Daily Tutorial Sheet-1	Level – 1

1.(B) $Zn \rightarrow [Ar]\ 3d^{10}\ 4s^2$; $Zn^{2+} \rightarrow [Ar]3d^{10}4s^0$ Which is not noble gas configuration.

2.(A) Low charge hence low degree of polarisation.

3.(B) Apply Fazan's rule – Large cation and small anion

4.(D) $BeCl_2$: 4 valence electron IF_7 : 14 valence electron SF_6 : 12 valence electron

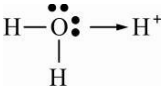
$\therefore$ $BeCl_2$, IF_7 and SF_6 do not follow octet rule.

5.(D) **(A)** ns^2 or ns^2np^6 configuration – Eg. $AlCl_3$, NaCl

(B) Pseudo-noble gas configuration – Eg. $ZnCl_2$, CuCl

(C) Inert-pair configuration – Eg, $MgCl_2$, $CaCl_2$

6.(B) Visualize the formation of : F_2, Cl_2, N_2, O_2 , etc.

7.(A)  Formal charge on O = $6-2-\frac{6}{2}=+1$

8.(D) Strength of ionic bond $\propto$ charge $\propto$ $\frac{1}{(\text{size of cation + anion})}$

9.(A) IE. of Mg is low (Alkaline earth metals show tendency to loose electrons easily)

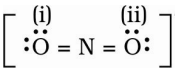
10.(D) **(A)** Lattice energy $\propto$ $\frac{1}{\text{Ionic size}}$; Hydration energy $\propto \frac{1}{\text{Ionic size}}$

(B) Refer to Theory **(C)** Lattice energy $\propto \frac{Z^{\oplus}\ Z^{\ominus}}{(r^{\oplus}+r^{\ominus})}$

Charge on cation and anion remains same

$\Rightarrow$ If $r^{\oplus} >> r^{\ominus}$ Lattice energy $\propto \frac{\boxed{Z^{\oplus}\ Z^{\ominus}}}{r^{\oplus}}$ (Charge remaining constant for a group)

11.(B) $Ba(CN)_2$: $Ba \longrightarrow Ba^{2+}$ and $^{-}C \equiv N \rightarrow$ covalent bonds

12.(C)  For (i) $O \longrightarrow 6-4-\frac{1}{2}\times 4=0$; (ii) $O \longrightarrow 6-4-\frac{1}{2}\times 4=0$

13.(AC) Hydration energy $\propto$ charge on the ion ; Hydration energy $\propto$ $\frac{1}{(\text{size of the ion})}$

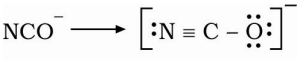
14.(B) Polar character: It depends on the electronegativity difference between the two atoms

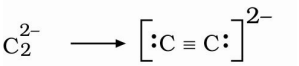
S < N < O < F (Increasing electronegativity)

15.(C) $ClO^{\ominus}$: Total number of electrons = $7+1+6=14$

Total number of electrons in two atoms for complete octet = 16

$\therefore$ Number of bonds formed = $\frac{16-14}{2}=1$

$NCO^{-} \longrightarrow$ 

$C_2^{2-} \longrightarrow$ 

NO