8th Science Lesson 10 Questions in English

10] Electricity

1. Who among the following scientist considered that atoms cannot be divided further?

a) **John Dalton**
b) Rutherford
c) James Chadwick
d) None of the above

Explanation

All things we use in our life are made up of elements. Each element is made up of atoms which is the smallest unit. John Dalton, the scientist considered that atoms cannot be divided further. But it was found out later through Rutherford's gold foil experiment that atoms are made up of particles like proton, electron and neutron.

2. Movement of which particle in a material constitutes electric current and generates an energy called electric energy or electricity?

a) Proton
b) **Electron**
c) Neutron
d) All the above

Explanation

Movement of electrons in a material constitutes electric current and generates an energy called electric energy or electricity. We use this energy in our life for various needs. Electric bulbs, fans, electric iron box, washing machines and refrigerators are some of the appliances which work with the help of electricity.

3. Which among the following is not the sub atomic particle?

a) Proton
b) Electron
c) Neutron
d) **All the above**

Explanation

An atom consists of proton, electron and neutron which are called sub-atomic particles.

4. Which among the following are found inside the nucleus which is at the centre of an atom?

a) **Proton and neutron**

b) Proton and electron
c) Electron and neutron
d) Proton, electron and neutron

Explanation

Proton and neutron are found inside the nucleus which is at the centre of an atom. Electrons revolve around the nucleus in different paths called orbits.

5. In an atom, the number of protons is equal to number of what?

a) Electron
b) Neutron
c) Both electron and neutron
d) None of the above

Explanation

In an atom, the number of protons and the number of electrons will be equal. There is a force of attraction between the protons in the nucleus and the electrons in the orbits.

6. Which among the following statement is correct

1) Charge or electric charge is the basic property of matter that causes objects to attract or repel each other. It is carried by the subatomic particles like protons and electrons. Charges can be created and destroyed as well.
2) There are two types of charges: positive charge and negative charge. Protons carry positive charge and the electrons carry negative charge. There is a force of attraction or repulsion between the charges. Unlike charges attract each other and like charges repel each other.
    a) Only 1
    b) Only 2
    c) Both 1 and 2
    d) None

Explanation

Charge or electric charge is the basic property of matter that causes objects to attract or repel each other. It is carried by the subatomic particles like protons and electrons. Charges can neither be created nor be destroyed.

7. Electric charge is measured in what?

a) Newton
b) Pascal
c) Joule
d) Coulomb

Explanation

Electric charge is measured in coulomb (C).

8. Small amount of charge that can exist freely is called _____

a) Point charge
b) Elementary charge
c) Tune charge
d) Compressive charge

Explanation

Small amount of charge that can exist freely is called elementary charge (e). This is the amount of charge possessed by each proton and electron. But protons have positive elementary charge (+e) and electrons have negative elementary charge (-e). Since protons and electrons are equal in number, an atom is electrically neutral.

9. Which among the following is the value of elementary charge (e)?

a) 1.602×10^{-19} C
b) 1.672×10^{-27} C
c) 2.198×10^{-21} C
d) 6.681×10^{-31} C

Explanation

Elementary charge (e) value 1.602×10^{-19} C.

10. Electrons in which orbit can be easily removed from the atom?

a) Inner orbits
b) Outer orbits
c) Both inner and outer
d) None of the above

Explanation

Electrons in the inner orbits are strongly attracted by the protons and they cannot be removed from the atom easily. But, the electrons in the outermost orbits are loosely bound and they can be easily removed from the atom.

11. By which among the following way transfer of charge does not take place?

a) Transfer by friction
b) Transfer by conduction
c) Transfer by Induction

d) Transfer by consumption

Explanation

The electrons (negative electric charges) in the outermost orbit of an atom can be easily removed. They can be transferred from one substance to another. The substance which gains electrons become negatively charged and the substance which loses electrons becomes positively charged. Transfer of charges takes place in the following three ways. 1. Transfer by Friction 2. Transfer by Conduction and 3. Transfer by Induction.

12. Which among the following statement is correct regarding transfer of charges by friction?

1) Comb rubbed with hair gains electrons from the hair and becomes negatively charged. These electrons are accumulated on the surface of the comb. When a piece of paper is teared into bits, positive and negative charges are present at the edges of the bits. Negative charges in the comb attract positive charges in the bits. So, the paper bits are moving towards the comb.
2) While combing hair charges are transferred from the hair to comb due to friction. If the hair is wet, the friction between the hair and the comb increases which will reduce the number of electrons transferring from hair to comb. Hence, rubbing certain materials with one another can cause the build-up of electrical charges on the surfaces. From this it is clear that charges are transferred by friction.
    a) Only 1
    b) Only 2
    c) Both 1 and 2
    d) None

Explanation

While combing hair charges are transferred from the hair to comb due to friction. If the hair is wet, the friction between the hair and the comb reduces which will reduce the number of electrons transferring from hair to comb. Hence, rubbing certain materials with one another can cause the build-up of electrical charges on the surfaces. From this it is clear that charges are transferred by friction.

13. Which among the following statement is correct

1) When a glass rod is rubbed with a silk cloth the free electrons in the glass rod are transferred to silk cloth. It is because the free electrons in the glass rod are less tightly bound as compared to that in silk cloth. Since the glass rod loses electrons, it has a deficiency of electrons and hence acquires positive charge. But the silk cloth has excess of electrons. So, it becomes negatively charged.
2) When an ebonite rod (rod made by vulcanized rubber) is rubbed with fur, the fur transfers electrons to the ebonite rod because the electrons in the outermost orbit of the atoms in fur

are loosely bound as compared to the ebonite rod. The ebonite rod which has excess electrons becomes negatively charged and the fur which has deficiency of electrons is positively charged.

a) Only 1
b) Only 2
c) Both 1 and 2
d) None

14. When neutral object can become positively charged?

a) When electron get transferred
b) By receiving extra positive charges
c) By both receiving positive charges and transferring of electron
d) None of the above

Explanation

A neutral object can become positively charged when electrons get transferred to another object; not by receiving extra positive charges.

15. Which among the following statement is correct regarding transfer of charges by conduction

1) Take a sheet of paper. Turn it into a hollow cylinder. Tie one end of the cylinder with a silk thread and hang it from a stand. Now take an ebonite rod and charge it by rubbing it with a woollen cloth. Bring this charged ebonite rod near the paper cylinder. The cylinder will be attracted by the rod. If you touch the paper cylinder by the charged rod, you will see the paper cylinder repelling the rod.
2) When the ebonite rod is rubbed with woollen cloth, electrons from the woollen cloth are transferred to the ebonite rod. Now ebonite rod will be negatively charged. When it is brought near the paper cylinder, negative charges in the rod are attracted by the positive charges in the cylinder.
3) When the cylinder is touched by the rod, some negative charges are transferred to the rod. Hence, the negative charges in the rod are attracted by the positive charges in the cylinder. Thus, we can say that charges can be transferred to on object by bringing it in contact with a charged body. This method of transferring charges from one body to other body is called transfer by conduction

a) Both 1 and 2
b) Both 1 and 3
c) Both 2 and 3
d) All 1, 2 and 3

Explanation

When the cylinder is touched by the rod, some negative charges are transferred to the paper. Hence, the negative charges in the rod are repelled by the negative charges in the cylinder. Thus, we can

say that charges can be transferred to on object by bringing it in contact with a charged body. This method of transferring charges from one body to other body is called transfer by conduction.

16. The materials which allow electric charges to pass through them easily are called ____

a) Voyager of electricity
b) Insulator of electricity
c) Conductor of electricity
d) All the above

Explanation

The materials which allow electric charges to pass through them easily are called conductors of electricity. For example, metals like aluminium, copper are good conductors of electricity. Materials which do not allow electric charges to pass through them easily are called insulators. Rubber, wood and plastic are insulators.

17. The process of charging an uncharged body by bringing a charged body near to it but without touching it is called ____

a) Convection
b) Possession
c) Induction
d) Ricking

Explanation

The process of charging an uncharged body by bringing a charged body near to it but without touching it is called induction. The uncharged body acquires an opposite charge at the near end and similar charge at the farther end.

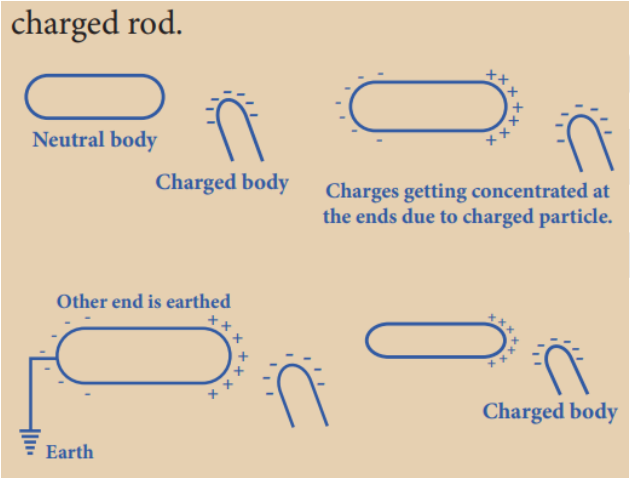
18. Which among the following statement is incorrect regarding the transfer of charges by induction?

1) Bring a negatively charged plastic rod near a neutral rod. When the negatively charged plastic rod is brought close to the neutral rod, the free electrons move away due to repulsion and start piling up at the farther end. The near end becomes positively charged due to deficit of electrons.
2) When the neutral rod is grounded, the negative charges flow to the ground. The positive charges at the near end remain held due to attractive forces and the electrons inside the metal is zero. When the rod is removed from the ground, the positive charge continues to be held at the near end. This makes the neutral rod a positively charged rod.
3) Similarly, when a positively charged rod is brought near an uncharged rod, positively charged protons are attracted towards it. As a result, there is excess of proton at nearer end

and deficiency of protons at the farther end. The nearer end of the uncharged rod becomes negatively charged and far end is positively charged.

a) Only 2
b) Only 3
c) Both 1 and 3
d) None of the above

Explanation



Similarly, when a positively charged rod is brought near an uncharged rod, negatively charged electrons are attracted towards it. As a result, there is excess of electrons at nearer end and deficiency of electrons at the farther end. The nearer end of the uncharged rod becomes negatively charged and far end is positively charged.

19. Flow of positive charge is called _____

a) Induction current
b) Conventional current
c) Compression current
d) Matured current

Explanation

Before the discovery of electrons, it was considered that electric current is due to the flow of positive charges. Flow of positive charge is called conventional current. Conventional current flows from higher potential to lower potential.

20. Which among the following statement is correct

1) Suppose you have two metallic spheres; one having more negative charge (excess of electrons) and the other having more positive charge (deficiency of electrons). When you

connect them both with the help of a metallic wire, excess electrons from the negatively charged sphere will start flowing towards the positively charged sphere.

2) This flow continues till the number of electrons in both the sphere is equal. Here, the positively charged sphere is said to be at lower potential and the negatively charged sphere is said to be at higher potential. Hence, electrons flow from lower potential to higher potential. This is known electric current (flow of electrons).

a) Only 1
b) Only 2
c) Both 1 and 2
d) None

Explanation

This flow continues till the number of electrons in both the sphere is equal. Here, the positively charged sphere is said to be at higher potential and the negatively charged sphere is said to be at lower potential. Hence, electrons flow from lower potential to higher potential. This is known electric current (flow of electrons).

21. The potential difference is commonly known as _____

a) Induction
b) Capacity
c) Conductance
d) Voltage

Explanation

The electrons flow from lower potential to higher potential. This is known electric current (flow of electrons). The difference between these potentials is known as potential difference, commonly known as voltage.

22. Which is a scientific instrument used to detect the presence of electric charge on a body?

a) Ampere metre
b) Electroscope
c) Proto metre
d) All the above

Explanation

An electroscope is a scientific instrument used to detect the presence of electric charge on a body.

23. In the year 1600, which British physician invented the first electroscope?

a) William Gilbert
b) Stephen Gray

c) Benjamin Franklin
d) Abraham Bennet

Explanation

In the year 1600, British physician William Gilbert invented the first electroscope. It is the first electrical instrument.

24. There are how many types of electroscope?

a) Two
b) Three
c) Five
d) Six

Explanation

There are two types of electroscope: pith-ball electroscope and gold-leaf electroscope.

25. Which among the following statement is correct

1) An electroscope is made out of conducting materials, generally metal. It works on the principle that like charges repel each other. In a simple electroscope two metal sheets are hung in contact with each other. They are connected to a metal rod that extends upwards, and ends in a knob at the end.
2) If you bring a charged object near the knob, electrons will either move out of it or into it. This will result in charges on the metal leaves inside the electroscope. If a negatively charged object is brought near the top knob of the electroscope, it causes free electrons in the electroscope to move down into the leaves, leaving the top positive. Since both the leaves have negative charge, they repel each other and move apart.
3) If a positive object is brought near the top knob of the electroscope, the free electrons in the electroscope start to move up towards the knob. This means that the bottom has a net positive charge. The leaves will spread apart again.
    a) Both 1 and 2
    b) Both 1 and 3
    c) Both 2 and 3
    d) All 1, 2 and 3

26. The first electroscope developed in 1600 by William Gilbert was called ____

a) Beaufort
b) Thermos
c) Versorium
d) Blatner

Explanation

The first electroscope developed in 1600 by William Gilbert was called versorium. The versorium was simply a metal needle allowed to pivot freely on a pedestal. The metal would be attracted to charred bodies brought near.

27. The gold-leaf electroscope was developed in 1787 by a British scientist named _____

a) William Gilbert
b) Stephen Gray
c) Benjamin Franklin
d) Abraham Bennet

Explanation

The gold-leaf electroscope was developed in 1787 by a British scientist named Abraham Bennet.

28. Which are used in Gold-leaf electroscope because they are the best conductors of electric current?

a) Gold and aluminium
b) Gold and silver
c) Gold and copper
d) Gold and titanium

Explanation

Gold and silver are used in electroscope because they are the best conductors of electric current.

29. Which among the following statement is correct regarding Gold-leaf electroscope

1) Gold-leaf electroscope is made up of a glass jar. A vertical brass rod is inserted into the jar through a cork. The top of the brass rod has a horizontal brass rod or a brass disc. Two gold leaves are suspended from the brass rod inside the jar.
2) When the brass disc of the electroscope is touched by a charged object, electric charge gets transferred to the gold leaf through the rod. This results in the gold leaves moving closer to each other. This happens because both the leaves have similar charges.
3) The gold leaves resume their normal position after some time. This happens because they lose their charge. This process is called electrical discharge. The gold leaves would also be discharged when someone touches the brass rod with bare hands. In that case, the charge is transferred to the earth through the human body.

a) Both 1 and 2
b) Both 1 and 3
c) Both 2 and 3
d) All 1, 2 and 3

Explanation

When the brass disc of the electroscope is touched by a charged object, electric charge gets transferred to the gold leaf through the rod. This results in the gold leaves moving away from each other. This happens because both the leaves have similar charges.

30. Transfer of charge from one object to another is called ____

a) Possession
b) Convention
c) Charging
d) Isolation

Explanation

Transfer of charge from one object to another is called charging. In case of the gold leaves charge is transferred through the brass rods.

31. Which is produced by discharge of electricity from cloud to cloud or from cloud to ground?

a) Storm
b) Lightning
c) Rain
d) All the above

Explanation

Lightning is produced by discharge of electricity from cloud to cloud or from cloud to ground.

32. Which among the following statement is correct

1) Getting a shock from a doorknob after rubbing your foot on a carpet floor, results from discharge. Discharge occurs when protons on the hand are quickly pulled to the positively charged doorknob. This movement of proton, which is felt as a shock, causes the body to lose negative charge. Electric discharge takes place in a medium, mostly gases.
2) During thunderstorm air is moving upward rapidly. This air which moves rapidly carries small ice crystals upward. At the same time, small water drops move downward. When they collide, ice crystals become positively charged and move upward and the water drops become negatively charged and move downward.
3) So, the upper part of the cloud is positively charged and the lower part of the cloud is negatively charged. When they come into contact, electrons in the water drops are attracted by the positive charges in the ice crystals. Thus, electricity is generated and lightning is seen.
    a) Both 1 and 2
    b) Both 1 and 3
    c) Both 2 and 3
    d) All 1, 2 and 3

Explanation

Getting a shock from a doorknob after rubbing your foot on a carpet floor, results from discharge. Discharge occurs when electrons on the hand are quickly pulled to the positively charged doorknob. This movement of electrons, which is felt as a shock, causes the body to lose negative charge. Electric discharge takes place in a medium, mostly gases.

33. A safety measure devised to prevent people from getting shocked if the insulation inside electrical devices fails is called _____

a) Covering
b) Sharpening
c) Surfacing
d) Earthing

Explanation

A safety measure devised to prevent people from getting shocked if the insulation inside electrical devices fails is called Earthing. Electrical earthing can be defined as the process of transferring the discharge of electrical energy directly to the Earth with the help of lowresistance wire.

34. Which among the following statement is correct

1) Sometimes the lower part of the cloud which is negatively charged comes into contact with the positive charges accumulated near the mountains, trees and even people on the earth. This discharge produces lot of heat and sparks that results in what we see as lightning.
2) Huge quantities of electricity are discharged in lightning flashes and temperatures of over 30,000°C or more can be reached. This extreme heating causes the air to expand explosively fast and then they contract. This expansion and contraction create a shock wave that turns into a booming sound wave, known as thunder.
3) Lightning's extreme heat will vaporize the water inside a tree, creating steam that may burn out the tree. Sometimes thunder may be heard before the lightning is seen. This is because the distance between the clouds and the surface is very long and the speed of sound is much faster than the speed of light.

a) Both 1 and 2
b) Both 1 and 3
c) Both 2 and 3
d) All 1, 2 and 3

Explanation

Lightning's extreme heat will vaporize the water inside a tree, creating steam that may burn out the tree. Sometimes lightning may be seen before the thunder is heard. This is because the distance between the clouds and the surface is very long and the speed of light is much faster than the speed of sound.

35. Which among the following statement is correct

1) We get electrical energy from different sources. Battery is one such source. We use it in wall clocks, cell phones etc. For the working of refrigerators, air conditioners, washing machines, televisions, laptops and water heaters we use domestic power supply. Usually, an electric appliance such as a heater, an iron box, etc. are fitted with three wires namely live, neutral and earth. The earth wire is connected to the metallic body of the appliance. This is done to avoid accidental shock.
2) Suppose due to some defect, the insulation of the live wire inside an electric iron is burnt then the live wire may touch the metallic body of the iron. If the earth wire is properly connected to the metallic body, current will pass into the Earth through earth wire and it will protect us from electric shock. The Earth, being a good conductor of electricity, acts as a convenient path for the flow of electric current that leaks out from the insulation.
    a) Only 1
    b) Only 2
    c) Both 1 and 2
    d) None

36. Which is a device used to protect buildings from the effects of lightning?

a) Lightning arrestor
b) Lightning consumer
c) Lightning pioneer
d) Lightning solver

Explanation

Lightning arrestor is a device used to protect buildings from the effects of lightning. Lightning conductor consists of a metallic lightning rod that remains in air at the top of the building. Major portion of the metal rod and copper cable are installed in the walls during its construction. The other end of the rod is placed deep into the soil. When lightning falls, it is attracted by the metallic rods at the top of the building. The rod provides easy route for the transfer of electric charge to the ground.

37. If two terminals of a battery which are at different potential are connected by a metallic wire, electrons will flow from which terminal to which?

a) Positive terminal to Negative terminal
b) Negative terminal to Positive terminal
c) From both Positive and Negative
d) All the above

Explanation

We saw that when two oppositely charged spheres are connected by a metal wire, electrons flow from the sphere which is at lower potential to the sphere at higher potential. Similarly, if two terminals of a battery which are at different potential are connected by a metallic wire, electrons will flow from negative terminal to positive terminal.

38. The path through which electrons flow from one terminal to another terminal of the source, is called _____

a) Electric circuit
b) Electric macho
c) Electric fork
d) All the above

Explanation

The path through which electrons flow from one terminal to another terminal of the source, is called electric circuit.

39. Which among the following element consist of simple circuit?

a) Battery
b) Wire
c) Switch to control the circuit
d) All the above

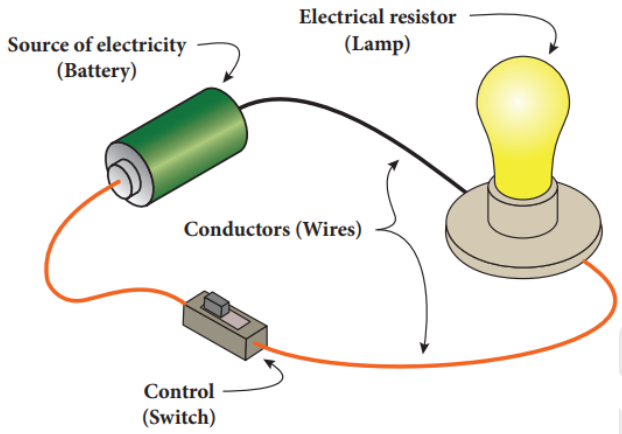
Explanation

A simple circuit consists of four elements: a source of electricity (battery), a path or conductor through which electricity flows (wire), a switch to control the circuit and an electrical resistor (lamp) which is any device that requires electricity to operate.

40. Which among the following statement is correct

1) The source can be a battery or the electric outlet in your room. The electrical resistor refers to the device that consumes the energy. Control (key) is the mechanism that is used to start, stop and regulate the electric current.
2) When the key is on, electrons from the battery flow through the circuit from the negative terminal through the wire conductor, then through the bulb and finally back to the positive terminal. The light glows when current is flowing through its filament.
    a) Only 1
    b) Only 2
    c) Both 1 and 2
    d) None

Explanation



41. Which is a species of fish which can give electric shocks of upto six hundred fifty watts of electricity?

a) Electric shark
b) Electric crab
c) Electric eel
d) Electric ray

Explanation

The electric eel is a species of fish which can give electric shocks of upto six hundred fifty watts of electricity. But if the eel repeatedly shocks, its electric organs become completely discharged. Then a person can touch it without being shocked.

42. Which circuit has more than one resistor (bulb) but only one path through which the electrons can travel?

a) Series circuit
b) Parallel circuit
c) Triangle circuit
d) Both parallel and series

Explanation

A series circuit is one that has more than one resistor (bulb) but only one path through which the electrons can travel. From one end of the battery the electrons move along one path with no branches through the resistors (bulbs) to the other end of the cell.

43. In a series circuit which through the circuit remains same throughout the circuit?

a) Current
b) Voltage

c) Both current and voltage
d) None of the above

Explanation

All the components in a series circuit are connected end to end. So, current through the circuit remains same throughout the circuit. But the voltage gets divided across the bulbs in the circuit.

44. How many ways we can connect the electric circuit?

a) Two
b) Three
c) Four
d) Six

Explanation

There are two basic ways in which we can connect these components. They are: series and parallel.

45. Which among the following statement is incorrect regarding series circuit?

1) In this series circuit, charges (electrons) from the battery have only one path to travel. Here battery, key and two bulbs are connected in series. Charges flow from the battery to each bulb, one at a time, in the order they are wired to the circuit. If one bulb in the circuit is unscrewed, the current flow to another bulb would be interrupted.
2) We put serial lights during festivals. If the lights are in a series circuit, one burned out bulb will keep all the lights off. If the number of bulbs in a circuit with a battery increases, the light will be dimmer because many resistors are acting on the same power from the battery.
    a) Only 1
    b) Only 2
    c) Both 1 and 2
    d) None

46. Let us consider three bulbs connected in series. Let I be the current through the circuit and V_1, V_2, V_3 be the voltage across each bulb. The supply voltage V = ?

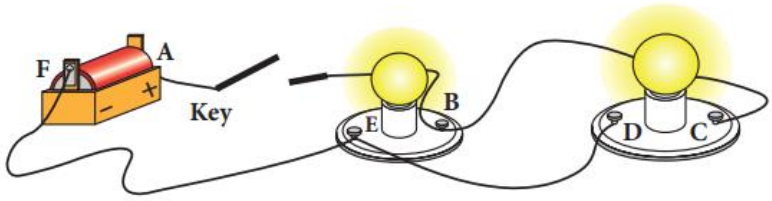
a) $V = V_1 \times V_2 \times V_3$
b) $V = V_1 + V_2 + V_3$
c) $V = 1/V_1 + 1/V_2 + 1/V_3$
d) $V = (V_1 \times V_2 \times V_3) + 1$

Explanation

Let us consider three bulbs connected in series. Let I be the current through the circuit and V_1, V_2, V_3 be the voltage across each bulb. The supply voltage V is the total of the individual voltage drops across the resistances.

$V = V_1 + V_2 + V_3$.

47. Which among the following statement is correct



1) In a parallel circuit, there is more than one resistor (bulb) and they are arranged on many paths. This means charges (electrons) can travel from one end of the cell through many branches to the other end of the cell. Here also current across the resistors (bulbs) remains the same but the voltage flowing through the circuit gets divided across each resistor.
2) In the above diagram current can flow in two paths: ABEFA and ABCDEFA. Here, it is clear that electricity from the cell can take either path ABEFA or path ABCDEFA to return to the cell. From the diagram you will notice that even when one resistor (bulb) burns out, the other bulbs will work because the electricity is not flowing through only one path.
3) All the light bulbs in our homes are connected in parallel circuit. If one bulb burns out, the other bulbs in the rooms will still work. The bulbs in a parallel circuit do not dim out as in series circuits. This is because the voltage across one branch is the same as the voltage across all other branches.
    a) Both 1 and 2
    b) Both 1 and 3
    c) Both 2 and 3
    d) All 1, 2 and 3

Explanation

In a parallel circuit, there is more than one resistor (bulb) and they are arranged on many paths. This means charges (electrons) can travel from one end of the cell through many branches to the other end of the cell. Here, voltage across the resistors (bulbs) remains the same but the current flowing through the circuit gets divided across each resistor.

48. Which among the following equation is correct for parallel circuit?

a) $V = V_1 + V_2 + V_3$
b) $I = I_1 + I_2 + I_3$
c) $I = V_1 I_1 + V_2 I_2 + V_3 I_3$
d) $I = V_1/I_1 + V_2/I_2 + V_3/I_3$

Explanation

Let V be the voltage across the bulbs and I_1, I_2, I_3 be the current across each bulb. The current I from the battery is the total of the individual current flowing through the resistances.

$I = I_1 + I_2 + I_3$.

49. Which among the following statement is correct

1) In a series circuit different amount of current flows through all the components. Voltage is different across different components. Components are arranged in a line. If one component breaks down, other components will function.
2) In a parallel circuit the current flowing through each component combines to form the current flow. Sum of the voltage through each component will be the voltage drawn from the source. Components are arranged parallel to each other. Other components will function even if one component breaks down.
    a) Only 1
    b) Only 2
    c) Both 1 and 2
    d) None

Explanation

In a series circuit same amount of current flows through all the components. Voltage is different across different components. Components are arranged in a line. If one component breaks down, the whole circuit will burn out.

50. Electric energy can be converted into which among the following energy?

a) Heat energy
b) Mechanical energy
c) Chemical energy
d) All the above

Explanation

When current is flowing through a conductor it produces certain effects. These are known as effects of electric current. These effects result in conversion of electrical energy into different forms of energies such as heat energy, mechanical energy, magnetic energy, chemical energy and so on.

51. The process of depositing a layer of one metal over the surface of another metal by passing electric current in called _____

a) Electroplating
b) Electrocutes
c) Electroforms

d) Electrojets

Explanation

Electroplating is one of the most common applications of chemical effects of electric current. The process of depositing a layer of one metal over the surface of another metal by passing electric current in called electroplating.

52. Which among the following statement is correct

1) Take two pieces of wire, an LED light and a battery, and make a simple electric circuit. Take some water in a glass and put the wires in the water as shown in the figure. We saw that electricity is conducted by metals. This activity shows that liquids also conduct electricity. When electric current is passed through a conducing solution, some chemical reactions take place in the solution.
2) These chemical reactions produce electrons which conduct electricity. This is called chemical effect of electric current. The decomposition of molecules of a solution into positive and negative ions on passing an electric current through it, is called oxidation. Oxidation has a number of applications. It is used in extraction and purification of metals. The most general use of oxidation is electroplating.
   a) Only 1
   b) Only 2
   c) Both 1 and 2
   d) None

Explanation

These chemical reactions produce electrons which conduct electricity. This is called chemical effect of electric current. The decomposition of molecules of a solution into positive and negative ions on passing an electric current through it, is called electrolysis. Electrolysis has a number of applications. It is used in extraction and purification of metals. The most general use of electrolyte is electroplating.

53. Which among the following coat is deposited on iron to protect it from corrosion and formation of rust?

a) Copper
b) Clay
c) Zinc
d) Mercury

Explanation

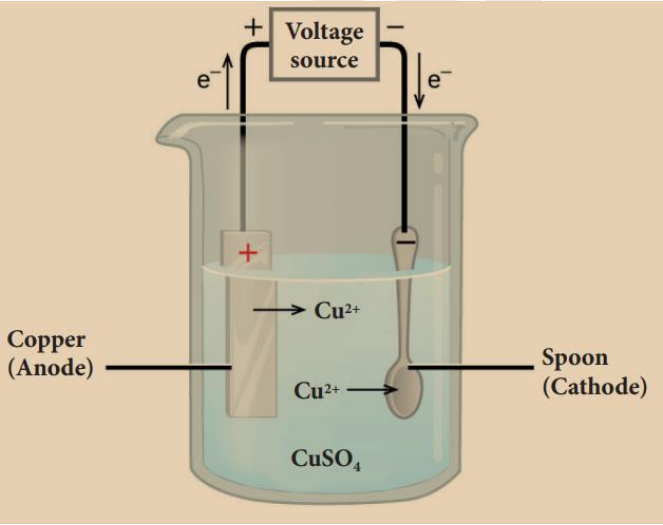
Electro plating is applied in many fields. We use iron in bridges and automobiles to provide strength. However, iron tends to corrode and rust. So, a coating of zinc is deposited on iron to

protect it from corrosion and formation of rust. Chromium has a shiny appearance. It does not corrode. It resists scratches. But chromium is expensive and it may not be economical to make the whole object out of chromium.

54. Which among the following statement is correct

1) Take a glass jar and fill it with copper sulphate solution. Take a copper metal plate and connect it to the positive terminal of battery. Connect an iron spoon to the negative terminal of the battery.
2) Now, dip them in the copper sulphate solution. When electric current is passed through the copper sulphate solution, you will find that a thin layer of copper metal is deposited on the iron spoon and an equivalent amount of copper is lost by the copper plate.
    a) Only 1
    b) Only 2
    c) Both 1 and 2
    d) None

Explanation



55. When electric current passes through a conductor, there is a considerable 'friction' between the moving electrons and the molecules of the conductor. During this process, electrical energy is transformed to what?

a) Chemical energy
b) Mechanical energy
c) Heat energy
d) All the above

Explanation

When electric current passes through a conductor, there is a considerable 'friction' between the moving electrons and the molecules of the conductor. During this process, electrical energy is transformed to heat energy. This is known as heating effect of electric current. The heat produced depends on the amount of resistance offered by the wire.

56. Which among the following wire offers very little resistance and does not get heated up quickly?

a) Tungsten
b) Copper
c) Nichrome
d) All the above

Explanation

Copper wire offers very little resistance and does not get heated up quickly. On the other hand, thin wires of tungsten or nichrome which are used in bulbs offer high resistance and gets heated up quickly.

57. Which among the following statement is correct

1) Electric cookers turn red hot when electric current is passed through the coil. The heat energy produced is absorbed by the cooking pot through conduction.
2) The heating element is placed at the bottom of the kettle which contains water. The heat is then absorbed by the liquid and distributed throughout the liquid by convection.
3) When current flows through the heating element, the heat energy developed is conducted to the heavy metal base, raising its temperature. This energy is then used to press clothes.
    a) Both 1 and 2
    b) Both 1 and 3
    c) Both 2 and 3
    d) All the above

58. What was the melting point of fuse wire?

a) Very high
b) Very low
c) Normal
d) None of the above

Explanation

Fuse wire has very low melting point.

59. Fuse is a strip of alloy wire which is made up of what?

a) Copper and tin
b) Copper and zinc

c) Lead and tin
d) Zinc and lead

Explanation

Fuse is a strip of alloy wire which is made up of lead and tin with a very low melting point. This can be connected to the circuit. The fuse is usually designed to take specific amount of current. When current passing through the wire exceeds the maximum limit, it gets heated up. Due to low melting point it melts quickly disconnecting the circuit. This prevents damage to the appliances.

60. Which among the following wire is used in the filaments of the bulbs?

a) Copper
b) Tungsten
c) Steel
d) Nichrome

Explanation

The tungsten wire is used in the filaments of the bulbs and nichrome wire is used as a heating element in household heating appliances. Heating effect of electric current can be seen in many devices.