

## SOLUTIONS

## SECTION-A

1. **Ans. 2**

Atomic No. is the base of :

(c) Modern periodic table

(e) Long form of periodic table

2. **Ans. 4**Give element is  ${}_Z\text{M}^{19}$ 

No. of neutrons = 10

$$A = 19$$

n = No. of neutrons

p = No. of protons

$$A = n + p$$

$$19 = 10 + p$$

$$p = 9 \quad Z = p$$

So,  ${}_Z\text{M}^{19} \rightarrow 1s^2 2s^2 2p^5$ Last  $e^-$  is in p subshell So, this element belongs to p-block3. **Ans. 4**Quantum numbers of last  $e^-$  enters an element

$$\ell = 3, \quad m = -2, \quad s = +\frac{1}{2}$$

 $\ell = 3$  means f subshell. So, last electron enters in f subshell So, element belongs to f-block.4. **Ans. 4**

Lowest anion to cation size ratio

CsF

Because  $\text{Cs}^+$  cation is bigger than $\text{Na}^+$  and  $\text{Li}^+$ &  $\text{F}^-$  is smaller than  $\text{I}^-$  ( $\because$  size  $\propto$  shell no.)5. **Ans. 4**Difference between  $\text{IP}_2$  and  $\text{IP}_3$  is highest among all.It means for removing of 3<sup>rd</sup>  $e^-$  from this element 'x' high energy is required. We can conclude shell number should be changed and only  $2e^-$  present in outer most shell of that element x.Electronic configuration of X  $1s^2, 2s^2, 2p^6, 3s^2$ .6. **Ans. 2**

Ionisation energy of sodium = 495 kJ/mol

I.E. of 1 mol sodium atoms = 495 kJ

I.E. of 23 gm sodium atoms = 495 kJ