EXERCISE # 1

A Very Short Answer Type Questions

Q.1 What are conductors ?

Q.2 What are insulators ?

Q.3 Why is distilled water conductor or an insulator ?

Q.4 What are electrodes ?

Q.5 What is an electrolyte ?

Q.6 What happens when an electric current is passed through a conducting solution ?

Q.7 Define electroplating.

Q.8 Apart from chemical effect, which other effect electric current produce ?

Q.9 Name one non-metal which a good conductor of electricity ?

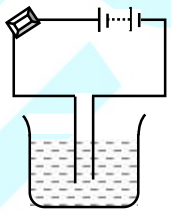
Q.10 What is electrolysis ?

Q.11 How can distilled water be made a good conductor of electricity ?

Q.12 In what proportion the two products from electrolysis of water are obtained ?

B Short Answer Type Questions

Q.13 Name three liquids, which when tested in the manner shown in figure, may cause the magnetic needle to deflect.



Q.14 In case of a fire, before the firemen use the water hoses, they shut off the main electrical supply for the area. Explain why they do this.

Q.15 Is it safe for the electrician to carry out electrical repairs outdoors during heavy downpour ? Explain.

Q.16 A child staying in a coastal region tests the drinking water and also the seawater with his tester. He finds that the compass needle deflects more in the case of seawater. Can you explain the reason ?

Q.17 Why should you not touch electrical appliances with wet hands ?

Q.18 How are bridges and automobiles prevented from rusting ?

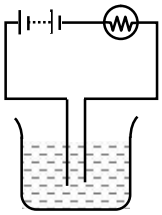
Q.19 What is the disadvantage of electroplating done in the factories ?

Q.20 Why is chromium used for electroplating ?

Q.21 Why the iron cans are electroplated with tin?

Q.22 After the electroplating of a spoon with silver, it was found that the anode has become thin why ?

Q.23 The bulb does not glow in the setup shown in figure. List the possible reasons. Explain your answer.



Q.24 The liquid is a conductor and the circuit is also complete, but the bulb does not glow. Why ?

Q.25 Explain the process of electroplating of copper.

Q.26 During electrolysis of water, why does hydrogen collect on cathode and oxygen collect on anode ?

EXERCISE # 2

Single Correct Answer type Questions

Q.1 The smallest particle of matter is .....

(A) an electron (B) a proton
(C) a neutron (D) a atom

Q.2 The neutron carries a charged of .....

(A) 1.66×10^{-19} Coulomb
(B) $-1.66 \times 10^{--19}$ Coulomb
(C) no charge
(D) none of these

Q.3 Static electricity .....

(A) does not flow
(B) flows in the circuit
(C) sometimes flows
(D) none of these

Q.4 The lightning occurs due to .....

(A) static electricity
(B) dynamic electricity
(C) thunder
(D) none of these

Q.5 Plastic and rubber are .....

(A) charged bodies
(B) conductors
(C) insulators
(D) none of these

Q.6 Which of the following is a good conductor of electricity ?

(A) wood (B) steel spoon
(C) dry air (D) chalk

Q.7 Which of the following is a bad conductor of electricity ?

(A) gold (B) mercury
(C) silver (D) plastics

Q.8 Electric charge can flow only through

(A) insulators (B) conductors
(C) both (A) and (B) (D) None of these

Q.9 Two objects rubbed against each other

(A) will lose electrons
(B) will repel each other
(C) will attract each other
(D) may attract or repel each other

Q.10 The gold leaf electroscope can be used to

(A) detect charge only
(B) detect or measure charge only
(C) detect, measure and find the nature of charge
(D) none of these

Q.11 Which of the following can be charged with static electricity ?

(A) metal (B) alloy
(C) insulator (D) semiconductor

Q.12 When two bodies are rubbed against each other, they acquire

(A) equal and like charges
(B) equal and unlike charges
(C) unequal and like charges
(D) unequal and unlike charges

Q.13 The two objects rubbed against each other

(A) will lose electrons
(B) will gain electrons
(C)one will lose and the other will gain electron
(D) none of these

Q.14 A positively charged ion is called

(A) atom (B) anion
(C) cation (D) neutral ion

Q.15 The instrument needed to measure the current flowing through a circuit is ?

(A) voltmeter (B) voltameter
(C) galvanometer (D) ammeter

Q.16 The process in which any electrolyte gets decomposed when electricity is passed through it, is called
(A) electrolysis (B) decomposition
(C) dissociation (D) splitting

Q.17 The process of depositing a thin layer of any superior metal over an object of a cheaper metal with the help of electricity is called
(A) electrorefining (B) electrometallurgy
(C) electroplating (D) electrowinning

Q.18 Which of the following is the most essential for an electric circuit to work ?
(A) A switch
(B) An electric current
(C) A switch board
(D) none of these

Q.19 The connecting wires used in an electric circuit are usually made of
(A) gold (B) silver
(C) copper (D) plastic

Q.20 Pure or distilled water is a/an
(A) conductor (B) insulator
(C) partial conductor (D) none of these

Q.21 Water supplied in households and normal water is a/an
(A) conductor (B) insulator
(C) partial conductor (D) none of these

Q.22 Which of the following liquids is a conductor of electricity ?
(A) Kerosene (B) Cooking oil
(C) Alcohol (D) Vinegar

Q.23 In an electrolyic cell, the electrode which is connected to the positive terminal of a battery is called
(A) Anode (B) Cathode
(C) Antinode (D) None of these

Q.24 Electrostatics deals with the study of the
(A) Charges at rest
(B) Charges in motion
(C) Charges both at rest and in motion
(D) Charges neither at rest nor in motion

Q.25 The surest test for a body to be a charged body or not is
(A) Attraction
(B) Repulsion
(C) Both attraction and repulsion
(D) Neither attraction nor repulsion

Q.26 A body possessing an equal number of positive and negative charges is
(A) Neutral
(B) Negatively charged
(C) Positively charged
(D) None of these

Q.27 In induction, the charge possessed by the charging body and charged body are
(A) Different
(B) Same
(C) Can be same or different
(D) Both the bodies become neutral

Q.28 In induction, the transfer of charges takes place by
(A) Touching
(B) Rubbing
(C) From a distance
(D) Either by rubbing or touching

Q.29 The S.I. unit of current is –
(A) Ampere (B) Volt
(C) Ohm (D) Mho

Q.30 Which of the following is a conductor ?
(A) Salt solution (B) Sugar solution
(C) Mica (D) Plastic, PVC

Q.31 The charge carried by cation is
(A) positive
(B) negative
(C) positive or negative
(D) None of these

Q.32 During purification of metals, the refined metal is obtained at the
(A) cathode
(B) anode
(C) surface of electrolyte
(D) None of these

Q.33 During electroplating, the pure metal is deposited at the
(A) Cathode
(B) Anode
(C) Both cathode and anode
(D) At bottom of the electrolytic cell

Q.34 In an electrolytic cell, the electrode that is connected to the positive terminal of the battery is called
(A) Cation (B) Cathode
(C) Anion (D) Anode

Q.35 The process by which a chemical change takes place in a substance when electric current is passed through it is called
(A) Electrolysis
(B) Electroplating
(C) Electrodes
(D) Thermionic conduction

Q.36 Adding a soluble metallic salt to water
(A) Increases its electrical conductivity
(B) decreases its electrical conductivity
(C) never produces any change in the conductivity
(D) none of these

Q.37 Electroplating is a method of
(A) making plates using electricity
(B) plating a metal with another metal
(C) coating any object with an electrically conducting plate
(D) coating a metal with another metal by passing an electric current

Q.38 An electrolyte is
(A) a light electric cell
(B) a liquid that conducts electricity
(C) a metal
(D) none of these

Q.39 When electric current is passed through acidulated water, the gases produced are
(A) hydrogen and oxygen
(B) hydrogen and ozone
(C) oxygen and hydrogen perioxide
(D) None of these

Q.40 The object to be electroplated is made
(A) cathode
(B) anode
(C) cathode or anode
(D) None of these

Q.41 The method of purifying metals by passing electricity is called
(A) electrolysis
(B) electroplating
(C) electrorefining
(D) None of these

ANSWER KEY

EXERCISE-1

Sol.1 Materials which allow electric current to flow through them are called conductors.

Sol.2 Materials which do not allow electric current to flow through them are called insulators.

Sol.3 Distilled water is an insulator because there are no salts dissolved in it.

Sol.4 Electrodes are the terminals through which current is passed into a liquid.

Sol.5 An electrolyte is a liquid which is a good conductor of current.

Sol.6 A chemical reaction takes place when electric current is passed through a conducting solution.

Sol.7 Electroplating is the process of depositing a layer of any desired metal on another metallic object by means of electricity.

Sol.8 Electric current can produce magnetic effect also.

Sol.9 Graphite

Sol.10 Electrolysis is the breaking up of a compound from its solution on passing electric current through the electrolyte.

Sol.11 Distilled water can be made a good conductor of electricity by adding acid, base or salt to it.

Sol.12 By volume of hydrogen gas is twice the volume of oxygen gas.

Sol.13 The compass needle will show deflection with tap water, lemon juice and sodium chloride solution.

Sol.14 Firemen shut off the main electrical supply for the area because water is a good conductor of electricity and the firemen can get electrocuted.

Sol.15 No, it is not advisable for wiremen to carry out electrical repairs during heavy downpour because water is a good conductor of electricity and the person can get shock.

Sol.16 The sea water contains more salts dissolved in it as compared to the tap water. So, the deflection of the compass needle is more.

Sol.17 Water is a solution of salts and so it is a good conductor of electricity. Therefore, we can be electrocuted.

Sol.18 Bridges and automobiles are prevented from rusting by plating them with zinc.

Sol.19 The disposal of the used conducting solution is hazardous and can cause environmental pollution. There are specific disposal guidelines for environmental protection.

Sol.20 Chromium is used for electroplating because it has a shiny appearance, does not corrode and is scratch resistant.

Sol.21 Tin is less reactive than iron. Thus food, stored in iron cans, is prevented from being spoilt by the iron by electroplating it by tin.

Sol.22 During electroplating, the silver metal from the anode is deposited on the cathode. Therefore, it becomes thin.

Sol.23 It cannot be said for sure that liquid does not conduct electricity because :

(a) may be the cells are weak.

(b) may be the current is so weak that it does not heat the filament of the bulb, so that it can glow.

Sol.24 The bulb does not glow even though the circuit is complete because the current is too small. The filament of the bulb is heated due to current and then it glows.

Sol.25 When electric current is passed through copper sulphate solution, the copper sulphate breaks up into copper and sulphate ions. The free copper gets drawn to the plate connected to the negative terminal of the battery and gets deposited on that plate. From the other plate an equal amount of copper gets dissolved in the solution. The loss of copper from solution is compensated and the process goes on.

Sol.26 When electric current is passed in water hydrogen ions (H^+) move towards cathode and get collected over it. Hydroxyl ions (OH^-) move towards the anode and oxygen is collected on it.

EXERCISE-2

Ques	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans	D	C	A	A	C	B	D	B	C	C	C	B	C	C	D
Ques	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans	A	C	B	C	B	A	D	A	A	B	A	A	C	A	A
Ques	31	32	33	34	35	36	37	38	39	40	41				
Ans	A	A	A	D	A	A	D	B	A	A	C				