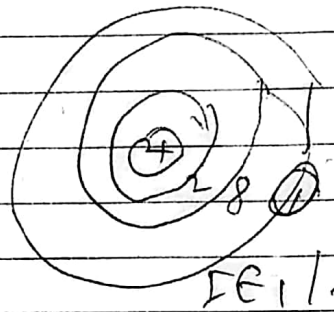
M.H.Khan 27-4-20 (Mon). DI (S)
Topic → Ionization energy
Marwari college. Time - 2:10 - 3:00

classmate
Date
Page

① Ionization energy (I.E) or I.P → The amount of energy required to remove an electron from outermost valence shell (orbit) of an isolated gaseous atom.

eg $_{11}Na \rightarrow 1s^2 2s^2 2p^6 3s^1$



I.E$_1$ / I.E

→ I.E ↑ from top to bottom in a group and ↓ from left to right in a period.

→ IE$_1$ → Energy required at the time of removal of 1st e$^\ominus$.

→ IE$_2$ → " " " " " 2nd

" " " 2nd e$^\ominus$ similarly 3rd, 4th, 5th.

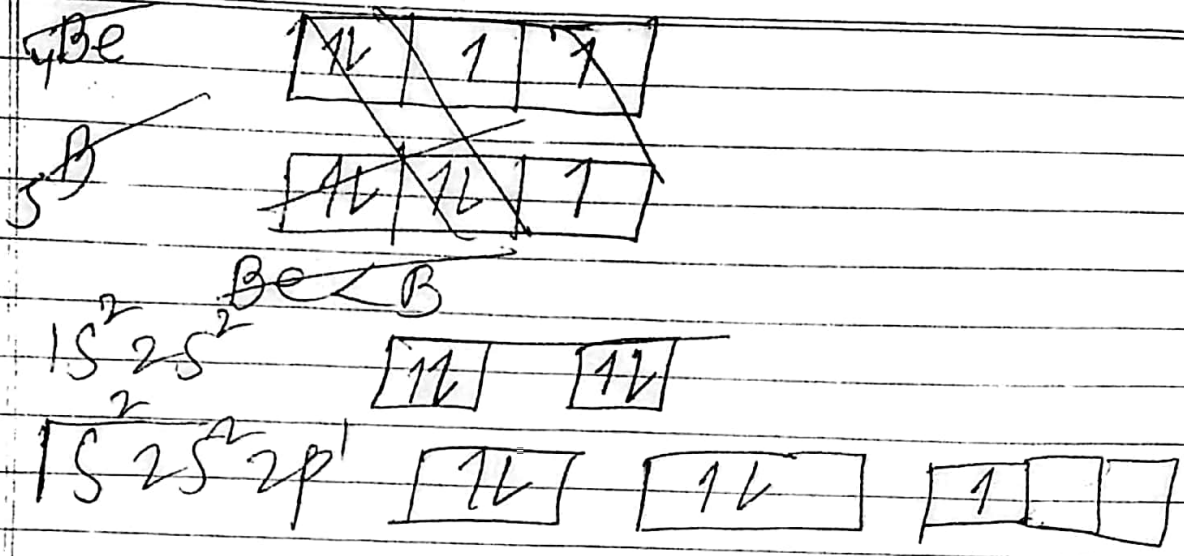
→ I.E = $\frac{\text{F.F} > \text{H.F} > \text{U.F}}{\text{S.Z.}}$

→ N H O

$_7N \rightarrow 1s^2 2s^2 2p^3$ [↑|↑|↑] H.F stable

$_8O \rightarrow 1s^2 2s^2 2p^4$ [↑↓|↑|↑] U.F unstable

M.H.Khan 27-4-20(M)



Be > B.

- Always third ionisation energy greater than 2nd ionisation energy 2nd ionisation energy greater first ionisation energy.

- when ionisation energy increase then decrease Metallic character and Reactivity of metal.

(c) Stability of oxidation state.

(a) If the difference b/w two successive ionisation energy of an element ≤ 11eV then its higher oxidation state stable.

(b) If the difference b/w two successive ionisation energy of an element ≥ 16 eV, then its lower oxidation state is stable.

M.H.Khan 27-4-20

topic: Electron affinity.

- Difference of ionisation energy < 11 eV. So Mg^{+2} is more
- ∴ Electron affinity
- the amount of energy release during addition of an e^- in outermost subshell.
- The conversion of neutral into anion.
- Electron affinity increase from left to right in a period and decr from top to buttom in a group
- Always election affinity of 3rd period is greater than 2nd period because more inter electronic repulsion and bigger size of 3rd period element in comparisio to 2nd period element
  eg:- Cl > F, S > O, P > N etc
- Always e^- affinity of fullfilled orbital is zero
  eg:- 2nd IIA, IIB and inert gas
- ~~Always 2nd~~ first e^- affinity is greater than
- Always 2nd e^- affinity is greater than 1st e^- affinity. 2nd e^- affini is positive and endothermic due to extra energy is applied to decrease repulsion of anion and -ve charge e^-. First e^- affinit