

Solid state (Assignment – I)

1. Why are solids rigid?
2. Why do solids have a definite volume?
3. Classify the following as amorphous or crystalline solids:
Polyurethane, naphthalene, benzoic acid, teflon, potassium nitrate, cellophane, polyvinyl chloride, fibre glass, copper.
4. Why is glass considered a super cooled liquid?
5. Refractive index of a solid is observed to have the same value along all directions. Comment on the nature of this solid. Would it show cleavage property?
6. Classify the following solids in different categories based on the nature of intermolecular forces operating in them:
Potassium sulphate, tin, benzene, urea, ammonia, water, zinc sulphide, graphite, rubidium, argon, silicon carbide.
7. Solid A is a very hard electrical insulator in solid as well as in molten state and melts at extremely high temperature. What type of solid is it?
8. Ionic solids conduct electricity in molten state but not in solid state. Explain.
9. What type of solids are electrical conductors, malleable and ductile?
10. Give the significance of a 'lattice point'.
11. Name the parameters that characterize a unit cell.
12. Distinguish between
 - (i) Hexagonal and monoclinic unit cells
 - (ii) Face-centred and end-centred unit cells.
13. Explain how much portion of an atom located at (i) corner and (ii) body-centre of a cubic unit cell is part of its neighbouring unit cell.
14. What is the two dimensional coordination number of a molecule in square close packed layer?
15. A compound forms *hexagonal close-packed* structure. What is the total number of voids in 0.5 mol of it? How many of these are tetrahedral voids?