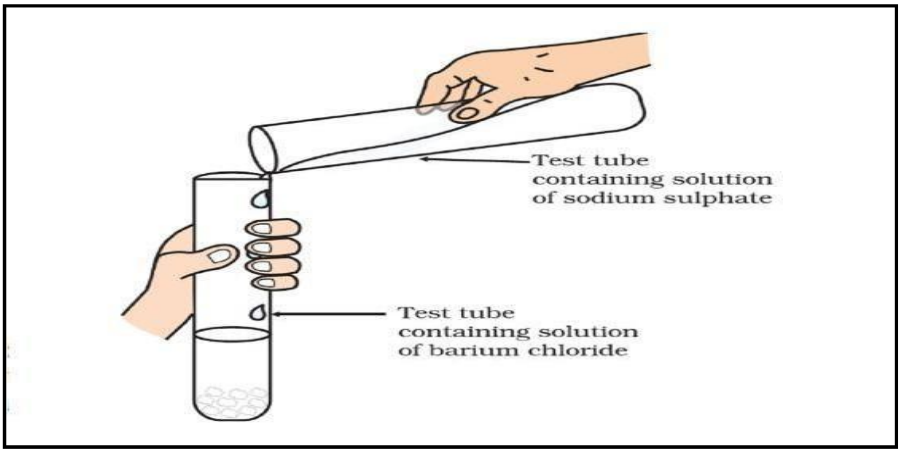
DEHRADUN PUBLIC SCHOOL
ASSIGNMENT 2023-24
SUBJECT-SCIENCE (086)
CLASS-X

Chapter-1(Chemical Reactions)

Objective Type Questions

Q1.



Identify the product which represent the solid state in the above reaction

a. Barium chloride
b. Barium sulphate
c. Sodium chloride
d. Sodium sulphate

Q2. Oxidation is a process which involves

a. Addition of oxygen
b. Addition of hydrogen
c. Removal of oxygen
d. None of these

Q3.A chemical reaction has taken place if there is

a.Change in state.
b. Change in colour
c. Evolution of a gas
d. All of the above

Q4. Reema took 5 ml. of lead nitrate solution in a beaker and added approximately 4ml. of potassium iodide solution to it .What would she observe?

a.The solution turned red
b.Yellow precipitate was formed
c.White precipitate was formed
d.The reaction mixture became hot

Q5. Which of the following gases can be used for storage of fresh sample of an oil for a long time?

a.Carbon dioxide or Oxygen
b. Nitrogen or Oxygen
c.Carbon dioxide or Helium
d. Helium or Nitrogen

Q6. Assertion(A): Quicklime reacts vigorously with water releasing a large amount of heat.
Reason(R): The above reaction is an exothermic reaction.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
c. If Assertion is true but Reason is false.
d. If Assertion is false but Reason is true.

Q7. Assertion(A): In a balanced chemical equation, total mass of each element towards reactant side=total mass of the same element towards product side.
Reason(R): Mass can neither be created nor destroyed during a chemical change.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
c. If Assertion is true but Reason is false.

d. If Assertion is false but Reason is true.

Q8. Assertion(A): Burning of natural gas is an endothermic process.
Reason(R): Methane gas combines with oxygen to produce carbon dioxide and water.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
c. If Assertion is true but Reason is false.
d. If Assertion is false but Reason is true.

Short Answer Type Questions

Q9. Explain various types of chemical reactions with examples.

Q10. Write two observations when lead nitrate is heated in a test tube.Name the type of reaction also.

Q11. 2 g of silver chloride is taken in a china dish and the china dish is placed in sunlight for sometime. What will be your observation in this case? Write the chemical reaction involved in the form of a balanced chemical equation.Identify the type of chemical reaction.

Q12. Give Reasons.

i. Magnesium ribbon should be cleaned before burning in air.
ii. Why is combustion reaction an oxidation reaction?
iii. Oil and fat containing food items flushed with nitrogen.Why ?
iv. We store silver chloride in dark coloured bottles.

Q13. In electrolysis of water, why is the volume of gas collected over one electrode double that of the other electrode?

Q14. Name the compound used for testing CO_2 gas.

Q15. Identify the oxidising agent in the following reaction.

i. $Pb_3O_4 + 8\,HCl \longrightarrow 3PbCl_2 + Cl_2 + 4H_2O$

ii. $2Mg + O_2 \longrightarrow 2MgO$

Long Answer Type Questions

Q16. i. Write a balanced chemical equation for process of photosynthesis.

ii. When do desert plants take up carbon dioxide and perform photosynthesis?

Q17. Write the chemical equation of the reaction in which the following changes have taken place with an example of each.

i. Change in colour
ii. Change in temperature
iii. Formation of precipitate

Q18. Write the balanced chemical equation.

i. Ferrous sulphate crystals on heating, break into ferric oxide, sulphur dioxide and sulphur trioxide.
ii. Copper nitrate on heating gives copper oxide, oxygen gas and nitrogen dioxide.
iii. Lead nitrate reacts with potassium iodide to give lead iodide and potassium nitrate.
iv. Barium chloride reacts with aluminium sulphate to give aluminium chloride and barium sulphate.

Q19. i. Define a balanced chemical equation. Why should an equation be balanced?

ii. Write the balanced chemical equation for the following reaction.

a. Phosphorus burns in presence of chlorine to form phosphorus penta chloride.
b. Burning of natural gas.
c. The process of respiration.

Q20. A zinc plate was put into a solution of copper sulphate kept in a glass container. It was found that blue colour of the solution gets fader and fader with the passage of time. After few days, when zinc plate was taken out of the solution, a number of holes were observed on it.

i. State the reason for changes observed on the zinc plate.

ii. Write the chemical equation for the reaction involved.

Cased -Based Questions

Q21. Rahul is a skilled painter. He mixed a white coloured powder,compound X with water.The compound X reacted vigorously with water to produce a compound Y and a large amount of heat .Then Rahul used the compound Y for white washing the walls .Customer was not satisfied with the work of Rahul as walls were not shining.But Rahul guaranteed him that the walls would shine after 2-3 days .And after 3 days of white wash, the walls became shiny.

Read the above passage carefully and give the answer of the following questions.

i. Name the compound X ,that Rahul mixed with water.

ii. Name the compound Y that Rahul got after mixing X with water.

iii. Write the chemical reaction responsible for shiny finish of the walls.

Chapter-2(Acids, Bases and Salts)

Objective Type Questions

Q1. What happens when a solution of an acid is mixed with a solution of a base in a test tube?

i.Temperature of the solution decreases

ii.Temperature of the solution increases

iii.Temperature of the solution remains the same

iv.Salt formation takes place

a. i. and iv. b. i. and iii.

c. ii. only d. ii. and iv.

Q2. Which one of the following salts does not contain water of crystallisation?

a. Blue vitriol b. Baking soda

c. Washing soda d. Gypsum

Q3. In terms of acidic strength, which one of the following is in the correct increasing order?

a. Water < Acetic acid < Hydrochloric acid

b. Water < Hydrochloric acid < Acetic acid

c. Acetic acid < Water < Hydrochloric acid

d. Hydrochloric acid < Water < Acetic acid

Q4. A substance X, turns red litmus blue, it will change methyle orange to

a. Yellow b. pink c. red d. colourless

Q5. Select from the following statement which is true for base

a. Bases are bitter and turn blue litmus red

b. Bases have pH less than 7

c. Bases turn pink when a drop of phenolphthalein is added to them

d. Bases are sour and change red litmus to blue

Q6 . Assertion(A): Salts are the products of an acid base reaction.

Reason(R): Salts may be acidic or basic.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

c. If Assertion is true but Reason is false.

d. If Assertion is false but Reason is true

Q7. Assertion(A): When common salt is kept open, it absorbs moisture from the air.

Reason(R): Common salt contains magnesium chloride.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

c. If Assertion is true but Reason is false.

d. If Assertion is false but Reason is true.

Q8. Assertion(A): Plaster of Paris should be stored in a moisture proof container.

Reason(R): Plaster of Paris is a powdery mass that absorbs water to form a hard solid gypsum.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

c. If Assertion is true but Reason is false.

d. If Assertion is false but Reason is true.

Short Answer Type Questions

Q9. Give reasons.

i. Curd and sour substances are not kept in brass and copper vessels.

ii. Dry HCL gas does not change the colour of the dry litmus paper.

iii. It is recommended that acid should be added to water and not water to the acid.

iv. Distilled water does not conduct electricity, whereas rain water does.

Q10. Define the following terms.

neutralization reaction, chloralkali process, and antacids.

Q11. Name the acid present in the following.

i. Tomato ii. Vinegar iii. Tamarind

Q12. Explain, how antacid works.

Q13. A student detected the pH of four unknown solutions A, B, C and D as follows 11, 5, 7 and 2. Predict the nature of the solution.

Q14. 'pH has a great importance in our daily life'.Explain by giving three examples.

Q15. Explain the action of dil.HCl on the following using chemical equations.

i. Magnesium ribbon

ii. Sodium hydroxide

iii. Crushed egg shells

Long Answer Type Questions

Q16. Equal length of magnesium ribbon are taken in two test tubes 'A' and 'B'. H_2SO_4 is added to testtube 'A' and H_2CO_3 in the test tube 'B' in equal amounts.

i. Identify the test tube showing vigorous reaction.

ii. Give reason to support your answer.

iii. Name the gas liberated in both the tubes. How will you prove its liberation?

Q17. Describe an activity with diagram to illustrate that the reaction of metal carbonates and metal bicarbonates with acids produces carbon dioxide. Write the relevant equations of all the reactions that take place. Name any two forms in which calcium carbonate is found in nature.

Q18. Identify the acid and the base whose combination forms the common salt that you use in your food.

i. Write its formula and chemical name of this salt. Name the source from where it is obtained.

ii. What is rock salt? Mention its colour and the reason due to which it has this colour.

iii. What happens when electricity is passed through brine? Write the chemical equation for it.

Q19. Dry pellets of a base 'X' when kept in open absorbs moisture and turns sticky. The compound is also formed by chlor-alkali process. Write chemical name and formula of X. Describe chlor-alkali process with balanced chemical equation. Name the type of reaction occurs when X is treated with dilute hydrochloric acid. Write the chemical equation.

Q20. Identify the compound of calcium which is yellowish white powder and is used for disinfecting drinking water. Write its chemical name and formula. How is it manufactured? Write the chemical equation for the reaction involved. Also list two other uses of the compound.

Case-based Type Questions

Q21. Plaster of Paris is a quick setting gypsum plaster consisting of a fine white powder which hardens when moistened and allowed to dry. Plaster of Paris is so called because of its preparation from the abundant gypsum found near Paris. It does not generally shrink or crack

when dry, making it an excellent medium for casting moulds. It is commonly used to precast and hold parts of ornamental plaster work placed on ceilings and cornices. It is also used in medicine to make plastic casts to immobilize open bones while they heal though many modern orthopaedic cast are made of fiberglass or thermoplastics. Plaster of Paris is prepared by heating calcium sulphate dihydrate to 120-180^{0}C.

Read the above passage carefully and answer the following questions.

i.What is the other name of Calcium sulphate dihydrate ?

ii.What is the Chemical name of Plaster of Paris?

iii.Plaster of Paris is so named ,Why?

OR

Write any one property of Plaster of Paris.

Chapter-3(Metals and Non Metals)

Objective Type Questions

Q1. Which of the following oxide(s) of iron would be obtained on prolonged reaction of iron with steam?

a. FeO b. Fe_2O_3

c. Fe_3O_4 d. Fe_2O_3 and Fe_2O_4

Q2. The highly reactive metals like Sodium, Potassium, Magnesium, etc. are extracted by the

a. Electrolysis of their molten chloride b. Electrolysis of their molten oxides

c. Reduction by aluminium d. Reduction by carbon

Q3. Which of the following non-metal is lustrous?

a. Sulphur b. Oxygen

c. Nitrogen d. Iodine

Q4. In thermite process ,the reducing agent used is

a. Calicium b. Sodium c. Coke d. Aluminium powder

Q5. Galvanisation is a method of protecting iron from rusting by coating with a thin layer of

a. Gallium b. Aluminium c. Zinc d. Silver

Q6. Assertion(A): Platinum, gold and silver are used to make jewellery.

Reason(R): These are least reactive metals.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

c. If Assertion is true but Reason is false.

d. If Assertion is false but Reason is true.

Q7. Assertion(A): Carbon reacts with oxygen to form carbon dioxide which is an acidic oxide.
Reason(R): Non-metals form acidic oxides.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
c. If Assertion is true but Reason is false.
d. If Assertion is false but Reason is true.

Q8. Assertion(A): Metals are good conductors of heat.
Reason(R): Silver and copper are poor conductors of heat.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
c. If Assertion is true but Reason is false.
d. If Assertion is false but Reason is true.

Short Answer Type Questions

Q9. Write one example each of

i. a metal which is so soft that, it can be cut with knife and a non-metal which is the hardest substance.
ii. a metal and a non-metal which exist as liquid at room temperature.

Q10. Mention the names of the metals for the following.

i. Two metals which are alloyed with iron to make stainless steel.
ii. Two metals which are used to make jewellery.

Q11. Differentiate between metals and non-metals on the basis of their physical and chemical properties.

Q12. Define the following terms: amphoteric oxide, aquaregia, thermite process, roasting, calcinations and reactivity series.

Q13. i.Write electron dot structure of sodium, oxygen and magnesium.
ii.Show the formation of Na_2O and MgO by transfer of electrons.

Q14. Of the three metals X,Y and Z . X react with cold water.Y with hot water and Z with steam only . Identify X,Y and Z and also arrange them in order of increasing reactivity.

Q15. What are the constituents of solder alloy? Which property of solder makes it suitable makes it suitable for welding electrical wires?

Long Answer Type Questions

Q16. How is the method of extraction of metals high up in the reactivity series different from that for metals in the middle? Why can the same process not be applied for them? Name the process used.

Q17. Explain electrolytic refining process of copper with the help of a diagram and also explain what happens at cathode and anode.

Q18. i. Write electron dot structure for chlorine (At No. 17) and calcium (At No. 20). Show the formation of calcium chloride by transfer of electrons.
ii. Identify the nature of above compound and explain three physical properties of suchcompound.

Q19. i. An ore on treatment with dilute hydrochloric acid produces brisk effervescences. What type of ore is this? What steps will be required to obtain metal from the enriched ore?
ii. Copper coin is kept immersed in silver nitrate solution for some time. What change will take place in coin and colour of the solution ? Write balanced chemical equation of the reaction involved.

Q20. i. Define activity series of metals. Arrange the metals gold, copper, iron and magnesium in order of their increase in reactivity.
ii. What will you observe when
a. Some zinc pieces are put in copper sulphate solution.
b. Some silver pieces are put into green coloured ferrous sulphate solution.

Case-based Type Questions

Q21. All metals do not react with oxygen at the same rate. Different metals show different reactivities towards oxygen. Metals such as potassium and sodium react so vigorously that they catch fire if kept in open. Hence, to protect them and to prevent accidental fire, they are kept immersed in kerosene oil. At ordinary temperature the surfaces of metals such as magnesium, aluminium, zinc, lead etc. are covered with a thin layer of oxide. The protective oxide layer prevents the metal from further oxidation. Iron does not burn on heating but iron filling burn vigorously when sprinkled in the flame of the burner. Copper does not burn, but the hot metal is coated with a black colour layer of copper oxide. Silver and gold do not react with oxygen even at high temperature.

Read the above passage carefully and answer the following questions.

i. When copper is heated in air then it does not burn but react with oxygen to form a black colour compound. What is the name of black coloured compound ?

ii. Which metal has low reactivity among Ag, Au,K ?

iii.Write the arrangement of following metals in increasing order of their reactivity .

Ag , Fe , Al , Na

Chapter-4(Carbon and its Compounds)

Objective Type Questions

Q1 . C_3H_8 belongs to the homologous series of

a. Alkynes b. Alkenes

c. Alkanes d.Cyclo alkanes

Q2. The property of self-linkage among identical atoms to form long chain compounds is known as

a. Catenation b. Isomerisation

c. Superposition d. Halogenation

Q3. Name the functional group present in CH_3COCH_3.

a. Alcohol b. Carboxylic acid

c. Ketone d. Aldehyde

Q4. The property of self-linkage among identical atoms to form long chain compounds is known as

a. Catenation b. Isomerisation

c. Superposition d. Halogenation

Q5. Usaturated hydrocarbons adds hydrogen in the presence of catalyst palladium, this reaction is known as

a. Addition Reaction b. Substitution Reaction

c. Elimination Reaction d.Combustion Reaction

Q6. Assertion(A) : If the first member of a homologous series is methanal, its third member will be propanal.

Reason (R) : All the members of a homologous series show similar chemical properties.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

c. If Assertion is true but Reason is false.

d. If Assertion is false but Reason is true.

Q7. Assertion(A) : Carbon is the only element that can form large number of compounds.

Reason (R) : Carbon is tetravalent and shows the property of catenation.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

c. If Assertion is true but Reason is false.

d. If Assertion is false but Reason is true.

Q8. Assertion(A) :Diamond is a good conductor of electricity and heat.

Reason (R) : In diamond, each carbon atom is bonded to four other carbon atoms forming a rigid 3-D structure.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

c. If Assertion is true but Reason is false.

d. If Assertion is false but Reason is true.

Short Answer Type Questions

Q9. In electron dot structure, the valence shell electrons are represented by dots or cross.

i. The atomic number of magnesium is 12. Write it's electronic configuration.

ii. Draw the electron dot structure of magnesium molecule.

Q10. Write the molecular formula of the second and third member of the homologous series whose first member is methane.

Q11. i. Name a cyclic unsaturated carbon compound.

ii. Draw the structures of three crystalline allotropes of carbon.

Q12. Write the molecular formula of ethene and draw its electron dot structure.

Q13. Define homologous series with example.

Q14. What are covalent compound ? Why are they different from ionic compounds? List their three characteristic properties.

Q15. What is saponification ? Write the rection involved in this process.

Long Answer Type Questions

Q16. Compare the ability of catenation of carbon and silicon.

Q17. i. How does ethanoic acid react with sodium hydrogen carbonate? Give the equation of the reaction which takes place.

ii. Why are carbon and its compounds used as fuels for most applications?

iii. Which of the two is better for washing clothes when the water is hard soap or detergent? Give the reason for your answer.

Q18. State the reason why carbon can neither form C^{4+} cations nor C^{4-} anions, but forms covalent compounds. Also state reasons to explain why covalent compounds-

i. are bad conductors of electricity?

ii. have low melting and boiling points?

Q19. Write the name and structure of an alcohol with three carbon atoms in its molecule.

Q20. i. What is meant by 'allotropes'? Name the various allotropes of carbon.

ii. Why does carbon form largest number of compounds?

iii. Why are some of these called saturated and other unsaturated compounds?

Case-based Type Questions

Q21. The compounds which have the same molecular formula but differ from each other in physical or chemical properties are called isomers and the phenomenon is called isomerism. When the isomerism is due to difference in the arrangement of atoms within the molecule, without any reference to space, the phenomenon is called structural isomerism. In other words. structural isomers are compounds that have the same molecular formula but different structural formulas, i.e., they are different in the order in which different atoms are linked. In these compounds, carbon atoms can be linked together in the form of straight chains, branched chains or even rings.

Read the above passage carefully and answer the following questions.

i. Write the sets of compounds have same molecular formula.

ii.In order to form branching, an organic compound must have how many minimum carbon atom?

iii.Write the example of an isomeric pair.

Chapter-5(Life Processes)

Objective Type Questions

Q1. The following changes take place in an athlete's body during a 100 m race. Which change occurs first?

a. Increased availability of oxygen to muscles
b. Increased breathing rate
c. Increased carbon dioxide concentration in the blood
d. Increased production of carbon dioxide by muscles

Q2. What prevents backflow of blood inside the heart during contraction?

a. Valves in heart
b. Thick muscular walls of ventricles
c. Thin walls of atria
d. All of the above

Q3. During vigorous physical exercise, lactic acid is formed from glucose inside the muscle cells because

a. There is lack of oxygen
b. There is lack of water
c. There is excess of carbon dioxide
d. None of the above

Q4. Opening and closing of stomatal pore depends on

a. Atmospheric temperature
b. Oxygen concentration around stomata
c.Carbon dioxide concentration around stomata
d. Water content in the gurd cells

Q5. In which of the following groups of organisms, blood flows through the heart only once during one cycle of passage through the body?

a. Rabbit , Parrot ,Turtle
b.Frog, Crocodile,Pigeon
c. Whale, Labio, Penguin
d. Shark, Dog fish,Sting ray

Q6. Assertion (A): Lungs always contain a residual volume of air.

Reason (R): It provides sufficient time for oxygen to be absorbed and for carbon dioxide to be released.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
c. If Assertion is true but Reason is false.
b. If Assertion is false but Reason is true.

Q7. Assertion (A): Urinary tract infection is common in women than in men.

Reason (R): Urethra is shorter in women than in men.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
c. If Assertion is true but Reason is false.
d. If Assertion is false but Reason is true.

Q8. Assertion (A):Herbivores have longer small intestine than carnivores.

Reason (R): Carnivores can digest cellulose due to the prescence of enzyme,cellulase.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
c. If Assertion is true but Reason is false.
d. If Assertion is false but Reason is true.

Short Answer Type Questions

Q9. What is the function of mucus in gastric gland?

Q10. Give two functions of bile juice. From which organ it is released?

Q11. State the basic difference between the process of respiration and photosynthesis.

Q12. Why are lungs divided into very small sac-like structures called alveoli?

Q13. What will happen if the diaphragm of a person gets ruptured in an accident?

Q14. Is 'nutrition' a necessity for an organism? Discuss.
Q15. Why does absorption of digested food occur mainely in the small intestine?

Long Answer Type Questions

Q16. Why is respiration considered an exothermic process?

Q17. Give reasons for the following.

i. Arteries are thick walled.
ii. Blood goes only once through the heart in fishes.
iii. Plants have low energy needs.

Q18. Explain how the separation of oxygenated and deoxygenated blood is useful in humans.

Q19. Draw a neat diagram of sectional view of human heart and label on it

i. Pulmonary artery ii. Pulmonary vein.

Q20. Give reasons for the following:

i. Presence of cartilaginous rings in trachea.
ii. Why is small intestine in herbivore animals longer than in carnivore animals?
iii. What will happen if mucus is not secreted by the gastric glands?

Case-based Type Questions

Q21. In human beings, the alimentary canal is a long tube with muscular walls, glandular epithelial lining and varying diameter. It extends from the mouth to the anal opening (anus). When uncoiled, the alimentary canal measures nearly 9 metre long tube in which the ducts of several digestive glands open to secrete their respective digestive secretions. The alimentary canal consists of several organs. These organs are given below in order in which they are involved in digesting food: mouth, buccal cavity, pharynx, oesophagus, stomach, small intestine, large intestine.

Read the above passage carefully and answer the following questions.

i. Salivary glands are present in which region of the alimentary canal?
ii. Which glands secretes bile juice ?
iii.What is digestion?

Chapter-6(Control and Coordination)

Objective Type Questions

Q1. Response of plant roots towards water is called

a. Chemotropism b. Phototropism
c. Hydrotropism d. Geotropism

Q2. Which nerves transmit impulses from the central nervous system towards muscle cells?

a. Sensory nerves b. Motor nerves
c. Relay nerves d. Cranial nerves

Q3. A diabetic patient suffers from deficiency of which hormone?

a. Thyroxine b. Testosterone
c. Oestrogen d. Insulin

Q5. The movement of shoot towards light is

a. Geotropism b. Hydrotropism
c. Chemotropism d. Photptropism

Q6. The main function of abscisic acid in plants is to

a. Increase the length of cell b. Promote cell division
c.Inhibit growth d. Promote growth of stem

Q7. Assertion(A): Insulin regulates blood sugar level.
Reason (R): Insufficient secretion of insulin will cause diabetes.
a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
c. If Assertion is true but Reason is false.
d. If Assertion is false but Reason is true.

Q8. Assertion(A): A receptor is a specialized group of cells in a sense organ that perceive a particular type of stimulus.
Reason (R): Different sense organs have different receptors for detecting stimuli.
a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
c. If Assertion is true but Reason is false.
d. If Assertion is false but Reason is true.

Q9. Assertion(A): Cerebellum controls the coordination of body movement and posture.
Reason (R): Medulla oblongata controls and regulates the centre for coughing, sneezing and vomiting.
a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
c. If Assertion is true but Reason is false.
d. If Assertion is false but Reason is true.

Short Answer Type Questions

Q10. Trace the sequence of events which occur when a bright light is focused on your eyes.
Q11. Why are the electrical-chemical signals not an efficient means of communication in plants?
Q12. How is reflex arc formed?
Q13. Name the hormone that needs to be administered to
i. increase the height of a dwarf plant.
ii. cause rapid cell division in fruits and seeds.
Q14. Nervous and hormonal system together perform the function of control and coordination in human beings. Justify the statement.
Q15. What is insulin? Why are some patients of diabetes treated by giving injections of insulin?

Long Answer Type Questions

Q16. How are sensory neurons different from motor neurons?
Q17. How does feedback mechanism regulate the hormone action? Explain with the help of an example.
Q18. With the help of an activity demonstrate geotropism in plants.
Q19. Give the various functions performed by the plant hormones.
Q20. With the help of a diagram describe the central nervous system in human beings.

Case-based Type Questions

Q21. Organisms move in response to various kinds of stimuli like light, heat, nutrients/food, etc. All the activities in animals are controlled and coordinated by the nervous and endocrine system. Hormones are chemical messengers, which assist the nervous system in carrying out various functions. They are secreted by endocrine glands. Hormones in plants coordinate the movements.
Read the above passage carefully and answer the following questions.
i. What is the term to use for the directional movement orientation of part of plant in response to life ?
ii. Write the name of hormone which increases the fertility in males .
iii. What is the role of thyroxin in human body ?

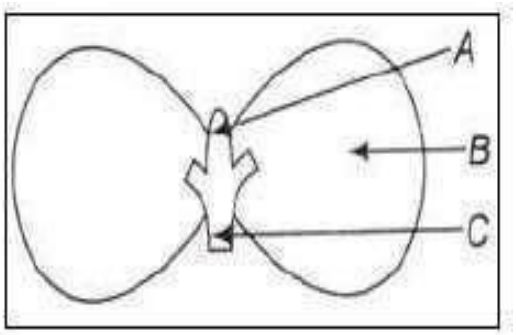
OR

How the chemical signal is transmitted from one cell to another cell?

Chapter-7(How do Organism Reproduce)

Objective Type Questions

Q1. In the below figure the parts A, B and C are sequentially



a. Cotyledon, plumule and radical
b. Plumule, radicle and cotyledon
c. Plumule, cotyledon and radical
d. Radicle, cotyledon and plumule

Q2. Which of the following is a contraceptive?

a. Copper T
b. Condom
c. Diaphragm
d. All of these

Q3. The correct sequence of organs in the male reproductive system for transport of sperms is

a. Testes → vas deferens → urethra
b. Testes → ureter → urethra
c. Testes → urethra → ureter
d. Testes → vas deferens → ureter

Q4. Seeds are called product of sexual reproduction because they are

a. Give rise to new plants
b. Are formed by fusion of gametes
c. Are formed by the fusion of pollen tubes
d. Can survive for a longer period

Q5. Fertilization is the process of

a. Transver of male gamete to female gamete
b. Fusion of nuclei of male and female gametes
c. Adhesion of male and female reproductive organs
d.The formation of gametes by a reproductive organ

Q6. Assertion(A) : Spores are unicellular bodies.
Reason (R) : The parent body simply breaks up into smaller pieces on maturation.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
c. If Assertion is true but Reason is false.
d. If Assertion is false but Reason is true.

Q7. Assertion(A): Testis lie in penis outside the body.
Reason (R): Sperms require temperature lower than the body temperature for development

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
c. If Assertion is true but Reason is false.
d. If Assertion is false but Reason is true.

Q8. Assertion(A): Regeneration is getting a full organism back from its body parts.
Reason (R): Hydra and Planaria show regeneration.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
c. If Assertion is true but Reason is false.
d. If Assertion is false but Reason is true.

Short Answer Type Questions

Q9. Mention three limitations of vegetative propagation.

Q10. Name any two types of asexual reproduction.

Q11. Some flowers of pumpkin and bottle gourd develop fruits whereas other flowers fail to develop fruits. What may be the possible reason?

Q12. Describe the role of prostate gland, seminal vesicle and testis in the human male reproductive system.

Q13. Why is variation so important?

Q14. What is the main difference between sperms and eggs of human?

Q15. What is regeneration? Give one example of an organism that shows this process and one organism that does not.Why does regeneration not occur in the latter?

Long Answer Type Questions

Q16. Answer the following.

i. Give reasons for avoiding frequent pregnancies by women.

ii. Explain the following methods of contraception giving one example of each.

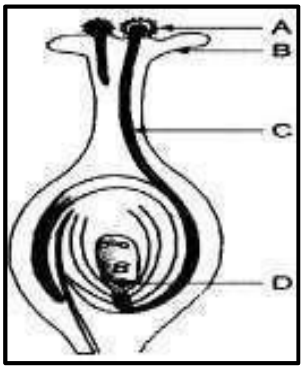
a. Barrier method b. Chemical method c. Surgical method

Q17. What is the significance of sexual mode of reproduction?

i. Name the part marked 'A' in the diagram.

ii. How does 'A' reach part 'B'.

iii. State the importance of part 'C'.



Q18. What happens to the part marked 'D' after fertilization is over?

Q19. What is pollination? How does it occur in plants? How does pollination lead to fertilization?

Q20. With the help of suitable diagram, explain the various steps of budding in Hydra.

Case-based Type Questions

Q21. In humans, if the egg is not fertilized, it lives for about one day. Since the ovary releases one egg every month, the uterus also prepares itself every month to receive a fertilized egg. Thus its lining becomes thick and spongy. This would be required for nourishing the embryo if fertilization had taken place. Now, however, this lining is not needed any longer. So, the lining slowly breaks and comes out through the vagina as blood and mucus. This cycle takes place roughly every month and is known as menstruation. It usually lasts for about two to eight days.

Read the above passage carefully and answer the following questions.

i. What is the sexual cycle in human female that takes place every 28 days and marked by bleeding ?

ii. Write one change which is associated with sexual maturation in boys .

iii. Why does vaginal bleeding occur in human females on attaining puberty

iv. Write one change which is associated with sexual maturation in boys .

v. Why does vaginal bleeding occur in human females on attaining puberty ?

OR

In what conditions vaginal bleeding will not occur in a human female who has attained puberty ?

Chapter-8(Heredity)

Objective Type Questions

Q1. Which one is a possible progeny in F2 generation of pure bred tall plant with round seed and short plant with wrinkled seeds?

a. Tall plant with round seeds
b. Tall plant with wrinkled seeds
c. Short plant with round seed
d. All of the above

Q2. What is the probability that the male progeny will be a boy?

a. 50%
b. 56%
c. 47.43%
d. It varies

Q3. The number of pair(s) of sex chromosomes in the zygote of humans is

a. One
b. Two
c. Three
d. Four

Q4. The two versions of a trait which are brought in by the male and female gamete are situated on

a. Copies of the same chromosome
b. Two different chromosomes
c. Sex chromosomes
d. Any chromosomes

Q5. Which of the following statement is incorrect?

a. For every hormone, there is gene
b. For every protein ,there is a gene
c. For production of every enzyme ,there is a gene
d. For every molecule there is a gene

Q6. Assertion(A) : Variations are seen in offspring produced by sexual reproduction.
Reason (R) : DNA molecule generated by replication is not exactly identical to original DNA.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
c. If Assertion is true but Reason is false.
d. If Assertion is false but Reason is true.

Q7. Assertion(A): The sex of a child is determined by the mother.
Reason (R) : Humans have two types of sex chromosomes: XX and XY.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
c. If Assertion is true but Reason is false.
d. If Assertion is false but Reason is true.

Q8. Assertion(A):Mendel selected pea plants for this experiment.
Reason (R) : Pea plant is self pollinated with short life cycle and bears visible contrasting traits.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
c. If Assertion is true but Reason is false.
d. If Assertion is false but Reason is true.

Short Answer Type Questions

Q9. Why is DNA copying necessary during reproduction?

Q10. Name the information source for making proteins in the cells.

Q11. No two individuals are absolutely alike in a population. Why?

Q12. i. "The sex of the children is determined by what they inherit from their father and not their mother." Justify.
ii. Give an example where environmental factors like temperature determines the sex of the offspring.

Q13. Explain the terms: (i) Acquired traits (ii) Inherited traits

Q14. 'Gene control traits'. Explain this statement with an example.

Q15.Why did Mendel choose garden pea for his experiment?

Long Answer Type Questions

Q16. Explain Mendel's view of a dominant trait. Give an example.

Q17. Describe briefly four ways in which individuals with a particular trait may increase in a population.

Q18. The human beings who look so different from each other in terms of colour, size and looks are said to belong to the same species. Why? Justify your answer.

Q19. Distinguish between the acquired traits and the inherited traits in tabular form, giving one example for each.

Q20. In one of his experiments with pea plants Mendel observed that when a pure tall pea plant is crossed with a pure dwarf pea plant, in the first generation, F, only tall plants appear.

i. What happens to the traits of the dwarf plants in this case ?

ii. When the F1, generation plants were self-fertilised, he observed that in the plants of second generation, F2, both tall plants and dwarf plants were present. Why it happened ? Explain briefly.

Case-based Type Questions

Q21. Sahil performed an experiment to study the inheritance pattern of genes. He crossed tall pea plants (TT) with short pea plants (tt) and obtained all tall plants in F_1 generation.

Read the above passage carefully and answer the following questions.

i.What will be set of genes present in the F_1 generation?

ii. Given reason why only tall plants are observed in F_1 progeny.

iii. When F_1 plants were self-pollinated, a total of 800 plants were produced. How many of these would be tall, medium height or short plant? Give the genotype of F_2 generation.

Chapter-9(Light-Reflection and Refraction)

Objective Type Questions

Q1. A concave mirror of radius 30 cm is placed in water. Its focal length in air and water differ by

a.15 b. 20

c.30 d. 0

Q2. A hole is made in a convex lens, then

a. A hole appears in the image b. Image size decreases

c. Image intensity decreases d. No change

Q3. Two lenses of power +3 and – 1 dioptres are placed in contact. The focal length of the combined lens is

a. 100 cm b. 25 cm

c. 50 cm d. 30.3 cm

Q4. The Laws of reflection hold true for.

a. Plane mirrors only b. Concave mirrors only

c. Convex mirrors only d. All reflecting surface

Q5. When an object is kept within the focus of a concave mirror, an enlarged image is formed behind the mirror. This image is.

a. Real b. Inverted

c. Virtual and inverted d. Virtual and erect

Q6. Assertion(A): The mirrors used in search lights are concave spherical.

Reason(R): In concave spherical mirror the image formed is always virtual.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

c. If Assertion is true but Reason is false.

d. If Assertion is false but Reason is true.

Q7. Assertion(A): Light does not travel in the same direction in all the media.

Reason(R): The speed of light does not change as it enters from one transparent medium to another.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

c. If Assertion is true but Reason is false.

d. If Assertion is false but Reason is true.

Q8. Assertion(A): A ray incident along normal to the mirror retraces its path.

Reason(R): In reflection, angle of incidence is always equal to angle of reflection.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

c. If Assertion is true but Reason is false.

d. If Assertion is false but Reason is true.

Short Answer Type Questions

Q9. One-half of a convex lens is covered with a black paper. Will this lens produce a complete image of the object? Verify your answers experimentally. Explain your observations.

Q10. A concave lens has focal length of 20 cm. At what distance from the lens a 5 cm tall object be placed so that it forms an image at 15 cm from the lens? Also calculate the size of the image formed.

Q11. "The refractive index of diamond is 2.42". What is the meaning of this statement in relation to speed of light?

Q12. Which kind of mirrors are used in the headlights of a motor car and why?

Q13. Explain with the help of a diagram, why a pencil partly immersed in water appears to be bent at the water surface?

Q14. Where is the image formed when an object is at large distance from a concave mirror?

Q15. An object is placed at a distance of 30 cm in front of a convex mirror of focal length 15 cm. Write four characteristics of the image formed by the mirror.

Long Answer Type Questions

Q16. What is understood by lateral displacement of light? Illustrate it with the help of a diagram. List any two factors on which the lateral displacement of a particular substance depends.

Q17. i. If the image formed by a lens is diminished in size and erect, for all positions of the object, what type of lens is it?

ii. Name the point on the lens through which a ray of light passes undeviated.

iii. An object is placed perpendicular to the principal axis of a convex lens of focal length 20 cm. The distance of the object from the lens is 30 cm. Find

a. the position

b. the magnification

c. the nature of the image formed

Q18. i. With the help of a ray diagram explain why a concave lens diverges the rays of a parallel beam of light.

ii. A 2.0 cm tall object is placed perpendicular to the principal axis of a concave lens of focal length 15 cm. At what distance from the lens, should the object be placed so that it forms an image 10 cm from the lens? Also find the nature and the size of image formed.

Q19. i. State the law of refraction of light that defines the refractive index of a medium with respect to the other. Express it mathematically. How is refractive index of any medium 'A' with respect to a medium 'B' related to the speed of propagation of light in two media A and B? State the name of this constant when one medium is vacuum or air.

ii. The refractive indices of glass and water with respect to vacuum are 3/2 and 4/3 respectively. If the speed of light in glass is 2×10^8 m/s, find the speed of light in

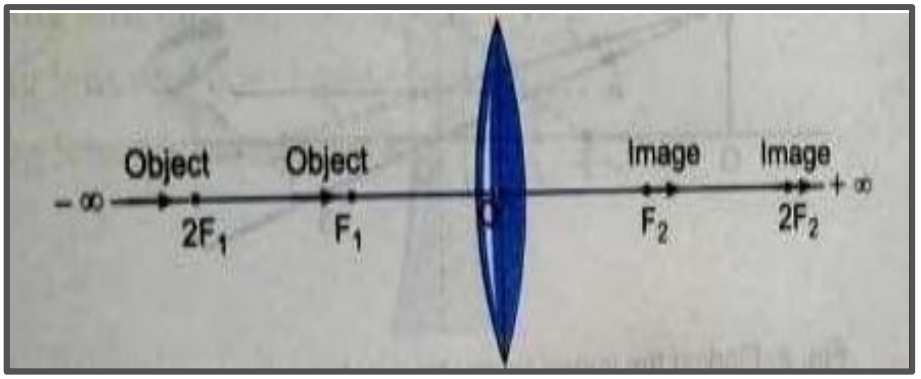
a. vacuum b. water

Q20. The image of a candle flame placed at a distance of 45 cm from a spherical lens is formed on a screen placed at a distance of 90 cm from the lens.

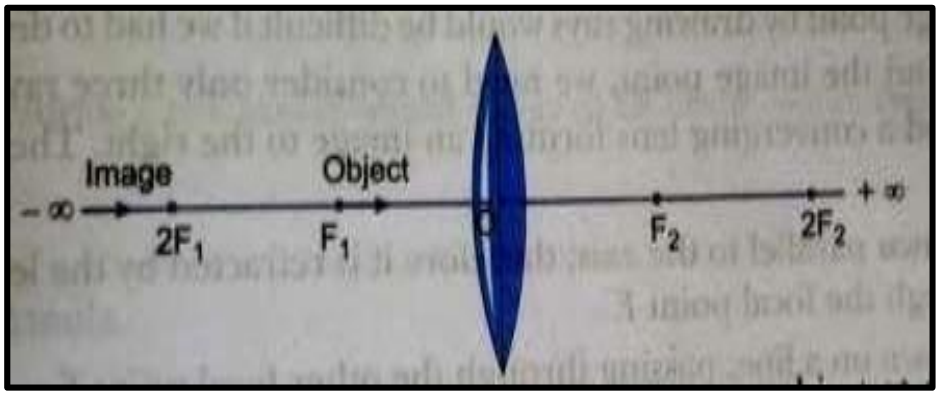
Identify the type of lens and calculate its focal length. If the height of the flame is 2 cm, find the height of its image.

Case-based Type Questions

Q21. The image formed by a convex lens depends on the position of the object in front of the lens. When the object is placed anywhere between focus and infinity, the image formed by convex lens is real and inverted. The image is not obtained on the screen when the object is placed between focus and the lens. The distance between the optical centre O of the convex lens and the focus point F_1 or F_2 is its focal length. When the object shifts from $-\infty$ to F_1, the image moves from F_2 to $+\infty$.



When the object shifts from F_1 to O, the image moves from $-\infty$ to O.



A student did an experiment with a convex lens. He put an object at different distances from the lens. In each case he measured the distance of the image from the lens. The result were recorded in the following table.

Object distance (in cm)	25	30	40	60	120
Image distance (in cm)	100	24	60	30	40

Read the above passage carefully and answer the following questions.

Unfortunately his results are written in the wrong order.

i. What is the focal length of this lens?

ii. What is the image distance in the correct order (in cm)?

iii. What is the minimum distance between an object and its real image formed by a convex lens?

OR

How a virtual image is formed by convex lens?

Chapter-10(The Human Eye and the colourful World)

Objective Type Questions

Q1. When light rays enter the eye, most of the refraction occurs at the

a. Crystalline lens
b. Outer surface of the cornea
c. Iris
d. Pupil

Q2. Type of lens used in correction of myopia

a. Convex lens
b. Concave lens
c. Reflecting lens
d. Bifocal lens

Q3. Farthest point of a normal eye is

a. 25 cm
b. 50 cm
c. 75 cm
d. Infinity

Q4. The phenomenon of light responsible for the working of the human eye is:

a. Refraction
b. Reflection
c. Power of accommodation
d. Persistence of vision

Q5. The image distance from the eye lens in the normal eye when we increase the distance of an object from the eye

a. Increase
b. Decreases
c. Remains unchanged
d. Depends on the size of the eyeball

Q6. Assertion(A): White light is dispersed into its seven-colour components by a prism.
Reason(R): Different colours of light bend through different angles with respect to the incidentray as they pass through a prism.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
c. If Assertion is true but Reason is false.
d. If Assertion is false but Reason is true.

Q7. Assertion(A): Danger signals are made of red colour.
Reason(R): Velocity of red light in air is maximum, so signals are visible even in dark.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
c. If Assertion is true but Reason is false.
d. If Assertion is false but Reason is true.

Q8. Assertion(A): The scattered light makes path of light visible.
Reason(R): Scattering of light is the result of Tyndall effect.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
c. If Assertion is true but Reason is false.
d. If Assertion is false but Reason is true.

Short Answer Type Questions

Q9. Write the structure of eye lens and state the role of ciliary muscles in the human eye.
Q10. What is rainbow? Draw a labelled diagram to show the formation of a rainbow.
Q11. What is myopia (near-sightedness)? Draw a ray diagram to show how it can be corrected using a lens.
Q12. Define the term dispersion of white light. State the colour which bends (i) the least and (ii)the most while passing through a glass prism.
Q13. Give reasons

i. The extent of deviation of a ray of light on passing through a glass prism depends on its colour.
ii. Light of red colour are used for danger signals.

Q14. Draw a ray diagram to show the refraction of light through a glass prism. Mark on it
i. the incident ray. ii. the emergent ray iii. the angle of deviation.

Q15. i. What are the values of
a. near point b. far point of vision of a normal adult person
ii. A student has difficulty in reading the blackboard while sitting in the last row. What could be his defect of vision? Draw a ray diagram to illustrate this defect of vision.

Long Answer Type Questions

Q16. i. What is meant by the power of accommodation of an eye?
ii. A person with a myopic eye cannot see objects beyond 1.2 m directly. What should be the type of the corrective lens used? What would be its power?

Q17. When white light passes through a glass prism, seven colours namely red, orange, yellow, green, blue, indigo and violet are seen on the white screen. All these colours have different angles of deviation. Explain why ?

Q18. Write different parts of eye and explain their functions. Also explain, how an image of an object is formed on the retina of eye?

Q19. Due to gradual weakening of ciliary muscles and diminishing flexibility of the eye lens a certain defect of vision arises. Write the name of this defect. Name the type of lens required by such persons to improve the vision. Explain the structure and function of such a lens.

Q20. Why do different colours get separated when white light passes through prism? How can we recombine the components of white light after a prism has separated them? Explain with the help of figure.

Case-based Type Questions

Q21. Atmospheric refraction is the phenomenon of bending of light on passing through earth's atmosphere. As we move above the surface of earth, density of air goes on decreasing. Local conditions like temperature etc. also affect the optical density of earth's atmosphere. On account of atmospheric refraction, stars seen appear higher than they actual are; advanced sunrise; delayed sunset, oval appearance of the sun at sunrise and sunset; stars twinkle, planets do not.

Read the above passage carefully and answer the following questions.
i. Due to atmospheric refraction what will be the apparent length of the day?
ii. Apparent position of the star appears raised , define reason.
iii. Define Atmospheric Refraction.

Chapter-11(Electricity)

Objective Type Questions

Q1. Electrical resistivity of a given metallic wire depends upon
a. Its length b. Its thickness
c. Its shape d. Nature of the material

Q2. An electric iron draws a current 4 A when connected to a 220 V mains. Its resistance must be
a. 1000 Ω b. 55 Ω
c. 44 Ω d. None of these

Q3. The element used almost exclusively for filaments of incandescent lamps
a. Copper b. Gold
c. Silver d. Tungsten

Q4. At electric kettle consumes 1kw of electric power when operated at 220 V. A fuse wire of which rating must be used for it
a. 1 A b. 2 A
c. 5 A d. 4 A

Q5. Unit of electric power may also be expressed as

a. Volt-ampere b.Kilowatt-hour

c.Watt-second d.Joule-second

Q6. Assertion (A): Tungsten metal is used for making filaments of incandescent lamps.

Reason (R): The melting point of tungsten is very low.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

c. If Assertion is true but Reason is false.

d. If Assertion is false but Reason is true.

Q7. Assertion (A): A cell is a device which converts chemical energy into electrical energy.

Reason (R): Cell maintains a constant potential difference between its terminals for a long time.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

c. If Assertion is true but Reason is false.

d. If Assertion is false but Reason is true.

Q8. Assertion (A): At high temperatures metal wires have a great chance of short circuiting.

Reason (R): Both resistance and resistivity of a material vary with temperature.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

c. If Assertion is true but Reason is false.

d. If Assertion is false but Reason is true.

Short Answer Type Questions

Q9. What is meant by electrical resistivity of a material? Derive its S.I. unit. Write the factors on which the resistance of a conducting wire depends.

Q10. i. Write two points of difference between electric energy and electric power.

ii.Out of 60 W and 40 W lamps, which one has higher electrical resistance when in use.

iii.What is the commercial unit of electric energy? Convert it into joules.

Q11. Draw a schematic diagram of a circuit consisting of a battery of 12V, three resistors of 5Ω, 10Ωand 20Ω connected in parallel, an ammeter to measure the total current through the circuit, voltmeter to measure the potential difference across the combination of resistors.

Q12. An electric bulb of resistance 200Ω draws a current of 1 Ampere. Calculate the power of the bulb the potential difference at its ends and the energy in kWh consumed burning it for 5h.

Q13. Two identical wires one of nichrome and other of copper are connected in series and a current (I) is passed through them. State the change observed in the temperatures of the two wires. Justify your answer. State the law which explains the above observation.

Q14. Write joule's law of heating.

Q15. Compute the heat generated while transferring 96000 coulomb of charge in two through apotential difference of 40 V.

Long Answer Type Questions

Q16. When a high resistance voltmeter is connected directly across a resistor its reading is 2 V. An electric cell is sending the current of 0.4 A, (measured by an ammeter) in the electric circuit in which a rheostat is also connected to vary the current.

i. Draw an equivalent labelled circuit for the given data.

ii. Find the resistance of the resistor.

iii. Name and state the law applicable in the given case. A graph is drawn between a set of values of potential difference (V) across the resistor and current (I) flowing through it. Show the nature of graph thus obtained.

Q17. State Ohm's law. How can this law be verified experimentally? Does Ohm's law hold good underall conditions. Comment.

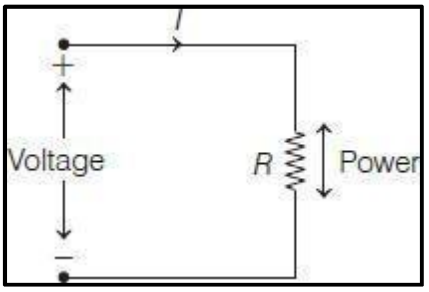
Q18. What is Joule's heating effect ? List applications of Joule's heating effect in daily life.

Q19. Draw diagrams to show series and parallel combinations of resistors. State three salient features each of both the combinations.

Q20. What does an electric circuit mean? Name a device that helps to maintain a potential difference across a conductor in a circuit. When do we say that the potential difference across a conductor is 1 volt? Calculate the amount of work done in shifting a charge of 2 coulombs from a point A to B having potentials +10V and -5V respectively.

Case-based Type Questions

Q21. The electrical energy consumed by an electrical appliance is given by the product of its power rating and the time for which it is used. The SI unit of electrical energy is Joule (as shown in figure).



Actually, Joule represents a very small quantity of energy and therefore it is inconvenient to use where a large quantity of energy is involved.

Read the above passage carefully and answer the following questions.

i. What is the SI unit of electric energy per unit time?

ii. The energy dissipated by the heater is E. What will be the energy dissipated When the time of operating the heater is doubled?

iii. Calculate the energy transformed by a 5 A current flowing through a resistor of 2 Ω for 30 minutes.

Chapter-12(Magnetic Effects of Electric Current)

Objective Type Questions

Q1. The most important safety method used for protecting home appliances from short circuiting or overloading is by

a. Earthing
b. Use of fuse
c. Use of stabilizers
d. Use of electric meter

Q2. Magnetic field lines around a straight conductor forms a pattern of

a. Concentric circles
b. Concentric ellipse
c. Straight line
d. Square shape

Q3. The direction of magnetic field is given by

a. Fleming's right hand rule
b. Fleming's left hand rule
c. Right hand thumb rule
d. Left hand thumb rule

Q4. Two magnetic field lines

a. Intersect at neutral point
b. Never intersect each other
c. Intersect near north pole or south pole
d. Intersect at the mid point of the magnet

Q5. The nature of magnetic field line passing through the centre of current carrying circular loop.

a.Circular
b. Ellipse
c.Parabolic
d. Straight line

Q6. Assertion(A): Alternating Current is used in household supply.

Reason (R): AC electric power can be transmitted over long distances without much loss of energy.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

c. If Assertion is true but Reason is false.

d. If Assertion is false but Reason is true.

Q7. Assertion(A): A current carrying wire deflects a magnetic needle placed near it.

Reason (R): A magnetic field exists around a current carrying wire.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

c. If Assertion is true but Reason is false.

d. If Assertion is false but Reason is true.

Q8. Assertion(A): A solenoid tends to expand, when a current passes through it.

Reason (R): Two straight parallel metallic wires carrying current in same direction repel each other .

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

c. If Assertion is true but Reason is false.

d. If Assertion is false but Reason is true.

Short Answer Type Questions

Q9. What is the function of a galvanometer in a circuit?

Q10. What are magnetic field lines? Justify the following statements

i. Two magnetic field lines never intersect each other.

ii. Magnetic field lines are closed curves.

Q11. What is meant by the term 'frequency of an alternating current'? What is its value in India? Why is an alternating current considered to be advantageous over direct current for long range transmission of electric energy?

Q12. When is the force experienced by a current carrying straight conductor placed in a uniformmagnetic field

i.maximum ii.minimum

Q13. Explain the role of fuse in series with any electrical appliance in an electric circuit. Why should a fuse with defined rating for an electric circuit not be replaced by one with a larger rating?

Q14. In which wire in an housing circuit, is the switch introduced to operate the light?

Q15 .i.What is the function of each wire in electircal instruments?

ii.Explain what is short circuiting of an electric supply?

Long Answer Type Questions

Q16. Suppose your science teacher asks you to demonstrate the phenomena of EMI with following materials:

i. Two different coils 1 and 2 of copper wire having large no. of turns 50 and 100 respectively.

ii. A non-conducting cylinder

iii. A battery

iv. A plug key

v. A galvanometer

Draw a labelled diagram of your demonstration setup.

Q17. Describe the activity that shows that a current-carrying conductor experiences a force perpendicular to its length and the external magnetic field. How does Fleming's left-hand rule help us to find the direction of the force acting on the current carrying conductor?

Q18. Under what conditions permanent electromagnet is obtained,if a current carrying solenoid is used?

Q19. What is a solenoid? Draw the pattern of magnetic field lines of (i) a current carrying solenoid and (ii) a bar magnet. List two distinguish features between the two fields.

Q20. With the help of a labelled circuit diagram illustrate the pattern of field lines of the magnetic field around a current carrying straight long conducting wire. How is the right hand thumb rule useful to find direction of magnetic field associated with a current carrying conductor?

Case-based Type Questions

Q21. An insulated copper wire wound on a cylindrical cardboard tube such that its length is greater than its diameter is called a solenoid. When an electric current is passed through the solenoid, it produces a magnetic field around it. The magnetic field produced by a current-carrying solenoid is similar to the magnetic field produced by a bar magnet. The field lines inside the solenoid are in the form of parallel straight lines. The strong magnetic field produced inside a current carrying solenoid can be used to magnetize a piece of a magnetic material like soft iron when placed inside the solenoid. The strength of the magnetic field produced by a current-carrying solenoid is directly proportional to the number of turns and strength of the current in the solenoid.

Read the above passage carefully and answer the following questions.

i. What is the strength of magnetic field inside a long current-carrying straight solenoid.

ii. By using which rule the north-south polarities of an electromagnet can be found easily.

iii. A long solenoid carrying a current produces a magnetic field B along its axis. If the current is double and the number of turns per cm is halved, then what will be new value of magnetic field .

Chapter-13(Our Environment)

Objective Type Questions

Q1. Which of the two sets belong to the same trophic level?

a. Rabbit : Tiger
b. Vulture : Rat
c. Grasshopper : Hawk
d. Frog : Lizard

Q2. In a given food chain if the amount of energy at the fourth trophic level is 6 kJ, what will be the energy available at the producer level?

a. 6000 kJ
b. 20 kJ
c. 60 kJ
d. 600 kJ

Q3. Which of the statements is incorrect?

a. All green plants and blue green algae are producers
b. Green plants get their food from organic compounds
c. Producers prepare their own food from inorganic compounds
d. Plants convert solar energy into chemical energy

Q4. An ecosystem includes

a. All living organisms
b. Non -living objects
c. Both living organisms and non-living objects
d. Sometimes living organisms and sometimes objects

Q5. Which of the following is an artificial ecosystem?

a.Pond
b.Crop field
c.Lake
d.Forest

Q6. Assertion(A): Green plants of the ecosystem are the transducers.

Reason(R): Producers trap the radiant energy of the sun and change it into chemical energy.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

c. If Assertion is true but Reason is false.

d. If Assertion is false but Reason is true.

Q7. Assertion(A): Biotic components of ecosystem continuously require energy to carry on life processes.
Reason(R): Abiotic components are the non-living factors of the ecosystem.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

c. If Assertion is true but Reason is false.

d. If Assertion is false but Reason is true.

Q8. Assertion(A):Aquarium are known as the man-made ecosystems .
Reason(R): .Aquarium are created and maintained by humans.

a. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

b. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

c. If Assertion is true but Reason is false.

d. If Assertion is false but Reason is true.

Short Answer Type Questions

Q9. "Energy flow in food chains is always unidirectional." Justify this statement. Explain how the pesticides enter a food chain and subsequently get into our body.

Q10. The depletion of ozone layer is a cause of concern. Why?

Q11. How can we help in reducing the problem of waste disposal? Suggest any three methods.

Q12. Give two examples of decomposers. State their important role in nature.

Q13. Why are crop fields known as artificial ecosystem?

Q14. State with reason any two possible consequences of the elimination of decomposers from the earth.

Q15. Food web increases the stability of an ecosystem.Justify.

Long Answer Type Questions

Q16. The first trophic level in a food chain is always a green plant. Why?

Q17. Write the harmful effects of using plastic bags on the environment. Suggest alternatives to plastic bags.

Q18. Differentiate between biodegradable and non-biodegradable substances with the help of one example each. List two changes in habit that people must adapt to dispose non- biodegradable wastefor saving the environment.

Q19. i.How do food chains get shortened? How does the shortening of food chain affect the biosphere?
ii.How will you justify that vegetarian food habits give us more calories?

Q20. Write the essential function performed by ozone at the higher levels of the Earth's atmosphere. How is it? Name the synthetic chemicals mainly responsible for the drop of amount of ozone inthe atmosphere. How can the use of these chemicals be reduced?

Case-based Type Questions

Q21. Waste management is essential in today's society. Due to an increase in population, the generation of waste is getting doubled day by day. Moreover, the increase in waste is affecting the lives of many people. Waste management is the managing of waste by disposal and recycling of it. Moreover, waste management needs proper techniques keeping in mind the environmental situations. For instance, there are various methods and techniques by which the waste is disposed of. You must have come across 5 R's to save the environment: refuse, reduce, reuse, repurpose and recycle.
Read the above passage carefully and answer the following questions.

i. Write the name of raw material which is used in bio gas plant.

ii . Disposable plastic plates should not be used,why?

iii. Recycling of paper is a good practice but recycled paper should not be used as food packaging,Why?