Daily Tutorial Sheet-14	Level-3

151.(AD) **(A)** Due to smaller size of O, gain in e^- causes $e^- - e^-$ repulsion hence instability

(B) Z_{eff} B > Z_{eff} Al

(C) Incorrect $\rightarrow$ Mg is more stable due to its fully filled s-orbital $(3s^2)$ as compared to Na $(3s^1)$

(D) Last e^- in case of N enters in $2p^3$ orbital, hence it is more close to nucleus therefore more stable than P $(3p^3)$

152.(AC) **(A)** Covalent radius leads to overlapping which is not in case of Vander Waal's radius

(B) Incorrect $\rightarrow$ It is not true,

Ex. : F^- and Mg^{2+} in which F (2^{nd} period), Mg (3^{rd} period).

(C) In I.E_1 e^- is removed from half-filled in case of N and after removing i.e., oxygen becomes O^+ (half filled) so it is more stable and hence more I.E.

(D) E.A of Cl > E.A of F (smaller size of F causes $e^- - e^-$ repulsion)

153.(CD) **(A)** For isoelectronic species, $\left(\text{size} \propto \frac{1}{Z_{eff}}\right)$ **(B)** Ge > As > Se > Br : Metallic character

(C) Si > Mg > Al > Na : Ionisation energy **(D)** Cl > F > Br > I : Electron affinity

154.(ABC) **(A)** The radius of isoelectronic species $\propto \frac{1}{\left(\frac{Z}{e}\right) \text{ ratio}}$ and along the period, size decreases

(B) Ionisation energy $\propto \frac{1}{\text{size}} \propto$ Effective nuclear charge

(C) Cl > F > Br > I : Electron affinity **(D)** Zeff of $Al^{3+} > Al^{2+} > Al^+ > Al$

155.(B) $Cl^+(g) + e^- \longrightarrow Cl(g)$ (E.A. of Cl^+)

$Cl(g) + e^- \longrightarrow Cl^-(g)$ (E.A. of Cl)

$Cl^-(g) \longrightarrow Cl^+(g) + 2e^-$ ($IE_1 + IE_2$ of Cl^-) or IE_1 of $Cl + (-\text{E.A. of Cl})$

156.(0) All the cations have higher I.E. than corresponding atom.