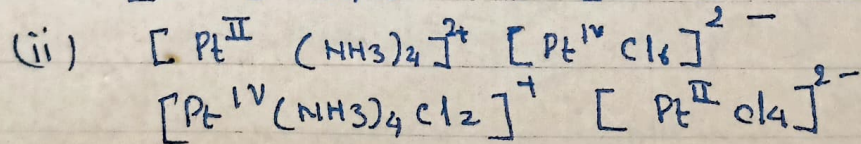
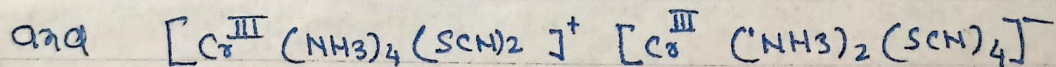
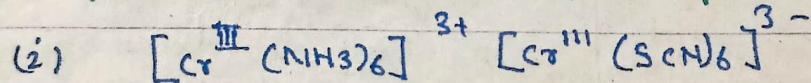


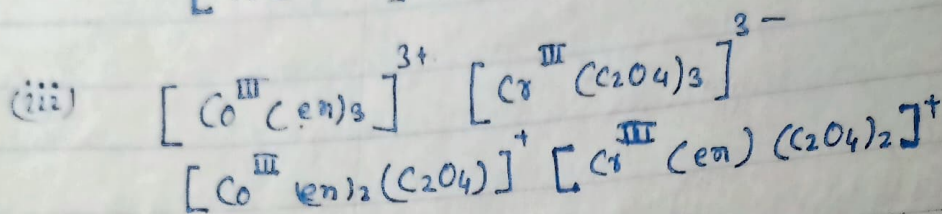
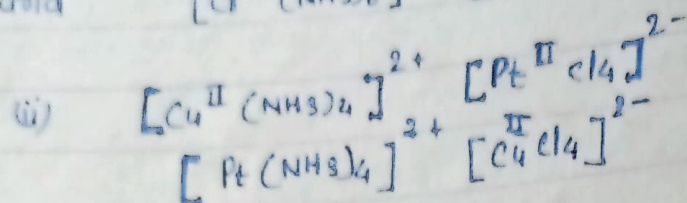
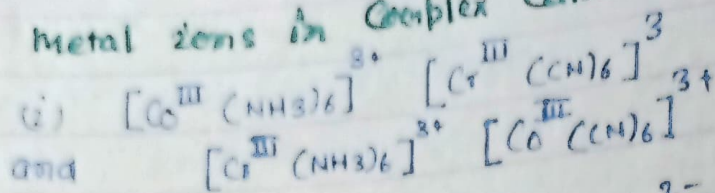
3. Co-ordination Isomerism → If both cation and anion of a complex compound are complex, there may be an exchange of ligands between the two co-ordination spheres, giving rise to isomers known as co-ordination isomers. And this type of isomerism is called co-ordination isomerism.

This type of isomerism is illustrated by the following co-ordinated compounds: —

(a) Co-ordination compounds having different central metal ions in both complexes cation and complex anion: —



(b) Co-ordination Compounds having different Central metal ions in complex cation and complex anion.



Here (en) stands for ethylene diamine
 $\text{H}_2\text{N}-\text{CH}_2-\text{CH}_2-\text{NH}_2$

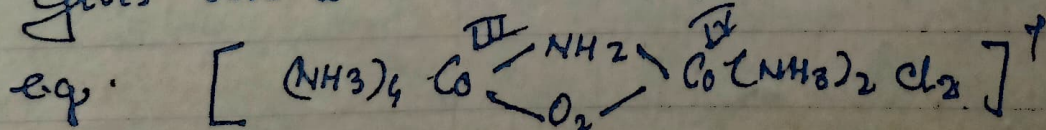
4. Co-ordination Position Isomerism: →

This type of isomerism occurs in Polynuclear Complexes in which Co-ordinating groups may be present in the same number but may arrange themselves differently with respect to the different metal ions present.

i.e. It is the result of more of exchange of ligands between the different metal nuclei.

i.e. To interchange the ligands between the metal nuclei (which are present as a part of complex) is possible in some polynuclear complexes.

This type of interchange of ligands gives rise to Co-ordination Position Isomerism.



(Unsymmetrical)

6. Structural Salt or Linkage Isomerism $\rightarrow$

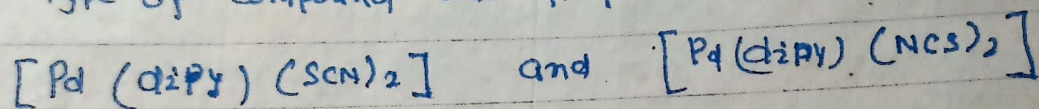
The Linkage Isomerism is found in those complexes in which the ligand can co-ordinate with the central metal ion through either of the two atoms.

This Isomerism may be defined as follows.

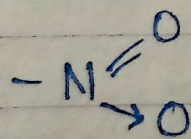
The Linkage Isomerism occurs when more than a single atom in a co-ordinating group may function as a donor.

The best known ligands of this type are NO_2^- , SCN^- , and $\text{S}_2\text{O}_8^{2-}$ ions.

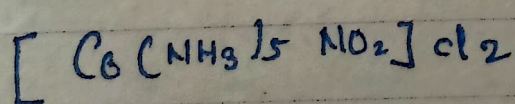
(a) The Thiocyanate radical with the structure SCN^- might co-ordinate either through the Sulphur or the Nitrogen. Such type of compound was prepared in 1963.



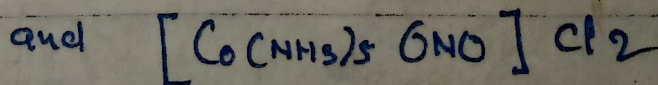
(b) In the case of nitro group NO_2^- , either Nitrogen or Oxygen can act as donor. Therefore (NO_2^-) ion may co-ordinate to the central ion either through Oxygen or Nitrogen giving two isomers called linkage or structural isomers.



The nitro group may link via Nitrogen (i.e. Nitro-N-isomer) or via Oxygen (Nitro-O-isomer)

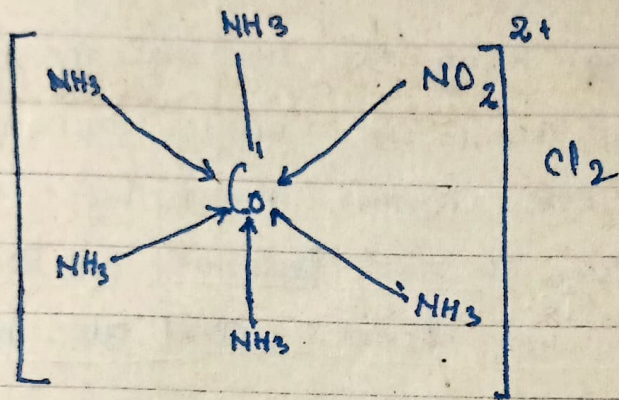


Nitro Penta ammine
Cobalt III chloride

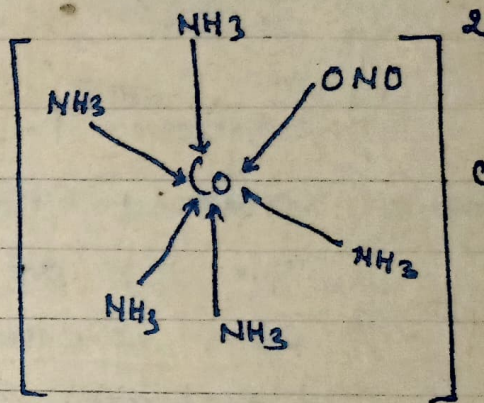


Nitro Penta ammine. Cobalt III chloride

The structure of ~~[Co(NH₃)₅NO₂]~~ Nitro penta ammine Cobalt III Chloride
is given below.



yellowish Brown
(Nitrate or Nitro-N isomer)



(Nitrate or Nitro-O)
(Red)

This compound was prepared by Jorgensen.