

I. Choose the correct answer.

9x1=9

1. Photosynthesis is a decomposition reaction caused by

- a) heat b) electricity
c) light d) mechanical energy

2. A single displacement reaction is represented by $X_{(s)} + 2HCl_{(aq)} \rightarrow XCl_{2(aq)} + H_{2(g)}$ Which of the following(s) could be X. (i) Zn (ii) Ag (iii) Cu (iv) Mg. Choose the best pair.

- a. i and ii b. ii and iii
c. iii and iv d. i and iv

3. $H_{2(g)} + Cl_{2(g)} \rightarrow 2HCl_{(g)}$ is a

- a. Decomposition Reaction b. Combination Reaction
c. Single Displacement Reaction d. Double Displacement Reaction

4. The reaction between carbon and oxygen is represented by $C_{(s)} + O_{2(g)} \rightarrow CO_{2(g)} + \text{Heat}$.

In which of the type(s), the above reaction can be classified?

(i) Combination Reaction (ii) Combustion Reaction (iii) Decomposition Reaction (iv) Irreversible Reaction

- a. i and ii b. i and iv
c. i, ii and iii d. i, ii and iv

5. Which of the following represents a precipitation reaction?

- a. $A_{(s)} + B_{(s)} \rightarrow C_{(s)} + D_{(s)}$ b. $A_{(s)} + B_{(aq)} \rightarrow C_{(aq)} + D_{(l)}$
c. $A_{(aq)} + B_{(aq)} \rightarrow C_{(s)} + D_{(aq)}$ d. $A_{(aq)} + B_{(s)} \rightarrow C_{(aq)} + D_{(l)}$

6. A reaction between carbon and oxygen is represented by $C_{(s)} + O_{2(g)} \rightarrow CO_{2(g)} + \text{Heat}$. In which of the type(s), the above reaction can be classified?

- i) Combination Reaction ii) Combustion Reaction
iii) Decomposition Reaction iv) Irreversible Reaction
a) i and ii b) i and iv
c) i, ii and iii d) i, ii and iv

7. The chemical equation $\text{NaSO}_{4(aq)} + \text{BaCl}_{2(aq)} \rightarrow \text{BaSO}_{4(s)} + 2\text{NaCl}_{(aq)}$ represents which of the following types of reaction?

- a) Neutralisation
- b) Combustion
- c) Precipitation
- d) Single Displacement

8. Which of the following statements are correct above a chemical equilibrium?

- (i) It is adynamic in nature
- (ii) The rate of the forward and backward
- (iii) Irreversible reactions do not attain chemical equilibrium
- (iv) The concentration of reactants and products may be different

- a) i, ii and iii
- b) i, ii and iv
- c) ii, iii and iv
- d) i, ili and iv

9. A single displacement reaction is represented by $\text{X}_{(s)} + 2\text{HCl}_{(aq)} \rightarrow \text{XCl}_{2(aq)} + \text{H}_{2(g)}$

Which of the following(s) could be X.

- (i) Zn
- (ii) Ag
- (ii) Cu
- (iv) Mg.

Choose the best pair.

- a) i and ii
- b) ii and iii
- c) iii and iv
- d) I and iv

II. Fill in the blanks

4x1=4

1. ThepH of a fruit juice is 5.6. If you add slaked lime to this juice, its pH_____.
2. The value of ionic product of water at 25°C is _____
3. Chemical volcano is an example for_____type of reaction.
4. The ion formed by dissolution of H^+ in water is called_____.

III. True or False: (If false give the correct statement)

2x1 =2

1. The Ph of rain water containing dissolved gases like SO_3 , CO_2 , NO_2 , will be less than 7.
2. On dipping a pH paper in a solution, it turns into yellow. Then the solution is basic.

IV. Short answer questions

10 x 2=20

1. What is the pH of 1.0×10^{-5} molar solution of KOH.
2. Differentiate reversible and irreversible reactions.
3. Why does the reaction rate of reaction increase on raising the temperature?
4. Define combination reaction. Give an example.
5. Differentiate combination and decomposition reactions.
6. Calculate the pH of 1.0×10^{-4} molar solution of HNO_3 .
7. When an aqueous solution of potassium chloride is added to an aqueous solution of silver nitrate, a white precipitate is formed. Give the chemical equation of this reaction.
8. Define combination reaction. Give one example for an exothermic combination reaction.
9. Can a nickel spatula be used to stir copper sulphate solution? Justify your answer.
10. Lemon juice has a pH 2, what is the concentration of H^+ ions?

III Answer in detail.

3 x 5 =15

1. Explain the factors influencing the rate of reaction.
2. How does pH play an important role in everyday life?
3. Explain the types of double displacement reactions with examples.