

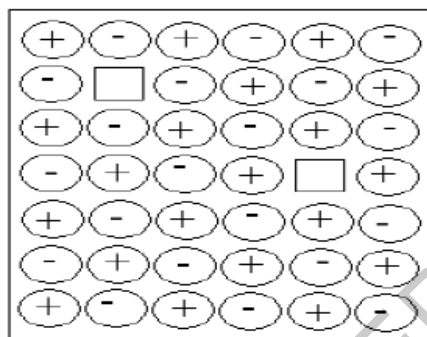


Topic - Packing in crystals

1. What is square close packing? [1]
2. What is the coordination number in :- [1]
(a) Square close packing (b) Hexagonal close packing.
3. Define - (a) void (b) coordination Number [2]
4. What is the packing efficiency in [3]
(a) hcp structure (b) BCC structure (c) Simple cubic structure
5. Give the relationship between density and edge length of a cubic crystal. [2]
6. Copper which crystallizes as a face - centred cubic lattice has a density of 8.93 [3]
g/cm³ at 20° C. calculate the length of the unit cell.
7. An element crystallizes in BCC structure. The edge of its unit cell is 288 pm. If the [3]
density is 7.2 g/cm³, calculate the atomic mass of the element.
8. The compound CuCl has ZnS structure and the edge length of the unit cell is 500 [3]
pm. Calculate the density. (Atomic masses: Cu = 63, Cl = 35.5, Avogadro no = 6.02
× 10²³ mol⁻¹)
9. In a compound, B ions form a close - packed structure & A ions occupy all the [2]
tetrahedral voids. What is the formula of the compound?
10. In crystalline solid, anions C are arranged in cubic close - packing, cations A [3]
occupy 50% of tetrahedral voids & cations B occupy 50% of octahedral voids.
What is the formula of solid?

Topic - imperfections in crystals

1. What is the meaning of term 'defect' with reference to crystal? [1]
2. Define two main types of defects. [2]
3. Name the types of point defect. [1]
4. (a) Identify the defect in figure below : [2]
(b) How does it affect the density of crystal?
(c) Give an example of crystal where this defect can be found.
(d) What is its effect on electrical neutrality of crystal?



5. Which defect is observed in a solid solution of CdCl_2 and AgCl ? Explain. [2]
6. Excess of lithium makes LiCl crystal pink. Explain. [2]
7. What are F centres? [1]
8. How does a crystal changes due to presence of F centre? [1]
9. Give an example which shows both frenkel and Schottky defect. [1]
10. Which type of ionic substances show? [2]
 - (a) Schottky defect
 - (b) Frenkel defect