

CHEMISTRY

- If 'Z' is the number of atoms in the unit cell that represents the closest packing sequence ---A B C A B C---, the number of tetrahedral voids in the unit cell is equal to
 - Z
 - 2 Z
 - $\frac{Z}{2}$
 - $\frac{Z}{4}$
- A solid is made of two elements X and Z. The atoms Z are in CCP arrangement while the atom X occupy all the tetrahedral sites. What is the formula of the compound
 - XZ
 - XZ₂
 - X₂Z
 - X₂Z₃
- An element occurring in the bcc structure has 12.08×10^{23} unit cells. The total number of atoms of the element in these cells will be
 - 24.16×10^{23}
 - 36.18×10^{23}
 - 6.04×10^{23}
 - 12.08×10^{23}
- The number of atoms in 100 g of an fcc crystal with density $d = 10 \text{ g/cm}^3$ and cell edge equal to 100 pm, is equal to
 - 4×10^{25}
 - 3×10^{25}
 - 2×10^{25}
 - 1×10^{25}
- A solid has a structure in which 'W' atoms are located at the corners of a cubic lattice 'O' atoms at the centre of edges and 'Na' atoms at the centre of the cube. The formula for the compound is
 - NaWO₂
 - NaWO₃
 - Na₂WO₃
 - NaWO₄
- In a solid 'AB' having the NaCl structure, 'A' atoms occupy the corners of the cubic unit cell. If all the face-centered atoms along one of the axes are removed, then the resultant stoichiometry of the solid is
 - AB₂
 - A₂B
 - A₄B₃
 - A₃B₄
- Frenkel defect is caused due to
 - An ion missing from the normal lattice site creating a vacancy
 - An extra positive ion occupying an interstitial position in the lattice
 - An extra negative ion occupying an interstitial position in the lattice
 - The shift of a positive ion from its normal lattice site to an interstitial site
- If NaCl is doped with 10^{-3} mol % SrCl₂, then the concentration of cation vacancies will be
 - 1×10^{-3} mol%
 - 2×10^{-3} mol%
 - 3×10^{-3} mol%
 - 4×10^{-3} mol%
- The number of atoms per unit cell in a simple cube, face centred cube and body centred cube respectively
 - 1, 4, 2
 - 1, 2, 4
 - 8, 14, 9
 - 8, 4, 2
- The crystal systems having the highest and lowest symmetries are respectively
 - cubic and monoclinic
 - cubic and triclinic
 - orthorhombic and monoclinic
 - cubic and hexagonal