RAVI MATHS TUITION & TEST PAPERS , WHATSAPP 8056206308

10TH CBSE SCIENCE CHEMISTRY MCQS PREVIOUSLY ASKED

10th Standard

Science

Multiple Choice Question 46 x 1 = 46

1) Which of the following is a physical change?

(a) Formation of curd from milk. (b) Ripening of fruits (c) Getting salt from sea water. (d) Burning of wood.

2) To balance the following chemical equation the values of x and y should respectively be
$2NaOH + xAl_2O_3 \rightarrow yNaAlO_2 + H_2O$

(a) 1, 4 (b) 1, 2 (c) 2, 4 (d) 2, 3

3) $MnO_2 + xHCl \rightarrow MnCl_2 + yH_2O + zCl_2$ In order to balance the above chemical equation, the values of x, y and z respectively are

(a) 6, 2, 2 (b) 4, 1, 2 (c) 4, 2, 1 (d) 2, 2, 1

4) Consider the following chemical equation:
$aAl_2O_3 + bHCl \rightarrow cAlCl_3 + dH_2O$
In order to balance this chemical equation, the values of a, b, c and d must be

(a) 1, 6, 2 and 3 (b) 1, 6, 3 and 2 (c) 2, 6, 2 and 3 (d) 2, 6, 3 and 2

5) When aqueous solutions of potassium iodide and lead nitrate are mixed, an insoluble substance separates out. The chemical equation for the reaction involved is

(a) $KI + PbNO_3 \rightarrow PbI + KNO_3$ (b) $2KI + Pb(NO_3)_2 \rightarrow PbI_2 + 2KNO_3$ (c) $KI + Pb(NO_3)_2 \rightarrow PbI + KNO_3$

(d) $KI + PbNO_3 \rightarrow PbI_2 + KNO_3$

6) The balanced chemical equation showing reaction between quicklime and water is

(a) $2CaO + H_2O \rightarrow 2CaOH + H_2 + Heat$ (b) $CaO + H_2O \rightarrow Ca(OH)_2 + H_2 + Heat$ (c) $CaO + H_2O \rightarrow Ca(OH)_2 + Heat$

(d) $2CaO + 3H_2O \rightarrow 2Ca(OH)_3 + O_2 + Heat$

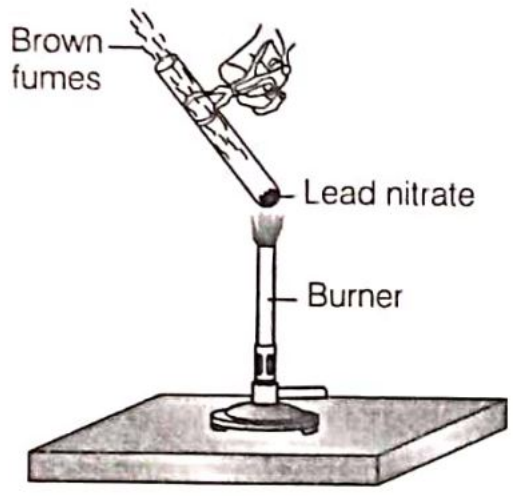
7) A metal ribbon X burns in oxygen with a dazzling white flame forming a white ash Y. The correct description of X, Y and the type of reaction are

(a) X = Ca; Y = CaO, Type of reaction = Decomposition (b) X = Mg; Y = MgO, Type of reaction = Combination

(c) X = Al; Y = Al_2O, Type of reaction = Thermal decomposition

(d) X = Zn; Y = ZnO, Type of reaction = Endothermic

8) The emission of brown fumes in the given experimental set-up is due to



(a) thermal decomposition of lead nitrate which produces brown fumes of nitrogen dioxide

(b) thermal decomposition of lead nitrate which produces brown fumes of lead oxide

(c) oxidation of lead nitrate forming lead oxide and nitrogen dioxide

(d) oxidation of lead nitrate forming lead oxide and oxygen

9) Which one of the following reactions is different from the remaining three?

(a) $NaCl + AgNO_3 \rightarrow AgCl + NaNO_3$ (b) $CaO + H_2O \rightarrow Ca(OH)_2$ (c) $KNO_3 + H_2SO_4 \rightarrow KHSO_4 + HNO_3$

(d) $ZnCl_2 + H_2S \rightarrow ZnS + 2HCl$

10) Reema took 5 mL of lead nitrate solution in a beaker and added approximately 4 mL 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.

11) The products obtained when lead nitrate is heated in a boiling tube

(a) PbO, N_2O and O_2 (b) NO, PbO and O_2 (c) $Pb(NO_2)_2$ and O_2 (d) NO_2, PbO and O_2

12) In the reaction of iron with copper sulphate solution,

$CuSO_4 + Fe \rightarrow Cu + FeSO_4$

Which option in the given table correctly represents the substance oxidised and the reducing agent ?

(a)

Substance oxidised	**Reducing agent**
Fe	Fe

(b)

Substance oxidised	**Reducing agent**
Fe	$FeSO_4$

(c)

Substance oxidised	**Reducing agent**
Cu	Fe

(d)

Substance oxidised	**Reducing agent**
$CuSO_4$	Fe

13) Identify the product 'X' obtained in the following chemical reaction

$CaCO_3 \xrightarrow{D} 'X' + CO_2$

(a) Quick lime (b) Gypsum (c) Lime stone (d) Plaster of Paris

14) In which of the following, the identity of initial substance remains unchanged?

(a) Curdling of milk (b) Formation of crystals by process of crystallisation (c) Fermentation of grapes

(d) Digestion of food

15) **Assertion (A)** The colour of aqueous solution of copper sulphate turns colourless when a piece of lead is added to it.

Reason (R) Lead is more reactive than copper, and hence displaces copper from its salt solution.

(a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.

(b) Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion.

(c) Assertion is true, but Reason is false.

(d) Assertion is false, but Reason is true.

(a) (d) Assertion is false but Reason is true. The correct form of Assertion is as follows

The colour of aqueous solution of copper sulphate turns white when a piece of lead is added into it because lead is more reactive than copper, hence displaces copper from its salt solution.

16) Select a pair of natural indicator from the following:

(a) Litmus and methyl orange (b) Turmeric and litmus (c) Phenolphthalein and methyl orange

(d) Methyl orange and turmeric

17) An aqueous solution 'A' turns phenolphthalein solution pink. On addition of an aqueous solution 'B' to 'A', the pink colour disappears. Which of the following statement is true for solution 'A' and 'B'?

(a) A is strongly basic and B is a weak base. (b) A is strongly acidic and B is a weak acid.

(c) A has pH greater than 7 and B has pH less than 7. (d) A has pH less than 7 and B has pH greater than 7.

18) When sodium bicarbonate reacts with dilute hydrochloric acid the gas evolved is

(a) hydrogen; it given pop sound with burning match stick. (b) hydrogen; it turns lime water milky.

(c) carbon dioxide; it turns lime water milky.

(d) carbon dioxide it blows off a burning match stick with a pop sound.

19) A chemical compound used in glass, soap and paper industries is

(a) washing soda (b) baking soda (c) bleaching powder (d) common salt

20) If 10 mL of H_2SO_4 is mixed with 10 mL of $Mg(OH)_2$ of the same concentration, the resultant solution will give the following colour with universal indicator.

(a) Red (b) Yellow (c) Green (d) Blue

21) A solution turns the colour of turmeric to reddish brown. If the same solution is poured on universal indicator, Its colour would change to

(a) violet (b) blue (c) red (d) green

22) Anita added a drop each of diluted acetic acid and diluted hydrochloric acid on pH paper and compared the colours. Which of the following is the correct conclusion?

(a) pH of acetic acid is more than that of hydrochloric acid.

(b) pH of acetic acid is less than that of hydrochloric acid.

(c) Acetic acid dissociates completely in aqueous solution. (d) Acetic acid is a strong acid.

23) Salt 'A' commonly used in food products, is a reactant to produce salt 'B', used in the kitchen for making tasty, crispy pakoras. Salt 'B' on heating converts into another salt 'C', which is used in the manufacturing of glass. Salts 'A', 'B' and 'C' respectively are

(a) $NaHCO_3$, NaCl, Na_2CO_3 (b) Na_2CO_3, $NaHCO_3$, NaCl (c) Na_2CO_3, NaCl, $NaHCO_3$

(d) NaCl, $NaHCO_3$, Na_2CO_3

24) Baking soda is a mixture of

(a) sodium carbonate and acetic acid (b) sodium carbonate and tartaric acid

(c) sodium hydrogen carbonate and tartaric acid (d) sodium hydrogen carbonate and acetic acid

25) If 10 mL of H_2SO_4 is mixed with 10 mL of $Mg(OH)_2$ of the same concentration, the resultant solution will give the following colour with universal indicator.

(a) Red (b) yellow (c) Green (d) Blue

26) Select washing soda from the following.

(a) $NaHCO_3$ (b) $Na_2CO_3.5H_2O$ (c) $Na_2CO_310H_2O$ (d) NaOH

27) Fresh milk has a pH of 6. To delay its curdling, a chemical substance is added to it, which is

(a) sodium carbonate (b) baking powder (c) sodium hydroxide (Caustic soda)

(d) baking soda (Sodium hydrogen carbonate)

28) The name of the salt used to remove permanent hardness of water is

(a) sodium hydrogen carbonate ($NaHCO_3$) (b) sodium chloride (NaCl)

(c) sodium carbonate decahydrate ($Na_2CO_3.10H_2O$) (d) calcium sulphate hemihydrate $\left(CaSO_4 \cdot \frac{1}{2}H_2O\right)$

29) Several factories were pouring their wastes In two rivers A and B. Water samples were collected from these two rivers. It was observed that sample collected from river A was acidic while that of river B was basic. The factories located near A and B are

(a) soaps and detergents factories near A and alcohol distillery near B.

(b) soaps and detergents factories near B and alcohol distillery near A.

(c) lead storage battery manufacturing factories near A and soaps and detergents factories near B.

(d) lead storage battery manufacturing factories near B and soaps and detergents factories near A.

30) Which of the following is true when HCI(g) is passed through water?

(a) It does not ionise in the solution as it is a covalent compound. (b) It ionises to give $\overline{O}H$ and CI^-.

(c) It gives both hydrogen and hydroxyl ion in the solution.

(d) It forms hydronium ion in the solution due to the combination of hydrogen ion with water solution

31) Sodium hydroxide is termed an alkali while ferric hydroxide is not because

(a) sodium hydroxide is a strong base, while ferric hydroxide is a weak base.

(b) sodium hydroxide is a base which is soluble in water while ferric hydroxide is also a base but it is not soluble in water.

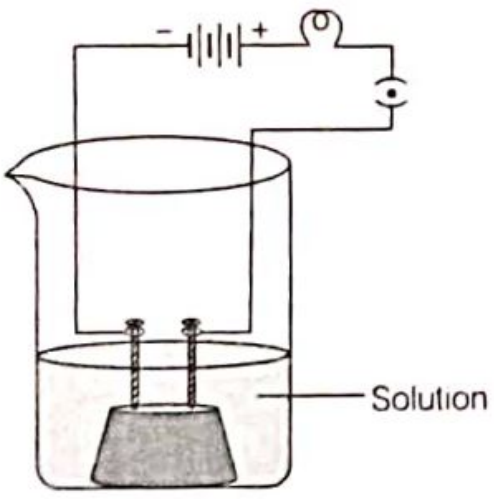
(c) sodium hydroxide is a strong base while ferric hydroxide is a strong acid.

(d) sodium hydroxide and ferric hydroxide both are strong base but the solubility of sodium hydroxide in water is comparatively higher than that of ferric hydroxide.

32) An element 'X' reacts with O_2 to give a compound with a high melting point. This compound is also soluble in water. The element 'X' is likely to be

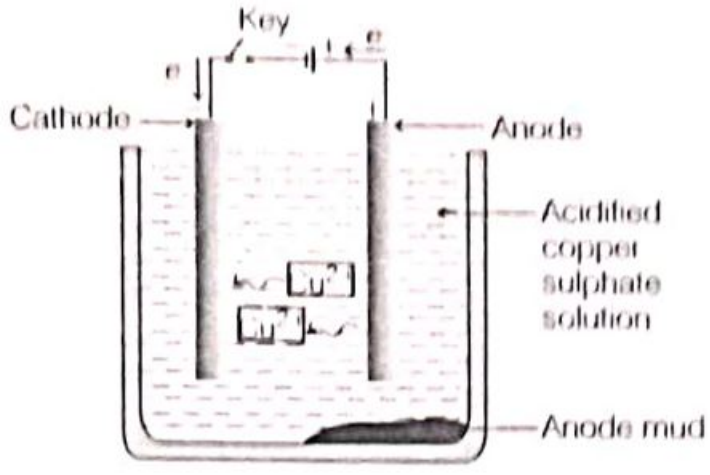
(a) iron (b) calcium (c) carbon (d) silicon

33) In the given experimental set-up, if the experiment is carried out separately with each of the following solutions the cases in which the bulb will glow is



(a) dilute hydrochloric acid (b) honey (c) glucose solution (d) alcohol

34) The following diagram shows the electrolytic refining of copper:



Which of the following statements is Incorrect description of the process?

(a) The impure metal from the anode dissolves into the electrolyte.

(b) The pure metal from the electrolyte is deposited on the cathode.

(c) Insoluble impurities settle down at the bottom of the anode.

(d) On passing the current through the electrolyte, the pure metal from the anode dissolves into the electrolyte

35) Which of the following metals, do not corrode in moist air?

(a) Copper (b) Iron (c) Gold (d) Silver

36) Bronze is an alloy of

(a) copper and zinc (b) aluminum and tin (c) copper, tin and zinc (d) copper and tin

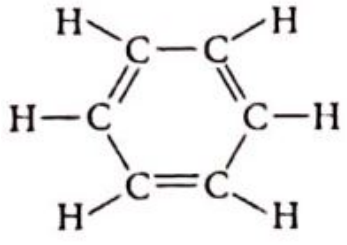
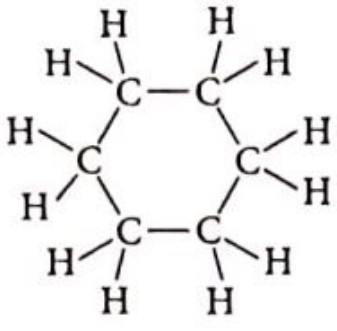
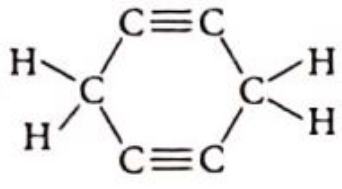
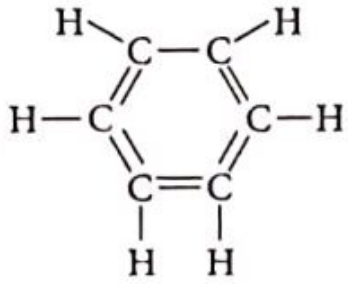
37) Listed here is the reactivity of certain metals.

Metal	Reaction with air	Reaction with water	Reaction with dilute acids
Gold	Does not oxidise or burn	No reaction	No reaction
Sodium	Burns vigorously to form Oxide	Violent reaction	Violent reaction
Zinc	Burns to form oxides	Reacts on heating with water	Reacts to produce hydrogen
Platinum	Does not oxidise or burn	No reaction	No reaction

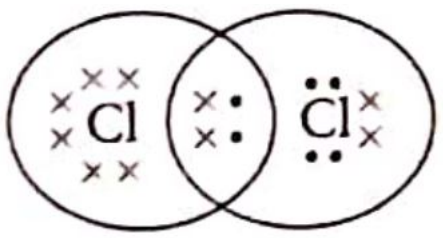
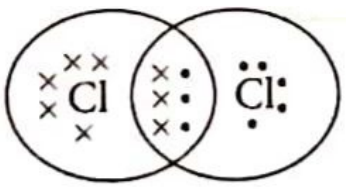
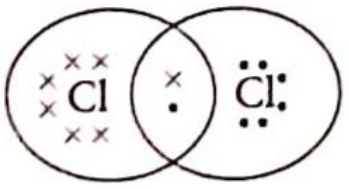
Which of the above metals are likely to be obtained in their pure states from the Earth's crust?

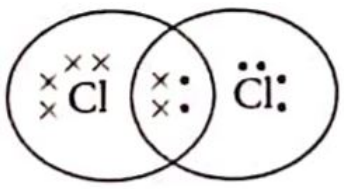
(a) Only gold (b) Only sodium (c) Gold and platinum (d) Zinc and sodium

38) The structural formula of cyclohexane is

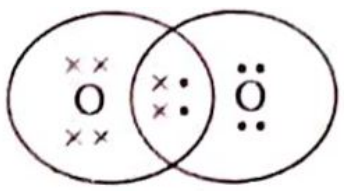
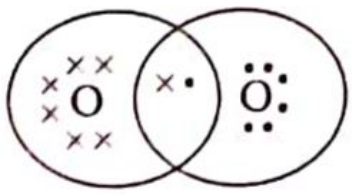
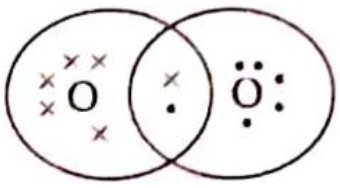
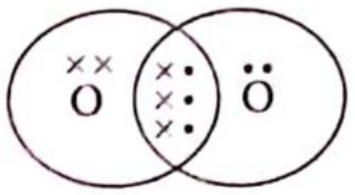
(a)  (b)  (c)  (d) 

39) The electron dot structure of chlorine molecule is

(a)  (b)  (c) 

(d) 

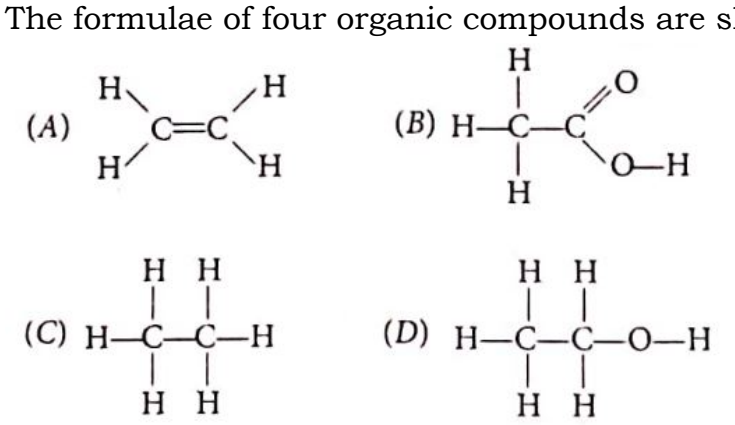
40) The correct representation of covalent bonding in an Oxygen molecule is

(a)  (b)  (c)  (d) 

41) Which of the following hydrocarbons is different from the others?

(a) C_4H_{10} (b) C_7H_{14} (c) C_5H_{12} (d) C_2H_6

42) The formulae of four organic compounds are shown below. Choose the correct option.



(a) A and B are unsaturated hydrocarbons. (b) C and D are saturated hydrocarbons.

(c) Addition of hydrogen in presence of catalyst changes A to C.

(d) Addition of potassium permanganate changes B to D.

43) ldentify a group of the unsaturated hydrocarbons from the following

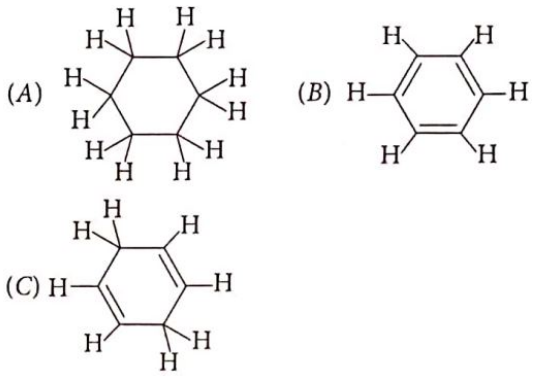
(a) Propane, ethene, butyne (b) Ethene, propane, hexane (c) Cyclohexane, methane, ethane

(d) Butyne, ethene, propyne

44) The total number of electrons shared in the formation of an ethyne molecule is

(a) 6 (b) 3 (c) 10 (d) 4

45) Consider the structures of the three cyclic carbon compounds A, B and C given below and select the correct option from the following.



(a) A and C are isomers of hexane and B is benzene.

(b) A is an isomer of hexane, B is benzene and C is an isomer of hexene.

(c) A is a saturated cyclic hydrocarbon and B and C are unsaturated cyclic hydrocarbons.

(d) A is cyclohexane and B and C are the isomers of benzene.

46) Select saponification reaction from the following

(a) $C_4H_9OH \xrightarrow[KMnO_4]{\text{Alkaline}} C_3H_7COOH$ (b) $2C_2H_5OH + 2Na \longrightarrow 2C_2H_5COONa + H_2$

(c) $CH_3COOC_2H_5 + NaOH \rightarrow CH_3COONa + C_2H_5OH$ (d) $CH_3COONa + NaOH \rightarrow CH_4 + Na_2CO_3$

Assertion and reason 9 x 1 = 9

47) **Assertion (A)** $Fe_2O_3 + 2AI \rightarrow Al_2O_3 + 2Fe$

The above chemical equation is an example of displacement reaction.

Reason (R) Aluminium being more reactive than iron, displaces Fe from its oxide.

(a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.

(b) Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion.

(c) Assertion is true, but Reason is false.

(d) Assertion is false, but Reason is true.

48) **Assertion (A)** Decomposition of vegetable matter into Compost is an endothermic reaction.

Reason (R) Decomposition reaction involves breakdown of a single reactant into simpler products.

(a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.

(b) Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion.

(c) Assertion is true, but Reason is false.

(d) Assertion is false, but Reason is true.

49) **Assertion (A)** Silver bromide decomposition is used in black and white photography.

Reason (R) Light provides energy for this exothermic reaction.

(a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.

(b) Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion.

(c) Assertion is true, but Reason is false.

(d) Assertion is false, but Reason is true.

50) **Assertion (A)** It is advised that while diluting an acid one should add water to acid and not acid to water keeping the solution continuously stirred.

Reason (R) The process of dissolving an acid into water is highly exothermic.

(a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.

(b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

(c) Assertion is true but Reason is false.

(d) Assertion is false but Reason is true.

51) **Assertion (A)** Fresh milk in which baking soda is added, takes a longer time to set as curd.

Reason (R) Baking soda decreases the pH value of fresh milk to below 6.

(a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.

(b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

(c) Assertion is true but Reason is false.

(d) Assertion is false but Reason is true.

52) **Assertion (A)** In the following reaction.

$ZnO + C \rightarrow Zn + CO$

ZnO undergoes reduction.

Reason (R) Carbon is a reducing agent that reduces ZnO to Zn.

(a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.

(b) Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion.

(c) Assertion is true, but Reason is false.

(d) Assertion is false, but Reason is true.

53) **Assertion (A)** Oxides of metals show basic characters.

Reason (R) Oxides of metals react with acid to form salt and water.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are, but R is not the correct explanation of A

(c) A is true, but R is false

(d) A is false, but R is true

54) **Assertion (A)** Carbon has a strong tendency to either lose or gain electrons to attain noble gas configuration.

Reason (R) Carbon has four electrons in its outermost shell and has the tendency to share electrons with carbon or other elements.

(a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.

(b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

(c) Assertion is true but Reason is false.

(d) Assertion is false but Reason is true.

55) **Assertion (A)** Following are the members of a homologous series:

CH_3OH, CH_3CH_2OH, $CH_3CH_2CH_2OH$

Reason (R) A series of compounds with same functional group but differing by $-CH_2-$ unit is called a homologous series.

(a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.

(b) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

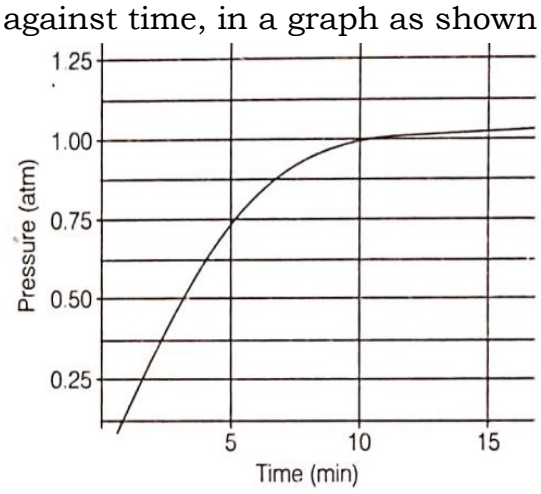
(c) Assertion is true but Reason is false.

(d) Assertion is false but Reason is true.

Case Study Questions 7 x 4 = 28

56) Marble's popularity began in ancient Rome and Greece, where white and off-white marble were used to construct a variety of structures, from hand-held sculptures to massive pillars and buildings.

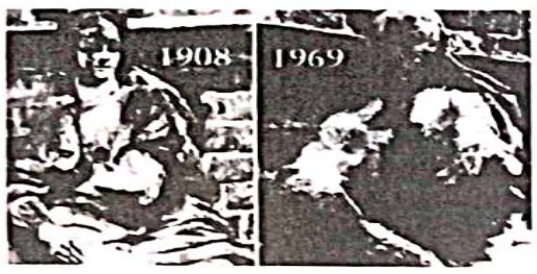
(i) A student added 10 g of calcium carbonate in a rigid container, secured it tightly and started to heat it. After some time, an increase in pressure was observed, the pressure reading was then noted at intervals of 5 min and plotted against time, in a graph as shown below. During which time interval did maximum decomposition took place?



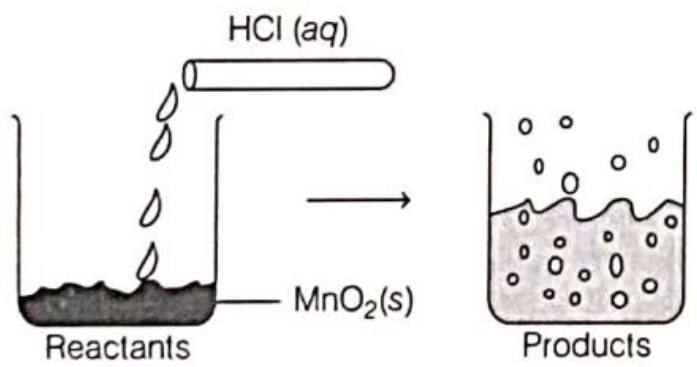
(ii) Calcium oxide can be reduced to calcium, by heating with sodium metal. Which compound would act as an oxidising agent in the given process and why?

(iii) Gas obtained in (i) is a reactant for a very important biochemical process which occurs in the presence of sunlight. ldentify the name of the process.

(iii) Marble statues are corroded or stained when they repeatedly come in contact with polluted rain water. What could be the main reason? Write the chemical decomposition of calcium carbonate.



57) The reaction between MnO_2 with HCI is depicted in the following diagram. It was observed that a gas with bleaching abilities was released.



(i) ldentify the type of chemical reaction between MnO_2 and HCI.

(ii) Which reagent does chlorine gas reacts with to form bleaching powder?

(iii) Write the balanced chemical reaction of part (i) and identify the oxidised and reduced species.

Or

(iii) (a) In the above discussed reaction, what is the nature of MnO_2?

(b) What will happen, if we take dry HCI gas instead of aqueous solution of HCI?

58) The salt pans in Marakkanam, a port town about 120 km from Chennai are the third largest producer of salt in Tamil Nadu. Separation of salt from water is a laborious process and the salt obtained is used as raw materials for manufacture of various sodium compounds. One such compound is sodium hydrogen carbonate, used in baking, as an antacid and in soda acid fire extinguishers.

The table shows the mass of various compounds obtained when 1 L of sea water is evaporated.

Compound	**Formula**	**Mass of solid present/g**
Sodium chloride	NaCl	28.0
Magnesium chloride	$MgCl_2$	8.0
Magnesium sulphate	$MgSO_4$	6.0
Calcium sulphate	$CaSO_4$	2.0
Calcium carbonate	$CaCO_3$	1.0
Total amount of salt obtained		45.0

(i) What is the pH of the acid which is used in the formation of common salt?

(ii) What is the saturated solution of sodium chloride called?

(iii) Which compound in the table reacts with acids to release carbon dioxide?

Or

How many grams of magnesium sulphate are present in 135 g of solid left by evaporation of sea water?

59) Frothing in Yamuna: The primary reason behind the formation of the toxic foam is high phosphate content in the waste water because of detergents used in dyeing industries, dhobi ghats and households. Yamuna's pollution level is so bad that parts of it have been labelled 'dead' as there is no oxygen in it for aquatic life to survive.

(i) Predict the pH value of the water of river Yamuna, if the reason for froth is high content of detergents dissolved in it.

(ii) What is the nature of detergent (in term of acids/base/salts). How the concentration of hydroxide and hydronium ion changes when detegents are dissolved in water.

(iii) The table provides the pH value of four solutions P, Q, R and S.

Solutions	**pH value**
P	2
Q	9
R	5
S	11

Write the solutions in increasing order of their hydronium ion concentration.

Or What is the effect of high content of phosphate ion in river Yamuna?

60) The melting points and boiling points of some ionic compounds are given below:

Compound	**Melting point (K)**	**Boiling point (K)**
NaCl	1074	1686
LiCl	887	1600
$CaCl_2$	1045	1900
CaP	2850	3120
$MgCl_2$	981	1685

These compounds are termed ionic because they are formed by the transfer of electrons from a metal to a non-metal. The electron transfer in such compounds is controlled by the electronic configuration of the elements involved. Every element tends to attain a completely filled valence shell of its nearest noble gas or a stable octet.

(i) Show the electron transfer in the formation of magnesium chloride.

(ii) List two properties of ionic compounds other than their high melting and boiling points.

(iii) While forming an ionic compound say sodium chloride how does sodium atom attain its stable configuration?

Or

(i) Why do ionic compounds in the solid state not conduct electricity?

(ii) What happens at the cathode when electricity is passed through an aqueous solution of sodium chloride?

61) Two students decided to investigate the effect of water and air on iron object under identical experimental conditions. They measured the mass of each object before placing it partially immersed in 10 ml of water. After a few days, the object were removed, dried and their masses were measured. The table shows their results.

Student	Object	Mass of object before rusting in g	Mass of the coated object in g
A	Nail	3.0	3.15
B	Thin plate	6.0	6.33

(i) What might be the reason for the varied observations of the two students?

(ii) In another set up the students coated iron nails with zinc metal and noted that, iron nails coated with zinc prevents rusting. They also observed that zinc initially acts as a physical barrier, but an extra advantage of using zinc is that it continues to prevent rusting even, if the layer of zinc is damaged. Name this process of rust prevention and give any two other methods to prevent rusting.

(iii) In which of the following applications of Iron, rusting will occur most? Support your answer with valid reason.

A. Iron bucket electroplated with zinc.

B. Electricity cables having iron wires covered with aluminium.

C. Iron hinges on a gate.

D. Painted iron fence.

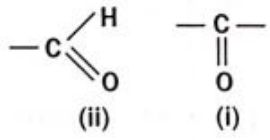
Or

(iii) How is pure iron used for making different alloys?

62) More than three million carbon compounds have been discovered in the field of chemistry. The diversity of these compounds is due to the capacity of carbon atoms for bonding with one another as well as with other atoms. Most of the carbon compounds are poor conductors of electricity and have low melting and boiling points.

(a) Write the molecular formula of first two members of homologous series having functional group -Br.

(b) Given below are the formulae of some functional groups.



(ii) (i)

Write the name of the functional groups.

(c) What would be observed on adding a 5% alkaline potassium permanganate drop by drop to some warm ethanol taken in a test tube? State the role of $KMnO_4$ in the reaction and write the chemical equation for the reaction involved.

Or

(c) Write the name of the compound formed when ethanol is heated at 443 K temperature with excess of conc. H_2SO_4. What is the role of conc. H_2SO_4 In the reaction? Write the chemical equation for the reaction involved.

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