motors. The first is the principle of electromagnetic induction discovered by the British scientist Michael Faraday in 1831. If a conductor is moved through a magnetic field, or if the strength of a stationary conducting loop is made to vary, a current is set up or induced in the conductor.

3. The converse of this principle is that of electromagnetic reaction, first observed by the French physicist Andre Marie Ampere in 1820. If a current is passed through a conductor located in a magnetic field, the field exerts a mechanical force on it.

4. The simplest of all dynamoelectric machines is the disk dynamo developed by Faraday. It consists of a copper disk mounted so that part of the disk, from the center to the edge, is between the poles of a horseshoe magnet. When the disk is rotated, a current is induced between the center of the disk and its edge by the action of the field of the magnet. The disk can be made to operate as a motor by applying a voltage between the edge of the disk and its center, causing the disk to rotate because of the force produced by magnetic reaction.

5. The magnetic field of a permanent magnet is strong enough to operate only a small practical dynamo or motor. As a result, for large machines, electromagnets are employed. Both motors and generators consist of two basic units, the field, which is the electromagnet with its coils, and the armature, the structure that supports the conductors, which cut the magnetic field and carry the induced current in a generator or the exciting current in a motor. The armature is usually a laminated soft-iron core around which conducting wires are wound in coils

Задание 9. Письменно ответьте на вопросы к вышеприведенному тексту.

1. By means of what devices mechanical energy is converted into electrical energy?
2. What physical principles underlie the operation of generators and motors?
3. What is the simplest of all dynamoelectric machines?
4. What do both motors and generators consist of?

Задание 10. Используя данные слова, составьте предложения:

1) basic, consist, motors, units, of, and, two, generators;

2) used, machines, are, large, for, electromagnets;

3) laminated, the, is, soft-iron, a, armature, core, usually.

Задание 11. Поставьте предложение в вопросительную и отрицательную формы.

Electric motors and generators are used to convert mechanical energy into electrical energy.

Вариант 3

Задание 1. Прочитайте и перепишите предложения, используя нужную форму причастия, образованную от глагола в скобках. Переведите предложения на русский язык.

1. (To be) more efficient than human beings, computers are used more and more extensively.
2. When (to complete) in 1897, Jefferson's building was the largest and costliest library in the world.
3. (to publish) in 1687, Newton's laws of motion are still the basis for research.

Задание 2. Перепишите предложения. Письменно переведите их. Подчеркните причастие и в скобках укажите, какую функцию в предложении оно выполняет.

Model: The man **waiting** for you has come from Paris. – Человек, **ожидающий** вас, приехал из Парижа. **(Функция – определение).**

1. The classification of the injectors is based on the fource of energy used to break up the liquid.
2. The double suction permits forces acting on the impeller to be balanced, thus reducing the axial thrust on the shaft.
3. He stopped before a closed door.
4. Being influenced by a warm oceanic current – the Gulf Stream – the climate of England is mild.

Задание 3. Прочитайте предложения, письменно их переведите. Найдите и подчеркните в них независимый причастный оборот.

Model: My **colleague being away**, I had to take the decision myself. – Так как мой товарищ по работе отсутствовал, мне пришлось самому принять решение.

1. With his numerous experiments being over, Newton was able to write his work very quickly.
2. Radioactivity discovered, we made great progress in atomic physics.
3. The fuel burnt out, the engine stopped.

Задание 4. Перепишите предложения. Подчеркните инфинитив и укажите, какую функцию в предложении он выполняет. Переведите предложения.

Model: He stopped **to speak** to Mary. – Он остановился, чтобы поговорить с Мэри. **(Функция – обстоятельство цели).**

1. Combination of radial and convective heat transfers are used to improve the effectiveness of heat transfer.
2. The materials to be used for the construction of the modern boilers are described in this book.
3. To design new buildings is the work of an architect.
4. Radar may control the brakes to avoid collisions with other cars.
5. High temperature alloys make it possible for jet engines to be operating under severe conditions for a long period of time.

Задание 5. Перепишите предложения. Определите **Complex Object/ Complex Subject**. Предложения переведите.

Model: We know **Professor N. (him) to be** a good specialist in this field. – Мы знаем, что профессор Н. (он) хороший специалист в этой области. **(Complex Object).**

1. The file seems to be copied to the hard disk at the moment.
2. The teacher expected the students to hand in the tests at once.
3. The tickets were supposed to be sold in the afternoon.
4. The inspector would like you to explain everything to him.

Задание 6. Перепишите предложения. Подчеркните герундий и определите его функцию в предложении. Предложения переведите.

Model: His favorite occupation is **reading**. – Его любимое занятие – чтение (читать). **(Функция – часть составного сказуемого).**

1. Steam is an important factor in producing usable energy because of the power being created by its expansion.
2. I like going in for tennis.
3. A motor – starter is a device for starting motors from rest by the simple act of closing the switch.
4. The white line in the centre of the road is one of the most effective means of controlling traffic.
5. When steam is needed within the power plant itself for heating boiler feed water, nonautomatic extraction is generally used.

Задание 7. Перепишите и переведите условные предложения.

1. If people were a little more tolerant our world would be a better place.

2. If my father had locked his car properly his car would never have been stolen.

3. If the ozone layer peels off a little more we will run a much higher risk of attracting skin cancer.

Задание 8. Прочитайте текст, перепишите его и переведите письменно 2-й, 4-й и 5-й абзацы.

Electric power systems

1. The production and transmission of energy in the form of electricity have important economic advantages in terms of cost per unit of power delivered. Electric power systems also make possible the utilization of hydroelectric power at a distance from the source. Alternating current (AC) is generally used in modern power systems, because it may be easily converted to higher or lower voltages by means of transformers.

2. Thus, each stage of the system can be operated at an appropriate voltage. Such an electric power system consists of six main elements: the power station; a set of transformers to raise the generated power to the high voltages used on the transmission lines; the transmission lines; the substations at which the power is stepped down to the voltage on the sub transmission lines; the sub transmission lines; and the transformers that lower the sub transmission voltage to the level used by the consumer's equipment.

3. In a typical system the generators at the central station deliver a voltage of from 1000 to 26,000 volts (V); higher voltages are undesirable because of difficulties of insulation and the danger of electrical breakdown and damage. This voltage is stepped up by means of transformers to values ranging from 138,000 to 765,000 V for the primary transmission line. At the substation the voltage may be transformed down to levels of 69,000 to 138,000 V for further transfer on the sub transmission system. Transformers step down the voltage again to a distribution level. Finally the voltage is transformed once again at the distribution transformer near the point of use to 240 or 120 V.

4. The central station of a power system consists of a prime mover, such as a water or steam turbine, which operates an electric generator. Most of the world's electric power in the early 1990s was generated in steam plants driven by coal, oil, nuclear energy, or gas, with lesser percentages generated by hydroelectric, diesel, and internal-combustion plants.

5. The lines of high-voltage transmission systems are usually composed of wires of copper, aluminum, which are suspended from tall latticework towers of steel by strings of porcelain insulators. By the use of clad steel wires and high towers, the distance between towers can be increased, and the cost of the transmission line thus reduced. In modern installations with essentially straight paths, high-voltage lines may be built with as few as eight towers to the kilometer. In some areas high-voltage lines are suspended from tall wooden poles spaced more closely together. For lower voltage sub transmission and distribution lines, wooden poles are generally used rather than steel towers. In cities and other areas where open lines create a hazard, insulated underground cables are used for distribution. Any electric-distribution system involves a large amount of supplementary equipment for the protection of generators, transformers, and the transmission lines themselves. The system often includes devices designed to regulate the voltage delivered to consumers and to correct the power factor of the system.

Задание 9. Письменно ответьте на вопросы к вышеприведенному тексту.

1. Why alternating current (AC) is generally used in modern power systems?
2. What does the central station of a power system consist of?
3. What are generally used for lower voltage sub transmission and distribution lines?
4. What kind of equipment is used for protection of generators, transformers, and the transmission lines?

Задание 10. Используя данные слова, составьте предложения:

1) elements, system, an, power, six, of, consists, main, electric;
2) are, underground, for, cables, in, used, cities, distribution;
3) voltage, each, of, system, the, appropriate, can be, at, stage, operated, an.

Задание 11. Поставьте предложение в вопросительную и отрицательную формы.

The central station of a power system consists of a prime mover.

Вариант 4

Задание 1. Прочитайте и перепишите предложения, используя нужную форму причастия, образованную от глагола в скобках. Переведите предложения на русский язык.

1. (To graduate) from Cambridge, Newton worked there as a tutor.
2. The instrument (to use) is very reiable.

3. (To build) in the middle of the last century, the British Museum is situated in central London.

Задание 2. Перепишите предложения. Письменно переведите их. Подчеркните причастие и в скобках укажите, какую функцию в предложении оно выполняет.

Model: The man **waiting** for you has come from Paris. – Человек, **ожидающий** вас, приехал из Парижа. **(Функция – определение).**

1. Thermal analysis concerning combustion involves the heat and the temperature.
2. Each disk carrying the moving blades is perforated thus maintaining the same pressure on both sides of the wheel.
3. When asked he brought the papers.
4. Oxford is old and historical because it has existed since 912.

Задание 3. Прочитайте предложения, письменно их переведите. Найдите и подчеркните в них независимый причастный оборот.

Model: My **colleague being away**, I had to take the decision myself. – Так как мой товарищ по работе отсутствовал, мне пришлось самому принять решение.

1. The inventor was demonstrating his new device, with the workers watching its operation attentively.
2. Hydrogen consisting of discrete particles is a molecule, each one made up of 2 hydrogen atoms.
3. The first question of the agenda having been decided upon, the conference passed the resolution.

Задание 4. Перепишите предложения. Подчеркните инфинитив и укажите, какую функцию в предложении он выполняет. Переведите предложения.

Model: He stopped **to speak** to Mary. – Он остановился, чтобы поговорить с Мэри. **(Функция – обстоятельство цели).**

1. The tubes to be made of this metal will be used in different kinds of boilers.
2. An economizer and an air heater are provided to cool the products of combustion to the low temperature necessary for high efficiency.
3. To master English we must work regularly.
4. The radar detects the stationary objects ahead of the car to warn the driver about them and slow down the speed.
5. We had fresh water to drink.

Задание 5. Перепишите предложения. Определите **Complex Object/ Complex Subject**. Предложения переведите.

Model: We know **Professor N. (him) to be** a good specialist in this field. – Мы знаем, что профессор Н. (он) хороший специалист в этой области. **(Complex Object).**

1. They had the man do what they wanted.
2. We believe it to be the best way out of this situation.
3. The construction company is believed to have concluded 2 big contracts.
4. The language of the article turned out to be quite easy.

Задание 6. Перепишите предложения. Подчеркните герундий и определите его функцию в предложении. Предложения переведите.

Model: His favorite occupation is **reading**. – Его любимое занятие – чтение (читать). **(Функция – часть составного сказуемого).**

1. On being turned on the radar will warn the driver of stationary or slow-moving objects on the road.
2. One of the problems modern research laboratories are working at is the problem of finding materials that can serve as electrical conductors in fusion reactors.
3. A constant speed of the device is maintained by supplying it with energy.
4. He finished reading the book.
5. It is important for industries to investigate the possibility of recovering the millions of calories of heat that are lost every day.

Задание 7. Перепишите и переведите условные предложения.

1. I would never feel comfortable on a plane if I knew it's the pilot's maiden trip.
2. A dog will never bite you if you look it straight in the eyes, I'm told
3. The first thing I will do is drive to Spain if I get my driving licence.

Задание 8. Прочитайте текст, перепишите его и переведите письменно 1-й, 3-й и 4-й абзацы.

Current electricity

1. If two equally and oppositely charged bodies are connected by a metallic conductor such as a wire, the charges neutralize each other. This neutralization is accomplished by means of a flow of electrons through the conductor from the negatively charged body to the positively charged one. (In some branches of electrical engineering, electric current has been conventionally assumed to flow in the opposite direction, that is, from positive to negative.)

2. In any continuous system of conductors, electrons will flow from the point of lowest potential to the point of highest potential. A system of this kind is called an electric current. The current flowing in a circuit is described as direct current (DC) if it flows continuously in one direction, and as alternating current (AC) if it flows alternately in either direction.

3. Three interdependent quantities determine the flow of direct currents. The first is the potential difference in the circuit, which is sometimes called the electromotive force (emf) or voltage. The second is the rate of current flow. This quantity is usually given in terms of the ampere, which corresponds to a flow of about 6 250 000 000 000 000 000 electrons per sec past any point of the circuit. The third quantity is the resistance of the circuit. Under ordinary conditions all substances, conductors as well as nonconductors, offer some opposition to the flow of an electric current, and this resistance necessarily limits the current. The unit used for expressing the quantity of resistance is the ohm (V), which is defined as the amount of resistance that will limit the flow of current to 1 amp, in a circuit with a potential difference of 1 V. This relationship is known as Ohm's law and is named after the German physicist George Simon Ohm, who discovered the law in 1827. Ohm's law may be stated in the form of the algebraic equation $E = I \times R$, in which E is the electromotive force in volts, I is the current in amperes, and R is the resistance in ohms. From this equation any of the three quantities for a given circuit can be calculated if the other two quantities are known. Another formulation of Ohm's law is $I = E/R$.

4. When an electric current flows through a wire, two important effects can be observed: the temperature of the wire is raised, and a magnet or a compass needle placed near the wire will be deflected, tending to point in a direction perpendicular to the wire. As the current flows, the electrons making up the current collide with the atoms of the conductor and give up energy, which appears in the form of heat. The amount of energy expended in an electric circuit is expressed in terms of the joule.

Задание 9. Письменно ответьте на вопросы к вышеприведенному тексту.

1. In which direction electrons will flow in any continuous system of conductors?
2. What quantity is usually given in terms of the ampere?
3. How do we call the unit used for expressing the quantity of resistance?
4. What can be observed when an electric current flows through a wire?

Задание 10. Используя данные слова, составьте предложения:

1) of, second, the, is, rate, the, flow, current;
2) is, the, raised, temperature, of, the, wire;
3) other, charges, the, each, neutralize.

Задание 11. Поставьте предложение в вопросительную и отрицательную формы.

The amount of energy expended in an electric circuit is expressed in terms of the joule.

Вариант 5

Задание 1. Прочитайте и перепишите предложения, используя нужную форму причастия, образованную от глагола в скобках. Переведите предложения на русский язык.

1. (To publish) in 1687, Newton's laws of motion are still the basis for research.
2. If (to heat) to 100 °C, water turns into steam.
3. (To invent) the digital technology solved the old problems of noise in signal transmission.

Задание 2. Перепишите предложения. Письменно переведите их. Подчеркните причастие и в скобках укажите, какую функцию в предложении оно выполняет.

Model: The man **waiting** for you has come from Paris. – Человек, **ожидающий** вас, приехал из Парижа. **(Функция – определение).**

1. All the work done by the turbine comes from the energy in the steam flowing through the turbine.
2. The steam impinges on the wheel blades causing the wheel to rotate.
3. The city of Oxford is situated on the river Thames.
4. The narrowest part of the English Channel called the Strait of Dover is only 22 miles wide.

Задание 3. Прочитайте предложения, письменно их переведите. Найдите и подчеркните в них независимый причастный оборот.

Model: My **colleague being away**, I had to take the decision myself. – Так как мой товарищ по работе отсутствовал, мне пришлось самому принять решение.

1. With the first steam engine built in the 17-th century, people began to use them in factories.
2. The speed of light being extremely great, we cannot measure it by ordinary methods.
3. Electrical devices find a wide application in every house, a refrigerator being one of them.

Задание 4. Перепишите предложения. Подчеркните инфинитив и укажите, какую функцию в предложении он выполняет. Переведите предложения.

Model: He stopped **to speak** to Mary. – Он остановился, чтобы поговорить с Мэри. **(Функция – обстоятельство цели).**

1. The function of the economizer is to supply the boiler with wet steam and feed water.
2. To overcome the limited output at the exhaust end turbines are usually of multi-cylinder type.
3. She gave us a list of books to read.
4. To increase the speed, the designers have to improve the aircraft shape and engine efficiency.
5. He doesn't like to translate technical articles.

Задание 5. Перепишите предложения. Определите **Complex Object/ Complex Subject**. Предложения переведите.

Model: We know **Professor N. (him) to be** a good specialist in this field. – Мы знаем, что профессор Н. (он) хороший специалист в этой области. **(Complex Object).**

1. They expect the meeting to be over soon.
2. The company is expected to make profit this year.
3. Mary appeared to have moved in a new flat.
4. We saw the postman slip a thick envelope into the box.

Задание 6. Перепишите предложения. Подчеркните герундий и определите его функцию в предложении. Предложения переведите.

Model: His favorite occupation is **reading**. – Его любимое занятие – чтение (читать). **(Функция – часть составного сказуемого).**

1. On having lost some of its electrons, the atom has a positive charge.
2. One of the main problems of a driver on the road is keeping the speed constant and watching the cars ahead.
3. Learning history will help us to understand social processes.
4. One of the best ways of keeping the speed steady is using a computer for this purpose.
5. The tubular air heater is constructed by expanding vertical tubes into parallel tube sheet.

Задание 7. Перепишите и переведите условные предложения.

1. If John hadn't responded in such an aggressive manner he would never

have had a black eye.

2. They would have got better exam results, if they'd studied harder.

3. If I'd known about the accident, I would have visited her.

Задание 8. Прочитайте текст, перепишите его и переведите письменно 1-й, 5-й и 7-й абзацы.

Electricity (history)

1. The first machine for producing an electric charge was described in 1672 by the German physicist Otto von Guericke. It consisted of a sulfur sphere turned by a crank on which a charge was induced when the hand was held against it.

2. The French scientist Charles Fransois de Cisternay Du Fay was the first to make clear the two different types of electric charge: positive and negative.

3. Benjamin Franklin spent much time in electrical research. His famous kite experiment proved that the atmospheric electricity that causes the phenomena of lightning and thunder is identical with the electrostatic charge on a Leyden jar. Franklin developed a theory that electricity is a single "fluid" existing in all matter, and that its effects can be explained by excesses and shortages of this fluid.

4. The British chemist Joseph Priestley proved the law that the force between electric charges varies inversely with the square of the distance between the charges experimentally in 1766. Priestley also demonstrated that an electric charge distributes itself uniformly over the surface of a hollow metal sphere, and that no charge and no electric field of force exists within such a sphere.

5. Charles Augustin de Coulomb invented a torsion balance to measure accurately the force exerted by electrical charges. With this apparatus he confirmed Priestley's observations and showed that the force between two charges is also proportional to the product of the individual charges. Faraday, who made many contributions to the study of electricity in the early 19th century, was also responsible for the theory of electric lines of force.

6. The Italian physicists Luigi Galvani and Alessandro Volta conducted the first important experiments in electrical currents. Galvani produced muscle contraction in the legs of frogs by applying an electric current to them. Volta in 1800 announced the first artificial electrochemical source of potential difference, a form of electric battery.

7. The Danish scientist Hans Christian Oersted demonstrated the fact that a magnetic field exists around an electric current flow in 1819. In 1831 Faraday proved that a current flowing in a coil of wire could induce electromagnetically a current in a nearby coil. About 1840 James Prescott Joule and the German scientist Hermann Ludwig Ferdinand von Helmholtz demonstrated that electric

circuits obey the law of the conservation of energy and that electricity is a form of energy.

8. An important contribution to the study of electricity in the 19th century was the work of the British mathematical physicist James Clerk Maxwell, who investigated the properties of electromagnetic waves and light and developed the theory that the two are identical. His work paved the way for the German physicist Heinrich Rudolf Hertz, who produced and detected electric waves in the atmosphere in 1886.

9. The Dutch physicist Hendrik Antoon Lorentz first advanced the electron theory, which is the basis of modern electrical theory in 1892. The widespread use of electricity as a source of power is largely due to the work of such pioneering American engineers and inventors as Thomas Alva Edison, Nikola Tesla, and Charles Proteus Steinmetz.

Задание 9. Письменно ответьте на вопросы к вышеприведенному тексту.

1. What was the name of the first scientist who made clear the two different types of electric charge?
2. What kinds of an experiment related to electric current did Italian physicists Luigi Galvani and Allesandro Volta conduct?
3. Do electric circuits obey the law of the conservation of energy?
4. What contributions to the study of electricity James Clerk Maxwell and Heidrik Rudolf Hertz did?

Задание 10. Используя данные слова, составьте предложения:

1) different, charge, types, two, exist, of, electric;
2) waves, properties, and, of, identical, are, electromagnetic, light;
3) electrical, of, theory, is, the, electron, the, basis, theory, modern.

Задание 11. Поставьте предложение в вопросительную и отрицательную формы.

The force between two charges is proportional to the product of the indivi-dual charges.