Assignment class X

Chapter 1

Chemical Reactions and Equations

1. Why is it necessary to balance a chemical equation? What would happen if equations are left unbalanced in industrial chemical processes?

2. A student adds water to quicklime (CaO) and observes a sudden rise in temperature. Explain the type of reaction taking place with a balanced chemical equation.

3. Why do iron articles get coated with a brownish substance when exposed to moist air? Write the balanced chemical reaction and explain the environmental effects of this process.

4. When lead nitrate is heated in a test tube, a brown gas is evolved. Identify the gas and explain the type of reaction with a balanced equation.

5. Hydrogen gas is not evolved when a metal reacts with nitric acid. Explain the reason.

6. Identify the type of reaction and give a balanced chemical equation for

a) Heating of calcium carbonate

b) Reaction between barium chloride and sodium sulphate.

7. Explain why food is kept in airtight containers. Relate your answer to the types of chemical reactions discussed in this chapter.

8. Which among the following changes are chemical reactions? Justify your answer.

a) Rusting of iron.

- b) Melting of ice.
- c) Boiling of water.

d) Burning of paper.

9. A white powdery substance is added to dilute hydrochloric acid and a colorless gas is evolved which turns lime water milky. Identify the reactants and products and write the balanced equation.

10. Why is photosynthesis considered an endothermic reaction? Write a balanced chemical equation to support your answer.

11. Explain the significance of the following in daily life with examples:

a) Displacement reactions.

b) Redox reactions.

12. A student observes that the color of copper sulphate solution changes when an iron nail is dipped in it. Write the chemical reaction and explain why this change occurs.

13. Silver chloride turns grey in sunlight. Identify the type of reaction and explain the mechanism behind the color change.

14. In a closed room, burning of a candle eventually extinguishes itself. Explain the chemical reactions involved and the reason behind the candle going out.

15. Balance the following equations and classify them into types of chemical reactions:

a) Fe + H2O \rightarrow Fe3O4 + H2

b) Zn + AgNO3 \rightarrow Zn(NO3)2 + Ag

c) CaCO3 \rightarrow CaO + CO2