10TH CBSE SCIENCE

10TH CBSE SCIENCE UNIT 1 MCQ TEST

10th Standard

Science

Exam Time : 03:00:00 Hrs

Total Marks : 100

52 x 1 = 52

1) The following reaction: $4NH_3(g) + 5O_2(g) \rightarrow 4NO(g) + 6H_2O(g)$ is an example of a
(i) displacement reaction
(ii) combination reaction
(iii) redox reaction
(iv) neutralisation reaction

(a) (i) and (iv) (b) (ii) and (iii) (c) (i) and (iii) (d) (iii) and (iv)

2) A dilute ferrous sulphate solution was gradually added to the beaker containing acidified permanganate solution. The light purple colour of the solution fades and finally disappears. Which of the following is the correct explanation for the observation?

(a) $KMnO_4$ is an oxidising agent, it oxidises $FeSO_4$

(b) $FeSO_4$ acts as an oxidising agent and oxidises $KMnO_4$

(c) The colour disappears due to dilution; no reaction is involved

(d) $KMnO_4$ is an unstable compound and decomposes in presence of $FeSO_4$ to a colourless compound.

3) Barium chloride on reacting with ammonium sulphate forms barium sulphate and ammonium chloride. Which of the following correctly represents the type of the reaction involved?
(i) Displacement reaction
(ii) Precipitation reaction
(iii) Combination reaction
(iv) Double displacement reaction

(a) (i) only (b) (ii) only (c) (iv) only (d) (ii) and (iv)

4) 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) Carbon dioxide or helium

(c) Nitrogen or oxygen (d) Helium or nitrogen

5) Which one of the following processes involves chemical reactions?

(a) Storing of oxygen gas under pressure in a gas cylinder.

(b) Liquefaction of air. (c) Keeping petrol in a china dish in the open.

(d) Heating copper wire in presence of air at high temperature.

6) In the reaction, $SO_2(g) + 2H_2S(g) \rightarrow 2H_2O(l) + S(s)$, the reducing agent is

(a) SO_2 (b) H_2S (c) H_2O (d) S

7) Which of the following will be required to identify the gas evolved when dilute hydrochloric acid reacts with zinc metal?

(a) Red litmus paper (b) A burning splinter (c) Lime water (d) PH paper

8) The electrolytic decomposition of water gives H_2 and O_2 in the ratio of

(a) 1 : 2 by volume (b) 2 : 1 by volume (c) 8 : 1 by mass (d) 1 : 2 by mass

9) In which of the following, heat energy will be evolved?

(a) Electrolysis of water (b) Dissolution of NH4Cl in water (c) Burning of L.P.G

(d) Decomposition of AgBr in the presence of sunlight

10) An element X on exposure to moist air turns reddish-brown and a new compound Y is formed. The substance X and Y are

(a) X = Fe, Y = Fe_2O_3 (b) X = Ag, Y = Ag_2S (c) X = Cu, Y = CuO

(d) X = Al, Y = Al_2O_3

11) In a reaction between zinc and hydrochloric acid, the changes accompanying a reaction are:

(a) Evolution of gas and heat (b) Evolution of steam

(c) Formation of precipitate (d) Formation of dazzling white light

12) An example of reaction in which gas is evolved is

(a) Reaction between limestone and HCl

(b) Burning of magnesium ribbon in air

(c) Reaction between Calcium oxide and water

(d) Reaction between lead nitrate and potassium iodide

13) A drop of colourless liquid is poured over blue litmus paper and it turns to red. The colourless liquid is

(a) sodium chloride solution (b) pure water (c) potassium hydroxide solution

(d) dilute hydrochloric acid

14) The symbol used to denote a liquid reactant or product in a reaction is

(a) (s) (b) (aq) (c) (g) (d) (l)

15) Which atom is balanced in the given equation?

$4P + O_2 \rightarrow 2P_2O_5$

(a) Phosphorus (b) Oxygen (c) Both Phosphorus and oxygen

(d) Neither Phosphorus nor oxygen

16) Which of the following reaction is used in white washing of walls?

(a) $2Ca + O_2 \longrightarrow 2CaO$ (b) $CaO + H_2O \longrightarrow Ca(OH)_2 + \triangle$

(c) $Ca(OH)_2 + CO_2 \longrightarrow CaCO_3 + H_2O$ (d) $Ca(OH)_2 \xrightarrow{\triangle} CaO + H_2O$

17) Which of the following is not an example of single displacement reaction

(a) $CuO + H_2 \longrightarrow H_2O + Cu$ (b) $Zn + CuSO_4 \longrightarrow ZnSO_4 + Cu$

(c) $4NH_3 + 5O_2 \longrightarrow 4NO + 6H_2O$ (d) $Zn + 2HCl \longrightarrow H_2 + ZnCl_2$

18) An aqueous solution turns red litmus solution blue. Excess addition of which of the following solution would reverse the change?

(a) Baking powder (b) Lime (c) Ammonium hydroxide solution

(d) Hydrochloric acid

19) Calcium phosphate is present in tooth enamel. Its nature is

(a) basic (b) acidic (c) neutral (d) amphoteric

20) Sodium hydrogen carbonate when added to acetic acid evolves a gas. Which of the following statements are true about the gas evolved?
(i) It turns lime water milky
(ii) It extinguishes a burning splinter
(iii) It dissolves in a solution of sodium hydroxide
(iv) It has a pungent odour

(a) (i) and (ii) (b) (i), (ii) and (iii) (c) (ii), (iii) and (iv) (d) (i) and (iv)

21) Which of the following phenomena occur, when a small amount of acid is added to water? (i) Ionisation (ii) Neutralisation (iii) Dilution (iv) Salt formation

(a) (i) and (ii) (b) (i) and (iii) (c) (ii) and (iii) (d) (ii) and (iv)

22) Which of the following substance will not give carbon dioxide on treatment with dilute acid?

(a) Marble (b) Limestone (c) Baking soda (d) Lime

23) Which of the following is (are) true when HCl (g) is passed through water? (i) It does not ionise in the solution as it is a covalent compound. (ii) It ionises in the solution (iii) It gives both hydrogen and hydroxyl ion in the solution (iv) It forms hydronium ion in the solution due to the combination of hydrogen ion with water molecule

(a) (i) only (b) (iii) only (c) (ii) and (iv) (d) (iii) and (iv)

24) Lime water is

(a) CaO (b) $Ca(OH)_2$ (c) $CaCO_3$ (d) $CaCl_2$

25) In which of the following pairs, both are acidic salts?

(a) KCl, KNO_3 (b) Na_2SO_4, K_2SO_4 (c) CH_3COONa, K_2CO_3 (d) $CuSO_4$, $AgNO_3$

26) Which of the following substances will not give carbon dioxide on treatment with dilute acid?

(a) Marble (b) Limestone (c) Lime (d) Baking soda

27) The substance which on treating with chlorine, yields bleaching powder is

(a) quick lime (b) limestone (c) slaked lime (d) gypsum

28) Which of the following does not form an acidic salt?

(a) Nitric acid (b) Carbonic acid (c) Hydrochloric acid (d) Sulphuric acid

29) The ability of metals to be drawn into thin wire is known as

(a) Ductility (b) mallleability (c) Sonorousity (d) conductivity

30) What happens when calcium is treated with water? (i) It does not react with water. (ii) It reacts violently with water. (iii) It reacts less violently with water. (iv) Bubbles of hydrogen gas formed stick to the surface of calcium.

(a) (i) and (iv) (b) (ii) and (iii) (c) (i) and (ii) (d) (iii) and (iv)

31) Metals are refined by using different methods. Which of the following metals are refined by electrolytic refining?
(i) Au (ii) Cu (iii) Na (iv) K

(a) (i) and (ii) (b) (i) and (iii) (c) (ii) and (iii) (d) (iii) and (iv)

32) Which one of the following four metals would be displaced from the solution of its salts by other three metals?

(a) Mg (b) Ag (c) Zn (d) Cu

33) An alloy is

(a) An element (b) A compound (c) A homogeneous mixture
(d) A heterogeneous mixture

34) Which among the following alloys contain mercury as one of its constituents?

(a) Stainless steel (b) Alnico (c) Solder (d) Zinc amalgam

35) Which of the following non-metals is a liquid?

(a) Carbon (b) Bromine (c) Phosphorus (d) Sulphur

36) When iron fillings are heated in a stream of dry hydrogen chloride the compound formed is $FeCl_x$ where X is

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

37) Which among the following alloys contain non-metal as one of its constituents

(a) Brass (b) Amalgam (c) Gun metal (d) None of thes

38) 5 mL each of cone. HCI, HNO_3 and a mixture of cone. HCl (15 mL) and cone. HNO_3 (5 mL) were taken in test tubes labelled as A, Band C. A small piece of metal was put in each tube. No change occurred in test tube A and B but the metal got dissolved in test tube C. The metal could be

(a) AI (b) Au (c) Cu (d) Na

39) $Cu + 2Ag(NO_3)_2 \longrightarrow CU(NO_3)_2 + 2Ag$
$Pb + CU(NO_3)_2 \longrightarrow Pb(NO_3)_2 + Cu$
$Zn + Pb(NO_3)_2 \longrightarrow Zn(NO_3)_2 + Pb$
The most reactive metal is

(a) Ag (b) Pb (c) Cu (d) Zn

40) Which of the following statements are usually correct for carbon compounds? These
i) are good conductors of electricity
ii) are poor conductors of electricity
iii) have strong forces of attraction between their molecules
iv) do not have strong forces of attraction between their molecules

(a) (i) and (iii) (b) (ii) and (iii) (c) (i) and (iv) (d) (ii) and (iv)

41) The soap molecule has a

(a) hydrophilic head and a hydrophobic tail

(b) hydrophobic head and a hydrophilic tail

(c) hydrophobic head and a hydrophobic tail

(d) hydrophilic head and a hydrophilic tail

42) Chlorine reacts with saturated hydrocarbons at room temperature in the

(a) absence of sunlight (b) presence of sunlight (c) presence of water

(d) presence of hydrochloric acid

43) Mineral acids are stronger acids than carboxylic acids because

i) mineral acids are completely ionized
ii) carboxylic acids are completely ionized
iii) mineral acids are partially ionized
iv) carboxylic acids are partially ionised

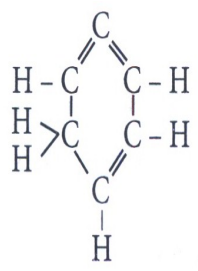
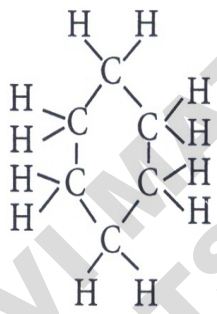
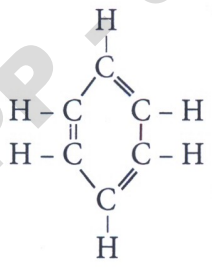
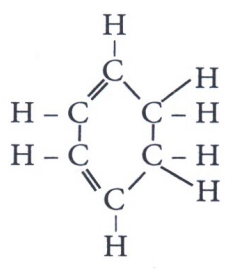
(a) (i) and (iv) (b) (ii) and (iii) (c) (i) and (ii) (d) (iii) and (iv)

44) The heteroatoms present in $CH_3 - CH_2 - O - CH_2 - CH_2Cl$ are

i) oxygen
ii) carbon
iii) hydrogen
iv) chlorine

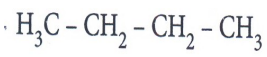
(a) (i) and (ii) (b) (ii) and (iii) (c) (iii) and (iv) (d) (i) and (iv)

45) Structural formula of benzene is

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

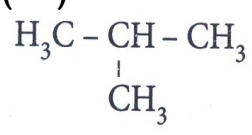
46) Which among the following are unsaturated hydrocarbons?

(i)

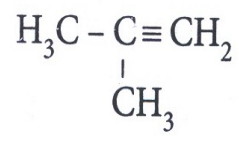


(ii)

(iii)



(iv)



(a) (i) and (iii) (b) (ii) and (iii) (c) (ii) and (iv) (d) (iii) and (iv)

47) Which of the following is used to oxidise ethanol to ethanoic acid

(a) Alkalme $KMnO_4$ (b) Cone. H_2SO_4 (c) Acidified $K_2Cr_2O_7$ (d) All of above

48) Drinking alcohol and driving may cause serious accidents. To discourage this, police randomly test drivers for alcohol using a breath analyser. The breath analyser works because

(a) Alcohol makes the breath dry and the machine registers moisture

(b) Alcohol makes the breath hotter which changes the machine reading

(c) Alcohol causes more saliva which the machine checks.

(d) Alcohol in the breath cause a chemical change registered by the machine

49) Covalent compounds

(a) have high melting and boiling points (b) are mostly soluble in water

(c) are formed between atoms of metals and non-metals

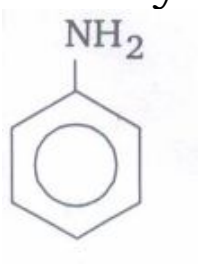
(d) are formed by the sharing of electrons in the bonding atoms

50) Bromine reacts with saturated hydrocarbon at room temperature in the

(a) absence of sunlight (b) presence of wate (c) presence of sunligh

(d) presence of hydrochloric acid

51) Ethanoic acid was added to sodium carbonate solution and the gas evolved was tested with a burning splinter. The following four observations were reported. Identify the correct observation.



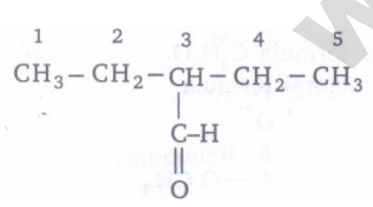
(a) The gas burns with pop sound and the flame gets extinguished

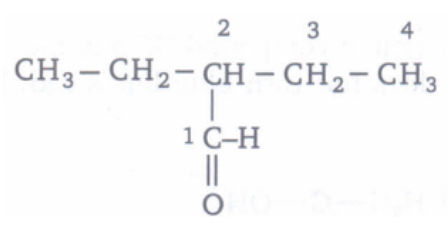
(b) The gas does not burn but the splinter burns with pop sound

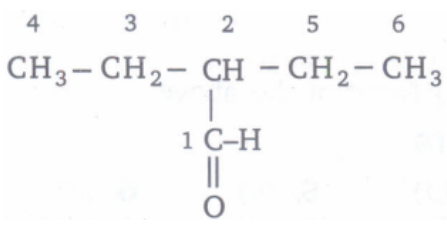
(c) The flame extinguishes and the gas does not burn

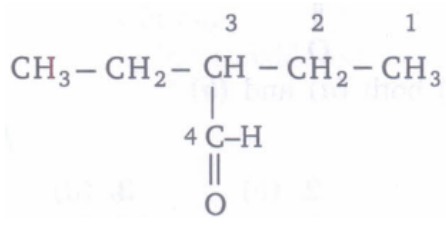
(d) The gas burns with a blue flame and the splinter burns brightly

52) Identify the correct way of numbering an organic compound (according to IUPAC

(a) 

(b) 

(c) 

(d) 

20 x 1 = 20

53) **Assertion:** The chemical equation is always balanced.
Reason: The total mass of elements before reaction should be equal to the total mass of elements after reaction.
Codes
(a) If both assertion and reason are true and the reason is correct explanation of assertion.
(b) If both assertion and reason are true but reason is not a correct explanation of assertion.
(c) If assertion is true and reason is false.
(d) If both assertion and reason are false.

54) **Assertion:** Chemical reaction in test tube concluded with the fall in the temperature of the reaction.
Reason: The reaction has absorbed heat from surroundings and is called exothermic reaction.
Codes
(a) If both assertion and reason are true and the reason is correct explanation of assertion.
(b) If both assertion and reason are true but reason is not a correct explanation of assertion.
(c) If assertion is true and reason is false.
(d) If both assertion and reason are false.

55) **Assertion:** $2H_2\ S_{(g)} + O_{2(g)} \longrightarrow 2\ S_{(s)} + 2H_2O_{(l)}$
It is a redox reaction.
Reason: In redox reaction, oxidation and reduction take place simultaneously.
Codes
(a) Both A and R are true, and R is correct explanation of the assertion.
(b) Both A and R are true, but R is not the correct explanation of the assertion.
(c) A is true, but R is false.
(d) A is false, but R is true.

56) **Assertion**: In a balanced chemical equation, total mass of the reactants is equal to the total mass of the products.
Reason: Mass can neither be created nor destroyed during a chemical change.
Codes
(a) Both A and R are true, and R is correct explanation of the assertion.
(b) Both A and R are true, but R is not the correct explanation of the assertion.
(c) A is true, but R is false.
(d) A is false, but R is true.

57) **Assertion:** Zinc reacts with sulphuric acid to form zinc sulphate and hydrogen gas and it is a displacement reaction.
Reason: Zinc reacts with oxygen to form zinc oxide.
Codes
(a) Both A and R are true, and R is correct explanation of the assertion.
(b) Both A and R are true, but R is not the correct explanation of the assertion.
(c) A is true, but R is false.
(d) A is false, but R is true.

58) **Assertion:** Onion and clove can be used to detect the acids and bases.
Reason: These are called olfactory indicators
Codes
(a) If both assertion and reason are true and the reason is correct explanation of assertion.
(b) If both assertion and reason are true but reason is not a correct explanation of assertion.
(c) If assertion is true and reason is false.
(d) If both assertion and reason are false

59) **Assertion:** KCl is a salt with potassium and chloride ions
Reason: It can be prepared by using hydrochloric acid and potassium hydroxide
Codes
(a) If both assertion and reason are true and the reason is correct explanation of assertion.
(b) If both assertion and reason are true but reason is not a correct explanation of assertion.
(c) If assertion is true and reason is false.
(d) If both assertion and reason are false.

60) **Assertion:** $NaHCO_3$ is a basic salt.
Reason: It is a salt of strong base, NaOH and weak acid, H_2CO_3.
Codes
(a) If both assertion and reason are true and the reason is correct explanation of assertion.
(b) If both assertion and reason are true but reason is not a correct explanation of assertion.
(c) If assertion is true and reason is false.
(d) If both assertion and reason are false

61) **Assertion:** pH = 7 signifies pure water.
Reason: pH of acetic acid is greater than 7.
Codes
(a) Both A and R are true, and R is correct explanation of the assertion.
(b) Both A and R are true, but R is not the correct explanation of the assertion.
(c) A is true, but R is false.
(d) A is false, but R is true

62) **Assertion:** Salt of KNO_3 is formed by strong base and weak acid.
Reason: Salt of NH_4CI is formed by weak base and strong acid.
Codes
(a) Both A and R are true, and R is correct explanation of the assertion.
(b) Both A and R are true, but R is not the correct explanation of the assertion.
(c) A is true, but R is false.
(d) A is false, but R is true.

63) **Assertion:** Tooth decay starts when the pH of the mouth is lower than 5.5.
Reason: Enamel starts corroding below 5.5 pH
Codes
(a) Both A and R are true, and R is correct explanation of the assertion.
(b) Both A and R are true, but R is not the correct explanation of the assertion.
(c) A is true, but R is false.
(d) A is false, but R is true.

64) **Assertion**: Iron does not bum on heating
Reason: Iron filings bum vigorously when sprinkled in the flame of the burner.
Codes
(a) If both assertion and reason are true and the reason is correct explanation of assertion.
(b) If both assertion and reason are true but reason is not a correct explanation of assertion.
(c) If assertion is true and reason is false.
(d) If both assertion and reason are false.

65) **Assertion**: Lead is less reactive than copper.
Reason: Copper can displace zinc from its solution.
Codes
(a) If both assertion and reason are true and the reason is correct explanation of assertion.
(b) If both assertion and reason are true but reason is not a correct explanation of assertion.
(c) If assertion is true and reason is false.
(d) If both assertion and reason are false.

66) **Assertion:** The property of beating a metal into sheets is called ductility.
Reason: Gold and silver are most malleable metals.
Codes
(a) Both A and R are true, and R is correct explanation of the assertion.
(b) Both A and R are true, but R is not the correct explanation of the assertion.
(c) A is true, but R is false.
(d) A is false, but R is true.

67) **Assertion:** The arrangement of metals in order of decreasing reactivities is called reactivity series.
Reason: Metals at the top of series are very reactive and metals at the bottom are least reactive.
Codes
(a) Both A and R are true, and R is correct explanation of the assertion.
(b) Both A and R are true, but R is not the correct explanation of the assertion.
(c) A is true, but R is false.
(d) A is false, but R is true.

68) **Assertion**: It is not that easy to break the bond of nitrogen molecule.
Reason. Each nitrogen atom has three bonds due to three shared pairs of electrons.
Codes
(a) If both assertion and reason are true and the reason is correct explanation of assertion.
(b) If both assertion and reason are true but reason is not a correct explanation of assertion.
(c) If assertion is true and reason is false.
(d) If both assertion and reason are false

69) **Assertion:** Diamond and graphite are two isotopes of carbon.
Reason: Diamond is the hardest substance known while graphite is non conductor of electricity.
Codes
(a) If both assertion and reason are true and the reason is correct explanation of assertion.
(b) If both assertion and reason are true but reason is not a correct explanation of assertion.
(c) If assertion is true and reason is false.
(d) If both assertion and reason are false

70) **Assertion:** Acidified potassium dichromate is oxidising alcohols to acids.
Reason: It adds oxygen to alcohol and is known as oxidising agent.
Codes
(a) If both assertion and reason are true and the reason is correct explanation of assertion.
(b) If both assertion and reason are true but reason is not a correct explanation of assertion.
(c) If assertion is true and reason is false.
(d) If both assertion and reason are false.

71) **Assertion:** The functional group present in alcohols is -OH.
Reason: It is the same group as present in water, hence water and alcohol have similar properties.
Codes
(a) Both A and R are true, and R is correct explanation ofthe assertion.
(b) Both A and R are true, but R is not the correct explanation of the assertion.
(c) A is true, but R is false.
(d) A is false, but R is true.

72) **Assertion:** Two members of a homologous series have similar chemical properties.
Reason: Propane and butane are members of same homologous series.
Codes
(a) Both A and R are true, and R is correct explanation ofthe assertion.
(b) Both A and R are true, but R is not the correct explanation of the assertion.
(c) A is true, but R is false.
(d) A is false, but R is true.

7 x 4 = 28

73) Chemical equation is a method of representing a chemical reaction with the help of symbols and formulae of the substances involved in it. In a chemical equation, the substances which combine or react are called reactants and new substances produced are called products. A chemical equation is a short hand method of representing a chemical reaction. A balanced chemical equation has equal number of atoms of different elements in the reactants and products side. An unbalanced chemical equation has unequal number of atoms of one or more elements in reactants and products. Formulae of elements and compounds are not changed to balance an equation.

(i) Consider the following reaction:

$pMg_3N_2 + qH_2O \rightarrow rMg(OH)_2 + sNH_3$

When the equation is balanced, the coefficients p, q, r, s respectively are

(a) 1,3,3,2 (b) 1,6,3,2

(c) 1,2,3,2 (d) 2,3,6, 2

(ii) Which of the following information is not conveyed by a balanced chemical equation?

(a) Physical states of reactants and products

(b) Symbols and formulae of all the substances involved in a particular reaction

(c) Number of atoms/molecules of the reactants and products formed

(d) Whether a particular reaction is actually feasible or not

(iii) The balancing of chemical equations is in accordance with

(a) law of combining volumes

(b) law of constant proportions

(c) law of conservation of mass

(d) both (b) and (c)

(iv) Which of the following chemical equations is an unbalanced one?

$(a) 2NaHCO_3 \longrightarrow Na_2CO_3 + H_2O + CO_2$

$(b) 2C_4H_{10} + 12O_2 \longrightarrow 8CO_2 + 10H_2O$

$(c)\ 2Al + 6H_2O \longrightarrow 2Al(OH)_3 + 3H_2$

$(d)\ 4NH_3 + 5O_2 \longrightarrow 4NO + 6H_2O$

(v) Which of the following statements is/are correct?

(a) A chemical equation tells us about the substances involved in a reaction.

(b) A chemical equation informs us about the symbols and formulae of the substances involved in a reaction.

(c) A chemical equation tells us about the atoms or molecules of the reactants and products involved in a reaction.

(d) All the above

74) In a balanced chemical reaction, equal number of atoms are present on both sides of reaction. A balanced chemical reaction is based on law of conservation of mass which means that total mass of reactants and products participating in a reaction must be equal. For example, a balanced chemical equation of burning of magnesium in oxygen to form magnesium oxide is written as :

$2Mg + O_2 \longrightarrow 2MgO$

The mass of reactants (2 x 24 + 32 = 80) is equal to the mass of products [2 x (24 + 16) = 80]

(i) In a reaction, 35 g of reactant, PQ breaks down into 20 g of product, P and an unknown amount of product, Q. Using the law of conservation of mass, weight of products, Q will be

(a) 25g (b) 35g (c) 30g (d) 15g

(ii) When solid mercury (II) oxide is heated, liquid mercury and oxygen gas are produced. Which of the following statements is true regarding the balanced chemical equation for this process?

(a) 1 mole of mercury (II) oxide produces two moles of mercury and one mole of oxygen gas

(b) 2 moles of mercury (II) oxide produce one mole of mercury and one mole of oxygen gas

(c) 1 mole of mercury (II) oxide produces half mole of mercury and half mole of oxygen gas

(d) 2 moles of mercury (II) oxide produce 2 moles of mercury and one mole of oxygen gas

(iii) Which of the following laws is satisfied by a balanced chemical equation?

(a) Law of multiple proportions

(b) Law of conservation of mass

(c) Law of conservation of motion

(d) Law of conservation of magnetism

(iv) In the given chemical reaction

$C_6H_{6(l)} + 15O_{2(g)} \longrightarrow mCO_{2(g)} + nH_2O_{(l)}$

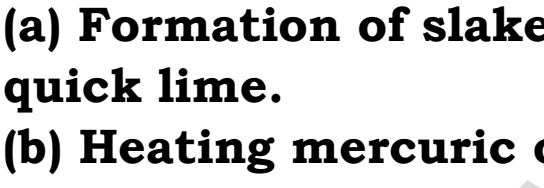
The values of m and n are respectively

(a) 14 and 8 (b) 12 and 6 (c) 8 and 10 (d) 12 and 10

(v) Sulphur dioxide reacts with oxygen to form sulphur trioxide. What would be the molar ratio of sulphur dioxide to sulphur trioxide?

(a) 2: 3 (b) 1: 1 (c) 1: 2 (d) 3: 2

75) The earlier concept of oxidation and reduction is based on the addition or removal of oxygen or hydrogen elements so, in terms of oxygen and hydrogen, oxidation is addition of oxygen to a substance and removal of hydrogen from a substance. On the other hand, reduction is addition of hydrogen to a substance and removal of oxygen from a substance. The substance which gives oxygen to another substance or removes hydrogen from another substance in an oxidation reaction is known as oxidising agent, while the substance which gives hydrogen to another substance or removes oxygen from another substance in a reduction reaction is known as reducing agent. For example,



(i) A redox reaction is one in which

(a) both the substances are reduced

(b) both the substances are oxidised

(c) an acid is neutralised by the base

(d) one substance is oxidised while the other is reduced.

(ii) In the reaction, $H_2S + Cl_2 \longrightarrow S + 2HCl$

(a) H_2S is the reducing agent.

(b) HCI is the oxidising agent.

(c) H_2S is the oxidising agent.

(d) Cl_2 is the reducing agent.

(iii) Which ofthe following processes does not involve either oxidation or reduction?

(a) Formation of slaked lime from quick lime.

(b) Heating mercuric oxide.

(c) Formation of manganese chloride from manganese oxide (MnO_2).

(d) Formation of zinc from zinc blende.

(iv) $Mg + CuO \longrightarrow MgO + Cu$ Which of the following is wrong relating to the above reaction?

(a) CuO gets reduced

(b) Mg gets oxidised.

(c) CuO gets oxidised.

(d) It is a redox reaction.

(v) Identify the correct oxidising agent and reducing agent in the following reaction.

$Fe_2O_3 + 2Al \longrightarrow 2Fe + Al_2O_3$

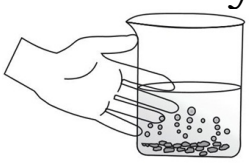
(a) AI- Oxidising agent, Fe_2O_3 - Reducing agent

(b) $Fe_{2\ O3}$ - Oxidising agent, AI- Reducing agent

(c) Fe - Oxidising agent, Al_2O_3 - Reducing agent

(d) Fe_{2O3} - Oxidising agent, Al_2O_3 - Reducing agent

76) 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 whitewash, the walls became shiny.



(i) Name the compound X, that Ramesh mixed with water.

(a) Calcium (b) Calcium oxide (c) Calcium carbonate (d) Calcium hydroxide

(ii) Name the compound Y that Ramesh got after mixing X with water.

(a) Calcium (b) Calcium oxide (c) Calcium carbonate (d) Calcium hydroxide

(iii) What type of reaction is occurred here?

(a) Decomposition reaction (b) Displacement reaction

(c) Double displacement reaction (d) Combination reaction

(iv) Which of the following reactions is responsible for shiny finish of the walls?

$(a)\mathrm{CaO} + \mathrm{H_2O} \rightarrow \mathrm{Ca(OH)_2}$

$(b)\mathrm{Ca} + \mathrm{CO_2} \rightarrow \mathrm{CaCO_3}$

$(c)\mathrm{Ca(OH)_2} + \mathrm{CO_2} \rightarrow \mathrm{CaCO_3} + \mathrm{H_2O}$

$(d)\mathrm{CaCO_3} + \mathrm{H_2O} \rightarrow \mathrm{Ca(OH)_2} + \mathrm{CO_2}$

(v) Which of the following reactions is responsible for shiny finish of the walls?

(a) $CaCO_3$ (b) CaO (c) $Ca(OH)_2$ (d) Ca

77) Chemically, Plaster of Paris (POP) is calcium sulphate hemihydrate, i.e., containing half molecule of water of crystallisation. It is represented by the formula, $CaSO_4 .1/2H_2O$. Half molecule of water of crystallisation means that one water molecule is shared by two formula units of $CaSO_4$. Hence, we also represent its formula as $(CaSO_4)_2.H_2O$. The name, plaster of Paris, was given to this compound because for the first time, it was made from gypsum which was mainly found in Paris.

(i) The difference of water molecules in gypsum and plaster of Paris is

(a) 5/2(b) 2(c) 1/2(d) 3/2

(ii) Plaster of Paris hardens by

(a) giving off CO_2 **(b) changing into $CaCO_3$**

(c) combining with water **(d) giving out water**

(iii) Which of the following statements is incorrect?

(a) Plaster of Paris is used to ornate designs on walls and ceilings

(b) On heating gypsum above 373 K, $CaSO_4$ is obtained

(c) Dead burnt plaster is $CaSO_4 \cdot 2H_2O$

(d) Setting of plaster is due to its hydration into gypsum

(iv) Select the incorrect statement with respect to gypsum

(a) It is slightly soluble in water

(b) It is also known as alabaster

(c) On heating gypsum at 373 K, it loses water molecules and becomes calcium sulphate hemihydrate

(d) Chemical formula of gypsum is $CaSO_4 \cdot 1/2H_2O$

(v) Plaster of Paris is obtained by

(a) adding water to calcium sulphate.

(b) adding sulphuric acid to calcium hydroxide

(c) heating gypsum to a very high temperature

(d) heating gypsum to 100° C

78) The arrangement of metals in a vertical column in the decreasing order of their reactivities is called the reactivity series or activity series of metals. The most reactive metal is at the top position of the reactivity series. The least reactive metal is at the bottom of the reactivity series.
Hydrogen, though a non-metal, has been included in the activity series of metals only for comparison. Apart from it, the hydrogen atom also has tendency to lose its valence electron and form cation which behaves like metal.

$$H \rightarrow H^+ + e^-$$

(i) Which metal can be displaced by copper from its salt solution?
(a) Zinc (b) Silver (c) Iron (d) Lead

(ii) An element 'X after reacting with acids liberates hydrogen gas and can displace lead and mercury from their salt solutions. The metal 'X is
(a) copper (b) gold (c) calcium (d) hydrogen.

(iii) the most reactive metal is
(a) potassium (b) barium (c) zinc (d) calcium

(iv) The metal which does not liberate hydrogen gas after reacting with acid is
(a) zinc (b) lead (c) iron (d) gold

(v) Which of the following metals does not react with water at all?
(I) Sodium
(II) Copper
(III) Aluminium
(IV) Lead
(a) I and III only (b) IV only (c) II and IV only (d) I, II, III and IV

79) Two allotropic forms of carbon which are crystalline in nature, are diamond and graphite. They differ physically but chemically they are similar. Diamond is the hardest crystalline form of carbon. In diamond, each carbon atom is linked to four other carbon atoms by covalent bonds. In graphite, each carbon atom is linked to three other carbon atoms by covalent bond. Graphite is relatively soft and greasy. It is also a good conductor of electricity. The C-C bond length in graphite is 141.5 pm while in diamond it is 154 pm.

(i) Which of the following is a good conductor of heat and electricity?

(a) Coal **(b) Diamond** **(c) Charcoal** **(d) Graphite**

(ii) Graphite is a good conductor of electricity because

(a) it has free electrons **(b) it has free atoms** **(c) it is crystalline** **(d) it is soft and greasy.**

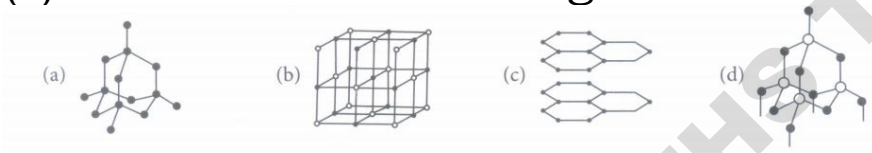
(iii) Which of the following types of binding forces is present in the structure of diamond?

(a) Ionic **(b) van der Waals'** **(c) Covalent** **(d) None of these**

(iv) Diamond is not a good conductor of electricity because

(a) it is very hard **(b) its structure is very compact**
(c) it is not water soluble **(d) it has no free electron.**

(v) Which of the following is the structure of diamond?



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