

→ Co-ordination no = 6, $2^\circ v \Rightarrow 6$ $1^\circ v = 0$

i) $K_4[Pt(Cl)_6]$ ii) $K_2[Fe(en)_3]$ iii) $K_4[Ni(CN)_6]$

* Effective Atomic No. : EAN $\rightarrow$ The no which indicates stability of complex compound and equal to atomic no. of inert gas. If EAN value other than atomic no. of inert gas then complex compound will be unstable.

$$EAN = \text{Atomic No. of Metal} - \text{Oxid}^n \text{ No.} + 2 \times \text{C.N.}$$

eg $\rightarrow K_4[Fe(CN)_6]$
 $EAN = 26 - 2 + 6 \times 2$

$= 36 (Ar) \rightarrow$ EAN rule obey, And also stable

* Metal Carbonyl Compound $\rightarrow$ No. of carbonyl attach with metal = atomic no. of metal

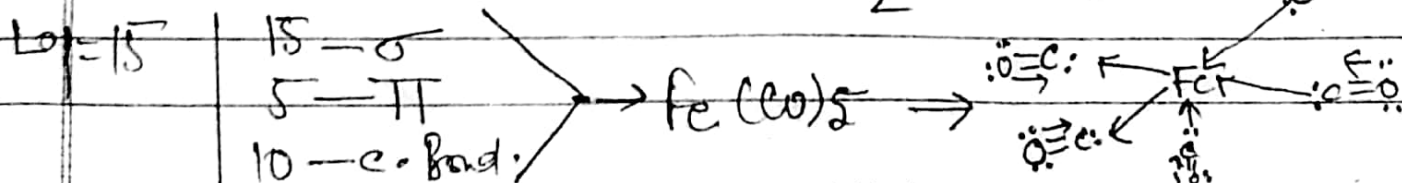


No. of carbonyl attach with Metal = $\frac{\text{atomic no. of higher inert gas} - \text{atomic no. of metal}}{2}$

2

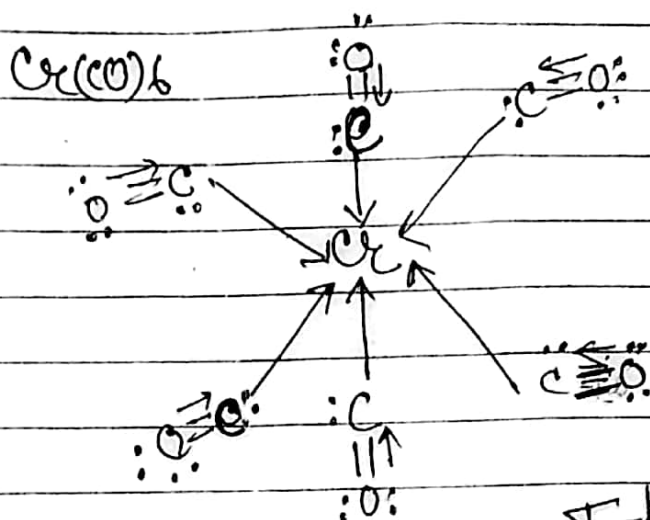
eg $= Fe_26$

$$= \frac{36 - 26}{2} = \frac{10}{2} = 5$$



eg $\rightarrow Cr_{24}$

$$= \frac{36 - 24}{2} = \frac{12}{2} = 6$$



σ -bond = 18

π -bond = 6

L.p = 18

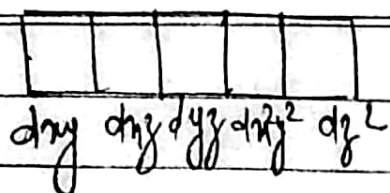
C.B = 12

* Splitting of d-orbital $\rightarrow$ When ligand approach toward metal d-orbital then split into 2 set of orbital, 1 is ~~eg~~ eg and other is t_{2g}.

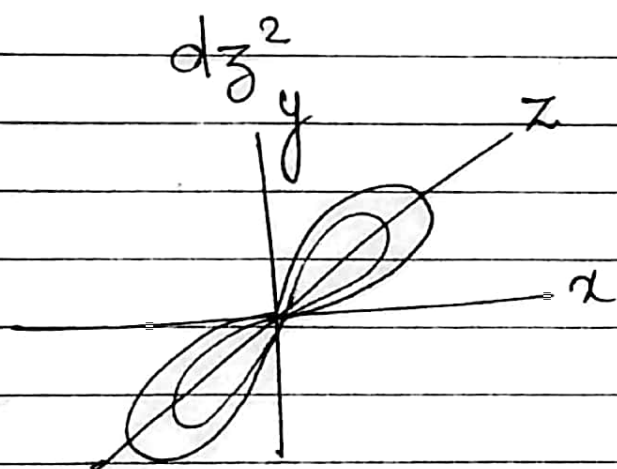
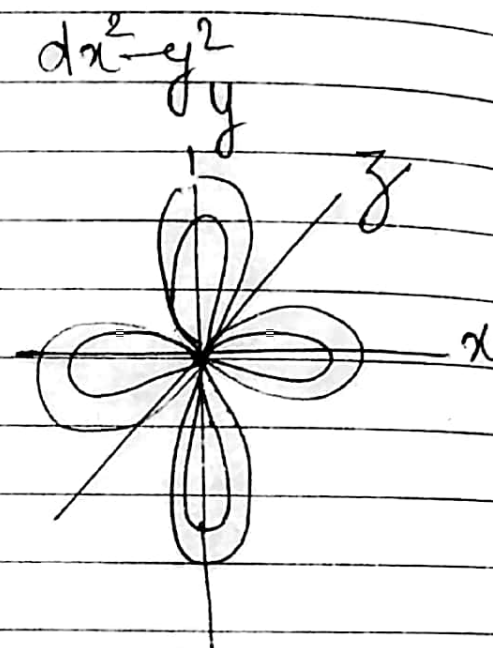
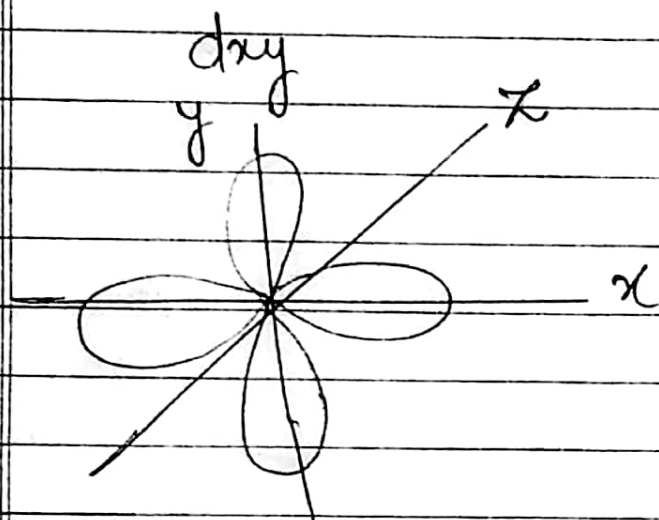
eg set of orbital $\rightarrow$ 'e' means doubly degenerate. (Orbitals having same energy and different wave function i.e. different orientation of orbitals).

eg $\rightarrow d_{x^2-y^2}, d_{z^2}$

3d



$n=3$ [this 3 for all 5 d orbitals]



"g" means gerade. i.e. having Centre of Inversion
(Centre which divide molecule into 2 equal
half). we use 'g' only for octahedral
compound. (Not for tetrahedral compound) because
Octahedral compound is more symmetrical than
tetrahedral compound.