1st task

1. The first machine for producing an electric charge was described by Otto von Guericke.

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

3. Benjamin Franklin proved the identity of the atmospheric electricity with the electrostatic charge on a Leyden jar.

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.

5. Charles Augustin de Coulomb, Priestley and Faraday were was 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 magnetic field exists around the electric current.

8. The Danish scientist Hans Christian Oersted demonstrated the fact that a magnetic field exists around an electric current flow in 1819.

9. The electric circuits obey the law of the conservation of energy.

10. James Prescott Joule and the German scientist Hermann Ludwig Ferdinand von Helmholtz proved that the electricity is a form of energy.

11. The British mathematical physicist James Clerk Maxwell investigated the properties of electromagnetic waves and light and developed the theory that the two are identical. The German physicist Heinrich Rudolf Hertz produced and detected electric waves in the atmosphere

12. 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.

2nd task

электрический заряд;  electric charge

два различных типа;  two different types

положительный; positive

отрицательный;  negative

эксперимент; experiment

исследования в области электричества; electrical research

атмосферное электричество;  atmospheric electricity

молния; lightning

электростатический заряд;  electrostatic charge

избыток; excess

 недостаток; shortage

сила;  force

квадрат расстояния; square of the distance

распределять;  to distribute

измерять; to measure

наблюдения;  observations

теория электрических линий; the theory of electric lines

искусственный;  artificial

электрохимический источник;  electrochemical source

электрические волны;  electric waves

теория электронов; electron theory

основа современной электрической теории; the basis of modern electrical theory

3rd task

1. The first machine for producing an electric Charge was described by  c) Otto von Guericke.

2.  There are two different types of electric charge b) negative and positive.

3. An electric charge distributes itself  Uniformly over the surface of a) hollow metal sphere.

4.  A magnetic field exists around b) electric current flow.

5. Electric circuits obey the law of b) energy conservation.

6. The properties of electromagnetic waves and light are c) identical.

7. The widespread use of electricity as a source of power is largely due to the work of   b) Thomas Edison and c) Nicola Tesla.

4th task

1. 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.

2. Benjamin Franklin’s 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.

3. Priestley 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.

4. The Italian physicists Luigi Galvani and Alessandro Volta conducted the first important experiments in electrical currents.

5. 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. 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.

7. The Dutch physicist Hendrik Antoon Lorentz first advanced the electron theory, which is the basis of modern electrical theory in 1892.

8. 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.

5th task

1. There are two different types of electric charge: positive and negative.

2. His experiments proved that the atmospheric electricity that causes the phenomena of lightning and thunder is identical with the electrostatic charge on a Leyden jar.

3. The force between electric charges varies inversely with the square of the distance between the charges

4. This physicist made many contributions to the study of electricity.

5. The electricity is a form of energy.

6. The electric circuits obey the law of the conservation of energy.

7. The properties of electromagnetic waves.

8. The widespread use of electricity as a source of power happened at the beginning of the last century.

1st task

1. If two equally and oppositely charged bodies are connected by a metallic conductor, the charges neutralize each other.

2. This neutralization is accomplished by means of a flow of electrons through the conductor from the negatively charged body to the positively charged one.

3. In any continuous system of conductors, electrons will flow from the point of lowest potential to the point of highest potential.

4. The direct current (DC) we call the current if it flows continuously in one direction.

5. The alternating current (AC)we call the current if it flows alternately in either direction.

6. The potential difference in the circuit sometimes is called the electromotive force (emf) or voltage.

7. The rate of current flow is usually given in terms of the ampere.

8. The unit used for expressing the quantity of resistance is the ohm (V).

9. The amount of resistance that will limit the flow of current to 1 amp, in a circuit with a potential difference of 1 V relationship is known as Ohm's law.

10. 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.

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

2nd task

противоположено заряженный;  oppositely charged

металлический проводник;  metallic conductor

заряд;  the charge

поток электронов;  flow of electrons

проводник; conductor

электротехника;  electrical engineering

непрерывная система;  continuous system

низший потенциал;  the lowest potential

высший потенциал;  the highest potential

электрический ток; electric current

ампер; the ampere

соответствовать; to correspond

сопротивление;  resistance

обычные условия;  ordinary conditions

закон Ома; Ohm's law

уравнение;  the algebraic equation

формулировка; formulation

температура проволоки; the temperature of the wire

атомы; atoms

измерять; to express

3rd task

1. If two equally and oppositely charged bodies are connected by a metallic conductor such as a wire, the charges neutralize each other.

2. In some branches of electrical engineering, electric current has been conventionally assumed to flow in the opposite direction, that is, from positive to negative.

3. The second is the rate of current flow.

4. 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.

5. Ohm's law may be stated in the form of the algebraic equation E = I x R, in which E is the electromotive force in volts, I is the current in amperes, and R is the resistance in ohms.

6. 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.

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

8. 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.

4th task

1. Two equally and oppositely charged bodies are connected by a metallic conductor.

2. The flow of electrons through the conductor from the negatively charged body to the positively charged one.

3. The flow of electrons from the point of lowest potential to the point of highest potential.

4. The resistance necessarily limits the current.

5. Ohm's law may be stated in the form of the algebraic equation.

6. As the current flows, the temperature of the wire is raised.

7. As the electrons making up the current collide with the atoms of the conductor, the energy is appears.

8. The compass needle placed near the wire will be deflected, tending to point in a direction perpendicular to the wire.