



Worksheet: Chapter 1 – Chemical Reactions and Equations

Section A: Multiple Choice Questions (MCQs)

(1 mark each)

1. Which of the following statements is true about a balanced chemical equation?

- a) The number of atoms of each element is the same on both sides.
- b) The number of molecules is the same on both sides.
- c) The number of compounds is equal on both sides.
- d) The reaction occurs in only one direction.

2. Which of the following is an example of a thermal decomposition reaction?

- a) $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$
- b) $\text{H}_2 + \text{Cl}_2 \rightarrow 2\text{HCl}$
- c) $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$
- d) $\text{Zn} + \text{H}_2\text{SO}_4 \rightarrow \text{ZnSO}_4 + \text{H}_2$

3. Which reaction is used for the manufacture of quick lime in industries?

- a) $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$
- b) $2\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}$
- c) $\text{Zn} + \text{CuSO}_4 \rightarrow \text{ZnSO}_4 + \text{Cu}$
- d) $\text{Fe}_2\text{O}_3 + 2\text{Al} \rightarrow 2\text{Fe} + \text{Al}_2\text{O}_3$

4. Which type of reaction is represented by the equation: $2\text{AgBr} \rightarrow 2\text{Ag} + \text{Br}_2$?

- a) Combination reaction
- b) Decomposition reaction
- c) Displacement reaction
- d) Redox reaction

5. What is the chemical formula for magnesium oxide?

- a) MgO
- b) Mg_3O_2
- c) Mg_2O
- d) MgO_2

Section B: Short Answer Questions

(2 marks each)

1. Define a displacement reaction. Give an example.
2. Why should a magnesium ribbon be cleaned before burning in air?
3. Write the balanced chemical equation for the reaction between sodium hydroxide and hydrochloric acid.
4. What is a precipitation reaction? Provide an example.
5. Explain the term 'oxidation' with a suitable example.

Section C: Long Answer Questions

(3 marks each)

1. Describe the process of corrosion and explain its harmful effects.
2. What is meant by the law of conservation of mass? How does it apply to a chemical equation?
3. Explain the different types of decomposition reactions with examples for each.
4. Discuss the importance of balancing chemical equations. Why should they always be balanced?
5. What is meant by an exothermic reaction? Give two examples from everyday life.

Section D: Case Study Based Questions

(4 marks each)

Rina was performing an experiment where she heated calcium carbonate (CaCO_3) in a test tube. After a few minutes, she observed the release of a gas and a white powder was left behind. This is an example of a thermal decomposition reaction.

Based on the above case study, answer the following questions:

1. Write the balanced chemical equation for the reaction.
2. What type of reaction is this?
3. Identify the products formed in this reaction.
4. Explain why this reaction is called a decomposition reaction.

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