CYCLE TEST I

SET I

CLASS : XII **Time Allotted: 1Hr**

Max. Marks: 25

General instructions:

- All questions are compulsory.
- Mark of each question is indicated against it.

1. Name the non-stoichiometric point defect responsible for colour in alkali halides? 1

2. What type of alignment in crystals makes them ferrimagnetic? 1

3. Write equation for the following reactions; 2
   a) Wurtz – Fittig reaction
   b) Friedel – Crafts acylation of Chlorobenzene

4. Explain the following terms: 2
   a) Ferromagnetism
   b) Tetrahedral void

5. A metallic oxide crystallizes in a hexagonal closed packed array of oxide ions with two out of every three octahedral voids occupied by the metal ions. Derive the formula of the metallic oxide. 2

6. An optically active compound having molecular formula $C_6H_{13}Br$ reacts with aq.KOH to give a racemic mixture of products. Write the mechanism involved in the reaction. 2

7. a) Give a chemical test to distinguish between the following pairs of compounds: Phenyl chloride and Benzyl chloride 3
   b) Arrange the following compounds in the increasing order of the reactivity towards the reaction with caustic alkali:
   Chlorobenzene, 4-chloro-1-methyl-benzene, 4- nitrochlorobenzene and 2,4,6-trinitrochlorobenzene
   c) Write the IUPAC name of the following compound:
   $p\text{-}ClC_6H_4CH_2CH(CH_3)_2$

8. Copper crystallizes into an fcc lattice with edge length 3.61×10^{-8}cm. Calculate the 3

density of copper. [Given Cu = 63.5g mol^{-1}]

9. a) Identify the chiral molecule in the following: 3
Pentan -2-ol or Pentan-3-ol
b) Give reason:
i) Haloalkanes react with KCN to form alkyl cyanides as main product while AgCN forms isocyanides as the chief product.
ii) Why is sulphuric acid not used during the reaction of alcohols with KI?

10. How will you bring about the following conversions: 3
a) 1- Bromopropane to 2,3- dimethylbutane
b) Ethanol to propanenitrile
c) tert-Butyl bromide to isobutylbromide

11. A sample of ferrous oxide has actual formula $Fe_{0.93}O_{1.00}$. In this sample what fraction of metal ions are Fe^{2+} ions? What type of non-stoichiometric defect is present in this sample? 3