

CLASS : XII

Time Allotted: 1Hr

Max. Marks: 25

General instructions:

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

1. 'Stability of a crystal is reflected in the magnitude of its melting point'. Comment. 1
2. Why does LiCl acquire pink colour when heated in Li vapour? 1
3. Explain the following terms with a suitable example: 2
 - a) 12 – 16 compounds
 - b) Ferrimagnetism
4. Write equation for the following: 2
 - a) Finkelstein reaction
 - b) Sandmeyer reaction
5. A unit cell consists of a cube in which there are A atoms at the corners and B atoms at the face centres. Two A atoms are missing from the two corners of the unit cell. What is the formula of the compound? 2
6. An optically active halide of formula C_4H_9Br undergoes substitution by OH^- with an inversion of configuration. Explain the mechanism involved in the reaction. 2
7. a) Distinguish between the following pairs: 3
1- Chlorobutane and 1- Chlorobutene
b) Predict the order of reactivity of the following compounds in S_N1 reactions:
 $C_6H_5CH_2Br$, $C_6H_5CH(C_6H_5)Br$, $C_6H_5CH(CH_3)Br$, $C_6H_5C(CH_3)(C_6H_5)Br$
c) Write the IUPAC name of the following:
 $(CH_3)_3CCH_2CHBrC_6H_5$
8. An element occurs in bcc structure. It has a cell edge length of 250 pm. Calculate the molar mass if its density is 8.0 g cm^{-3} . 3
9. How will you bring about the following conversions: 3
 - a) Propene to 1- Nitropropane

- b) Benzyl alcohol to Benzyl cyanide
 - c) Chlorobenzene to p- nitrophenol
10. a) If KCl is doped with 10^{-4} mole % of CdCl_2 , what is the concentration of cation vacancy? 3
- b) A compound forms a hexagonal closed packed structure. What is the total number of voids in 0.5 mol of it?
11. a) What are enantiomers? 3
- b) Explain why?
- i) Grignard reagent should be prepared under anhydrous conditions.
 - ii) Tertiary halides do not undergo $\text{S}_{\text{N}}2$ mechanism.