

Chapter 05

Periodic Classification of Elements

Trends in the Modern periodic table:

Valency:

Valency of an element is given as,

- If number of valence electrons is ≤ 4 .

Valency = No. of valence electrons

- If number of valence electrons is > 4 .

Valency = $8 - 4$ no. of valence electrons

Valency of an element is not periodic property. Elements present in same group possess same valency.

Atomic size:

The distance from centre of the nucleus to the outermost shell of an isolated atom is known as atomic radius (or) atomic size.

As we move from left to right in the periodic table, nuclear charge increases. This pulls the electrons close to the nucleus. This result in decrease of atomic radii.

As we move down the group, new shells are being added. Hence, distance between nucleus and outermost electron increases. This result in increase of atomic radii.

Metallic and non-metallic properties:

- Metals tend to loose electrons readily due to increase in effective nuclear charge across the period, tendency to loose electrons decreases.

i.e., Metallic nature decreases and non-metallic nature increases across the period.

- Down the group, effective nuclear charge decreases. Hence, tendency to loose electrons increases.

i.e., Metallic nature increases and non-metallic nature decreases down the group.

