

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
$$\text{n-BuBr} + \text{KCN} \xrightarrow{\text{EtOH, H}_2\text{O}} \text{n-Bu-CN} + \text{KBr}$$
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 $\text{S}_{\text{N}}2$ reaction with OH^-
(CH_3)₃CCl or CH_3Cl
c) Write the IUPAC name of the following compound:
 $\text{CH}_3\text{CH}(\text{p-ClC}_6\text{H}_4)\text{CH}(\text{Br})\text{CH}_3$

8. Determine the type of cubic lattice to which a given crystal belongs if it has edge length of 290 pm and density is 7.80 g cm^{-3} . (Molecular mass = 56 g 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 $\text{Ni}_{0.98}\text{O}_{1.00}$. 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.