CYCLE TEST I

SET II

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

Max. Marks: 25

General instructions:

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

1. What type of semiconductor is obtained when silicon is doped with arsenic? 1

2. How are cation vacancies created in KCl crystal? 1

3. Write equation for the following: 2
   a) Swarts reaction
   b) Friedel Crafts nitration of Chlorobenzene

4. Suggest a mechanism for the following reaction: 2

   $n\text{-BuBr} + KCN \xrightarrow{EtOH,\ H_2O} n\text{- Bu-CN} + KBr$

5. Explain the following terms: 2
   a) Crystal lattice
   b) Interstitials

6. Distinguish between orthorhombic and triclinic unit cells on the basis of : 2
   a) Crystal parameters
   b) Bravais lattices

7. a) Give a chemical test to distinguish between the following pairs: 3
      1- Chloropropene and 3-Chloropropene
   b) Which compound of the following pairs will react in S_N2 reaction with OH^-
      $(CH_3)_3CCl$ or CH_3Cl
   c) Write the IUPAC name of the following compound:
      $CH_3CH(p\text{-}ClC_6H_4)CH(Br)CH_3$

8. Determine the type of cubic lattice to which a given crystal belongs if it has edge length of 290 pm and density is 7.80g cm^{-3}. (Molecular mass = 56g mol^{-1}) 3

9. How will you bring about the following conversions: 3
   a) Benzene to p-nitrochlorobenzene
   b) Propene to 1-Propanol
   c) 2-Bromopropane to Hexane

10. Analysis shows that nickel oxide has formula $Ni_{0.98}O_{1.00}$. What fraction of nickel exists as Ni^{2+} and Ni^{3+} ions? 3

11. a) Define racemization. 3
    b) Give reason:
       i) Vinyl chloride is unreactive in nucleophilic substitution reactions.
       ii) P-Dichlorobenzene has higher melting point than those of o- and m-isomers.