SAMPLE QUESTION PAPER
CLASS XII
SEMESTER IV

Chemistry

Full Marks: 40

Section A – Short Answer Type Questions

(Answer any five questions. Each question carries 3 marks.)
[5 × 3 = 15 marks]

1. Explain the difference between calcination and roasting with suitable examples.
2. Write chemical equations for the reduction of aldehydes using:
   (a) H_2/Ni
   (b) Na–Hg/H_2O
   (c) $LiAlH_4$
3. Write the preparation of primary amines using Gabriel's phthalimide synthesis.
4. Define ligands. Give examples of monodentate and bidentate ligands.
5. Write a short note on the structure and functions of haemoglobin.
6. Mention any three differences between soaps and detergents.

Section B – Long Answer Type Questions

(Answer any five questions. Each question carries 5 marks.)
[5 × 5 = 25 marks]

7. Describe the occurrence and extraction principles of **aluminium, copper, and iron**. Also mention one important use of each metal. *(Do not include technical details.)*
8. Write short notes on the following reactions with chemical equations:
   (a) Aldol condensation
   (b) Cannizzaro reaction
   (c) Perkin reaction
9. (a) How is benzoic acid prepared from:
   - Toluene
   - Alkyl cyanide

   (b) Explain the **acidic nature** of carboxylic acids with suitable reactions.
10. (a) What are diazonium salts? Write the preparation of benzene diazonium chloride.
    (b) Explain any **two** replacement reactions of diazonium salts.
11. Explain the preparation and important chemical properties of **potassium permanganate ($KMnO_4$)**. Mention two uses.
12. (a) What is a biodegradable polymer? Give one example.
    (b) Write the preparation and uses of any **two** synthetic polymers.
    (c) Mention one environmental hazard of plastics.