QB365

Important Questions - Chemical Reactions and Equations

10th Standard CBSE

Science Reg.No. : | | | | | | |

Time : 01:00:00 Hrs

Total Marks : 50

Section - A

1) What happens when dilute hydrochloride acid is added to iron fillings? Tick the correct answer. **1**

(a) Hydrogen gas and Iron chloride are produced. (b) Chloride gas and Iron hydroxide are produced.

(c) No reaction takes place (d) Iron salt and water are produced

2) Which of the following statements about the given reaction are correct? **1**

$3Fe(s) + 4H_2O(g) \rightarrow Fe_3O_4(s) + 4H_2(g)$

(i) Iron metal is getting oxidised

(ii) Water is getting reduced

(iii) Water is acting as reducing agent

(iv) Water is acting as oxidising agent

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

3) 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? **1**

(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.

4) 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? **1**

(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)

5) The following reaction is used for the preparation of oxygen gas in the laboratory **1**

$2KClO_3(s) \xrightarrow[Catalyst]{Heat} 2KCl + 3O_2(g)$

Which of the following statement(s) is (are) correct about the reaction?

(a) It is a decomposition reaction and endothermic in nature (b) It is a combination reaction

(c) It is a decomposition reaction and accompanied by release of heat

(d) It is a photochemical decomposition reaction and exothermic in nature

6) Which of the following are combination reactions? **1**

(i) $2KClO_3 \xrightarrow{\Delta} 2KCl + 3O_2$

(ii) $MgO + H_2O \rightarrow Mg(OH)_2$

(iii) $4Al + 3O_2 \rightarrow 2Al_2O_3$

(iv) $Zn + FeSO_4 \rightarrow ZnSO_4 + Fe$

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

7) In the reaction, **1**

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

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

8) We store silver chloride in a dark coloured bottle because it is **1**

(a) a white solid (b) to avoid action by sunlight (c) undergoes redox reaction (d) none of the above

9) The reaction of H_2 gas with oxygen gas to form water is an example of **1**

(a) redox reaction (b) combination reaction (c) exothermic reaction (d) all of these reactions

10) Write a balanced chemical equation: **1**

$FeSO_4 \xrightarrow{Heat} Fe_2O_3(s) + SO_2(g) + SO_3(g)$

Section - B

11) Write the balanced equation for the following chemical reactions. **2**

(i) Hydrogen + Chlorine $\rightarrow$ Hydrogen chloride

(ii) Barium chloride + Aluminium sulphate $\rightarrow$ Barium sulphate + Aluminium chloride

(iii) Sodium + Water $\rightarrow$ Sodium hydroxide + Hydrogen

12) A solution of a substance 'X' is used for white washing. **2**

(i) Name the substance 'X' and write its formula.

(ii) Write the reaction of the substance 'X' named in (i) above with water.

13) Identify the substances that are oxidised and the substances that are reduced in the following reactions. **2**

(i) $4Na(s) + O_2(g) \rightarrow 2Na_2O(s)$

(ii) $CuO(s) + H_2(g) \rightarrow Cu(s) + H_2O(l)$

14) Write the balanced chemical equations for the following reactions. **2**

(a) Calcium hydroxide + Carbon dioxide $\rightarrow$ Calcium carbonate + Water

(b) Zinc + silver nitrate $\rightarrow$ Zinc nitrate + Silver

(c) Aluminium + Copper chloride $\rightarrow$ Aluminium chloride + Copper

(d) Barium chloride + Potassium Sulphate $\rightarrow$ Barium sulphate + Potassium chloride

15) Explain the following terms with one example each: **2**

(a) Corrosion (b) Rancidity

16) Explain and name the type of reaction seen when iron reacts with hydrochloric acid. **2**

17) Balance the following chemical equation: **2**

$MnO_2 + HCl \rightarrow MnCl_2 + Cl_2 + H_2O$

18) Write balanced chemical equations for the following reactions : **2**

(i) Silver bromide on exposure to sunlight decomposes into silver and bromine

(ii) Sodium metal reacts with water to form sodium hydroxide and hydrogen gas.

19) (a) Mention the four informations given by an equation. **2**

(b) State the law of conservation of mass as applicable in a chemical reaction.

20) 2 g ferrous sulphate crystals are heated in a dry boiling tube. **2**

(i) List any two observations.

(ii) Name the type of chemical reaction taking place.

(iii) Write the chemical equation of the reaction.

Section -C

21) On heating blue coloured powder of copper (II) nitrate in a boiling tube, copper oxide (black), oxygen gas and a brown gas X is formed. **5**

(a) Write a balanced chemical equation of the reaction.

(b) Identify the brown gas X evolved.

(c) Identify the type of reaction.

(d) What could be the pH range of aqueous solution of the gas X?

22) Give the characteristic tests for the following gases: **5**

(a) CO_2

(b) SO_2

(c) O_2

(d) H_2

23) What happens when a piece of **5**

(a) Zinc metal is added to copper sulphate solution?

(b) Aluminium metal is added to dilute hydrochloric acid?

(c) Silver metal is added to copper sulphate solution? Write the balanced chemical equation if the reaction occurs.

24) What happens when zinc granules are treated with dilute solution of H_2SO_4, HCl, HNO_3, NaCl and NaOH, also write the chemical equations if reaction occurs. **5**

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