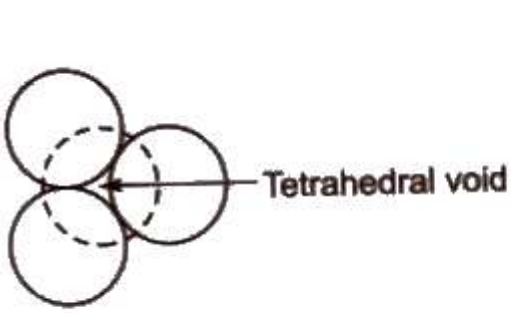
- Empty or vacant space present bet veen spheres of a unit cell, is called void or space or hole or interstitial void. When particles are closed packed resulting in either cpp or hcp structure, two types of voids are generated:
- **Tetrahedral voids** are holes or voids surrounded by four spheres Present at the corner of a tetrahedron. Coordination number of a tetrahedral void is 4.



$r_{void} = 0.225 \times r_{sphere}$ (for tetrahedral voids)

- **Octahedral voids** are holes surrounded by six spheres located on a regular tetrahedron. Coordination number of octahedral void is 6.

$r_{void} = 0.414 \times r_{sphere}$ (for octahedral voids)

[The number of octahedral voids present in a lattice is equal to the number of close packed particles. The number of tetrahedral voids present in a lattice is twice to the number of close packed particles.]

Density of Unit Cell (d)

Density of unit ce11 = mass of unit cell / volume of unit cell

$d = Z * M / a^3 = ZM / a^3 * N_A$

(The density of the unit cell is same as the density of the substance.)

where, d = density of unit cell

These substances have a net dipole moment due to unequal parallel and anti-parallel alignment of magnetic moments, e.g., Fe_3O_4, ferrites, etc.