



SNS COLLEGE OF TECHNOLOGY

(AN AUTONOMOUS INSTITUTION)
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Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai
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Characteristics of a unit cell:

1. No. of atoms per unit cell: It represents no. of atoms present inside the unit cell.
2. Coordination number: The distance b/w no. of nearest atoms directly surrounding a particular atom in a crystal.
CN (high) \rightarrow closely packed
CN (low) \rightarrow loosely packed.
3. Nearest neighbouring distance (a)
The distance b/w the centre of two nearest neighbouring atoms. (a)



4. Atomic radius:
half of the nearest neighbouring distance in a crystal.
 $a = 2r \Rightarrow r = a/2$

5. Packing factor (PF)

$$\text{PF} = \frac{\text{Total volume occupied by the atoms in a unit cell (V)}}{\text{Total volume of the unit cell (V)}}$$
$$= \frac{\text{No. of atoms present in a unit cell} \times \text{Volume of one atom}}{\text{Total volume of the unit cell}}$$

PF (high) \rightarrow closely packed, PF (low) \rightarrow loosely packed.