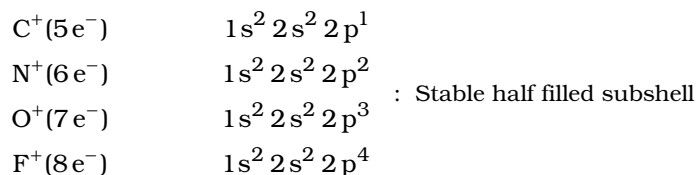


**Daily Tutorial Sheet 1**

**JEE Main (Archive)**

- 1.(C)** For second ionisation potential, electron has to be removed from valence shell of the following ions:



Ionisation energy increases from left to right in a period. However removal of electron from half filled or fully filled subshell requires more energy.

∴ The order for 2<sup>nd</sup> IE is :  $O > F > N > C$

- 2.(C)** Nitrogen has highest first ionisation potential due to stability of half shell filled valence subshell.

- 3.(B)** In case of isoelectronic species, as the negative charge increases, the ionic radii increases.

- 4.(B)**  $Na \longrightarrow Na^+ + e^-$  First IE



The electron gain enthalpy will be the reverse of I.E. since the reaction is also the reverse.

- 5.(B)** The ionisation energy increases along a period from left to right and decreases along the group order is  $Ba < Ca < Se < S < Ar$

- 6.(C)** In case of isoelectronic species, as the negative charge increases, the ionic radii increases.

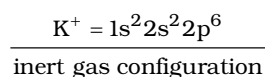
- 7.(D)** Boiling point increases with increase in molecular mass.

- 8.(A)** Both the statements are true and II is the correct explanation for I.

- 9.(A)**  $N^{3-}, O^{2-}, F^-$  and  $Na^+ \Rightarrow 10$  electron

- 10.(D)**  $K = 1s^2 2s^2 2p^6 3s^1$

$I.P._{1st} \ll I.P._{2nd}$



- 11.(A)** For iso-electronic species size is governed by proton to electron ratio i.e.  $\left(\frac{P}{e^-}\right)$  ratio

More the value of  $\left(\frac{P}{e^-}\right)$  ratio, smaller will be its size as more number of proton will have an ability to hold

electrons more strongly resulting in decrement in ionic size.

Hence, size is affected by nuclear charge i.e. no. of proton.

- 12.(C)** Nuclear charge :  $Be < B$

First ionization energy :  $Be > B$  (due to higher stability of  $2s^2$  configuration over  $2s^2 2p^1$ )

- 13.(C)**  $119 \rightarrow$  Ununennium (Uue)