



CHEMISTRY

CH: 1 THE SOLID STATE

Class: XII

- I Answer the following
1. Crystalline solids are anisotropic in nature. What does this statement mean?
 2. Zinc oxide on heating turns yellow. Why?
 3. What type of stoichiometric effect is shown by AgCl?
 4. Which stoichiometric effect increases the density of a solid?
 5. Give an example of ionic solid which shows Frenkel defect.
 6. Why does LiCl acquire pink colour when heated in Li vapours?
 7. How are the following properties of crystals affected by Schottky and Frenkel defects?
a) Density b) Electrical conductivity
 8. In a mixed oxide of a compound, $\frac{1}{8}$ th of tetrahedral voids are occupied by cations A, half of octahedral voids are occupied by cation B whereas oxide ions form cubic close packed structure, what will be the formula of oxide?
 9. How would you account for the following?
i) Impurity doped silicon is a semiconductor
ii) Frenkel defects are not found in alkali metal halides.
iii) Some of the very old glass objects appear slightly milky instead of being transparent.
 10. What is meant by doping in a semiconductor?
 11. What is meant by forbidden zone in reference to band theory of solids?
 12. The density of copper metal is 8.95 g/cm^3 . If the radius of copper atom is 127.8 pm , is the copper unit cell a simple cubic or a bcc or a fcc structure? Given At mass of Cu = 63.54 gm/mol
 13. Silver crystallizes in face centred cubic unit cells. Each side of unit cell has a length of 409 pm . What is the radius of silver atom?
 14. Iron has a body centred cubic unit cell with a cell dimension of 286.65 pm . The density of iron is 7.874 g/cm^3 . Use this information to calculate Avagadro's number.
Atomic mass of Fe = 55.845 u .
 15. An element has a body centred cubic (bcc) structure with a cell edge of 288 pm . The density of the element is 7.2 g/cm^3 . How many atoms are present in 208 g of the element?