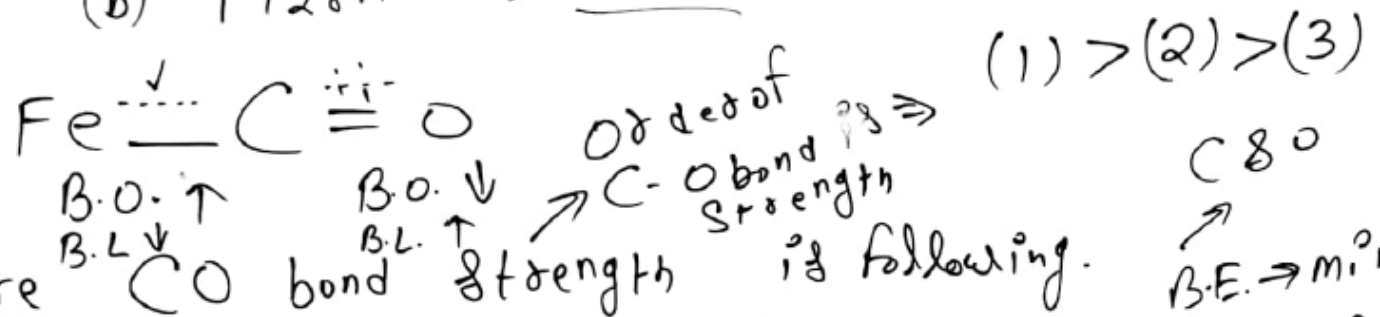


Ques. If C & O Bond length in CO is  $1.128 \text{ \AA}$  then what is the value of C & O bond length in  $\text{Fe}(\text{CO})_5$

(a)  $1.15 \text{ \AA}$  (b)  $1.128 \text{ \AA}$  (c)  $1.72 \text{ \AA}$  (d)  $1.118 \text{ \AA}$



Q.2. Compare CO bond strength is following.

(1)  $[\text{Mn}(\text{CO})_6]^+$       (2)  $[\text{Cr}(\text{CO})_6]$       (3)  $[\text{V}(\text{CO})_5]^-$

$\rightarrow$  B.E.  $\rightarrow$  min.  
 $\rightarrow$  B.S.  $\rightarrow$  min.

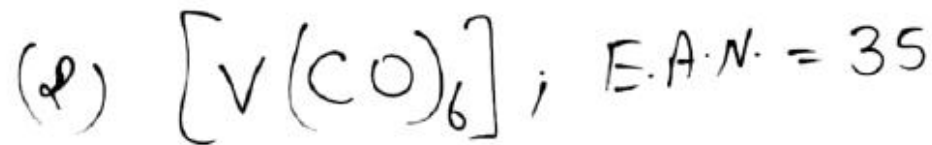
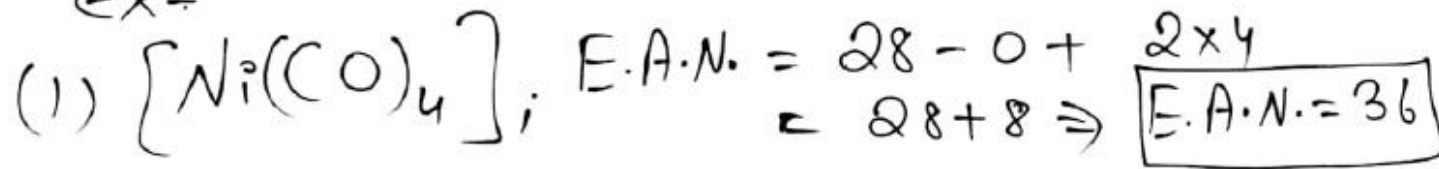
B.E. max  $\leftarrow$  +  
 B.S. max.

MFC  $\Rightarrow$  BET But C & O B.E.  $\downarrow$   
 $\rightarrow$  charge density on M  $\rightarrow$  max

Effective atomic number (E.A.N.) :-

(Generally calculated for metal Carbonyl compounds)

E.A.N. = Atomic number - Oxidation state +  $e^-$  gained from ligand



## Isomerism

Defination  $\div$  It is a phenomenon in which more than one compound have the same chemical formula but different chemical structure.

# It is divided into two categories -

\*\* (1) Structural isomerism (2) Stereo isomerism.

- Co-ordination isomerism
- Hydrate or Solvate - "
- Linkage
- Ionisation

→ Geometrical isomerism.  
(C.N. = 4 & C.N. = 6)

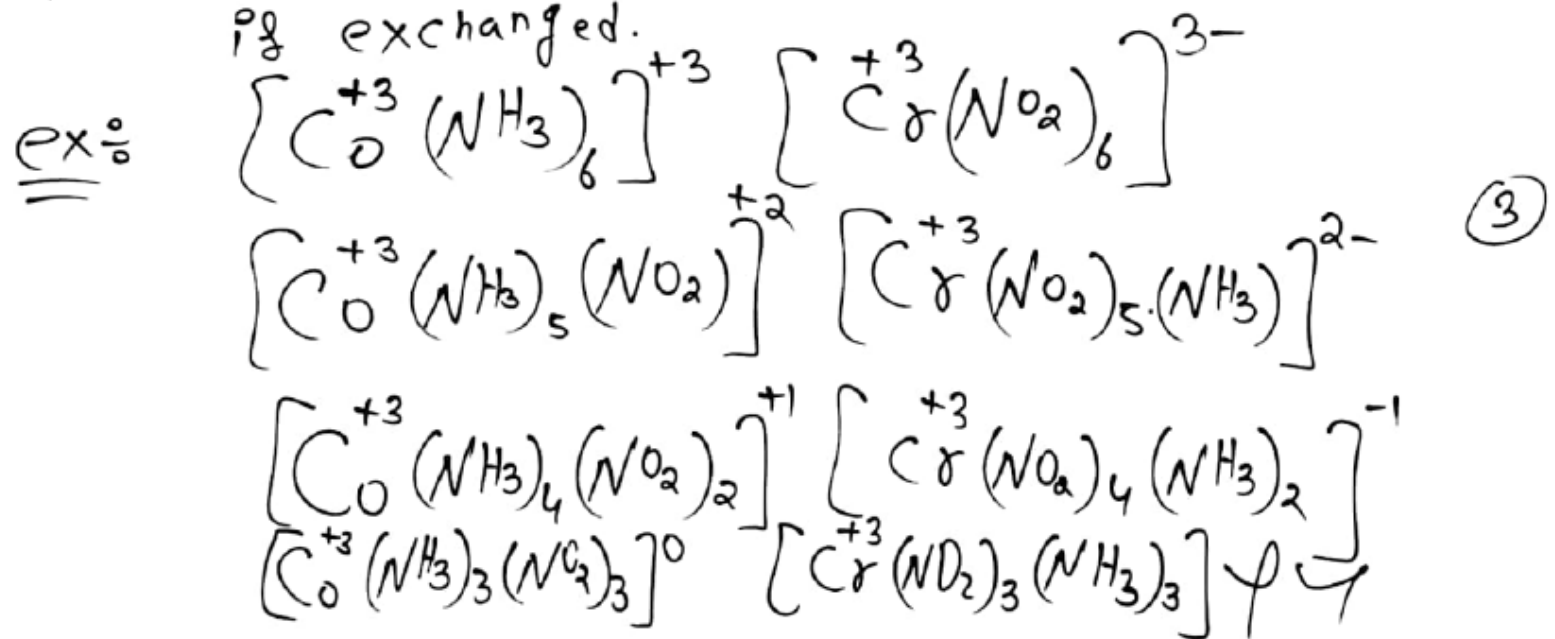
(1) Structural isomerism:-

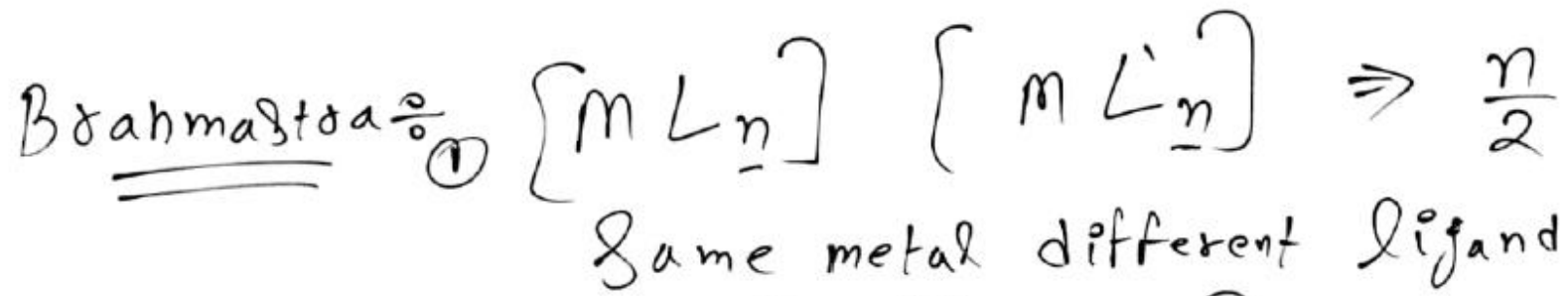
(A) Co-ordination isomerism

# Here cation & anion both are complexes.

# Arises when ligand of central metal atom (C.M.A.)

is exchanged.



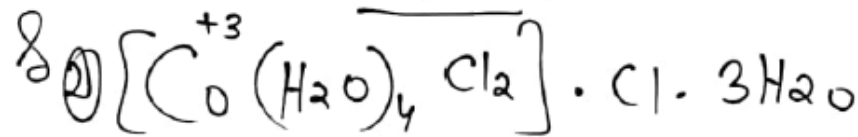
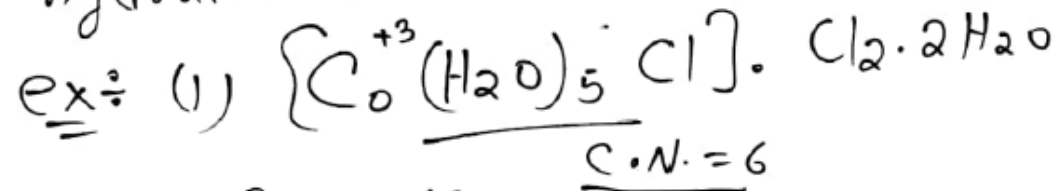


Both metal & ligand different.



(2) Hydrated or Solvate isomerism :-

When there is difference in H<sub>2</sub>O molecule present inside the Co-ordination sphere, then isomerism hydrated or solvate isomerism.



C.N. = 6

① & ② hydrated isomerism.

Q. Write the possible hydrate isomerism of  $\text{CrCl}_3 \cdot 6\text{H}_2\text{O}$

