

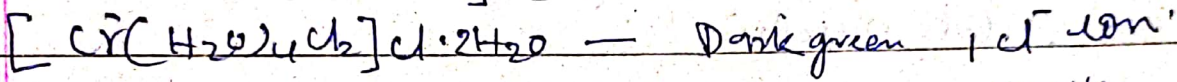
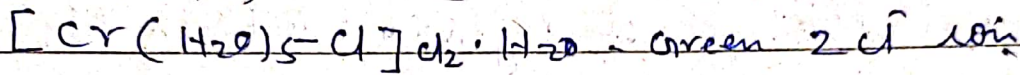
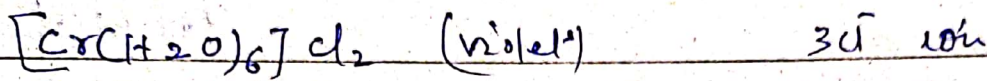
ISOMERISM

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- (I) Structural isomerism
- (II) Stereo or space isomerism

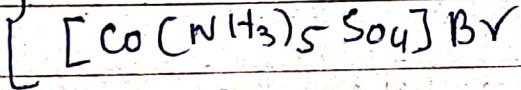
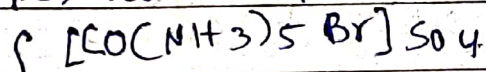
Structural isomerism :- Arises due to difference in the structure of coordination compounds.

Hydration isomerism - arises due to position of water mol.

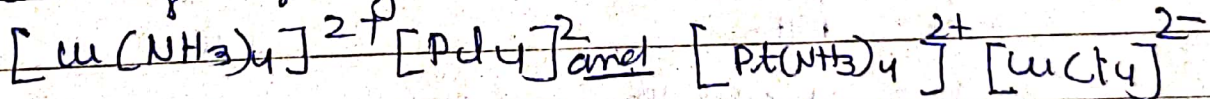


IONISATION isomerism → due to exchange of ^{group} ~~ion~~ between

complex ion and the ion outside it.



Co-ordination isomerism → found both the cation and anion are co-ordinated. This is caused by interchange of ligands between the complex ions.

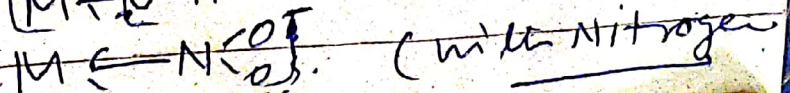
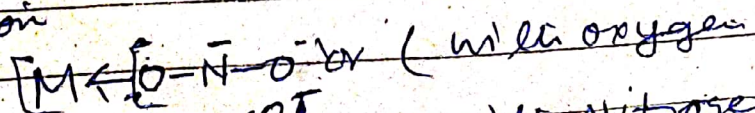


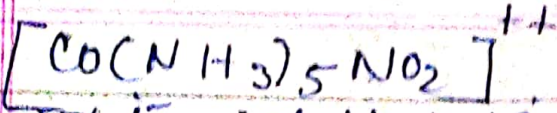
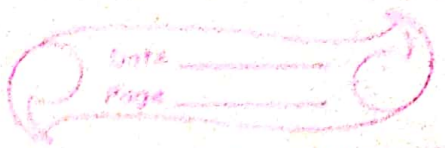
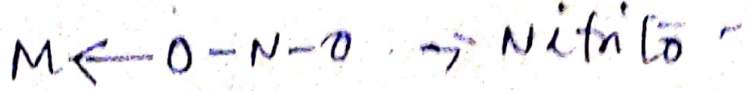
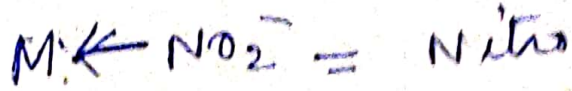
Ambidentate ligands and Linkage isomerism →

certain ligands contain more than one atom which could donate an electron pair called ambidentate ligands.

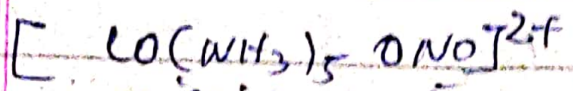
example $O=N-O$ - it can link with ^{through} both atoms

with Metal ion



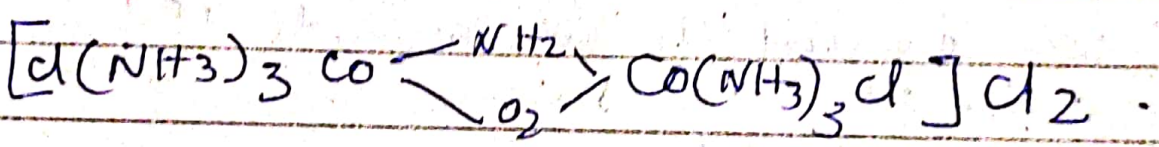
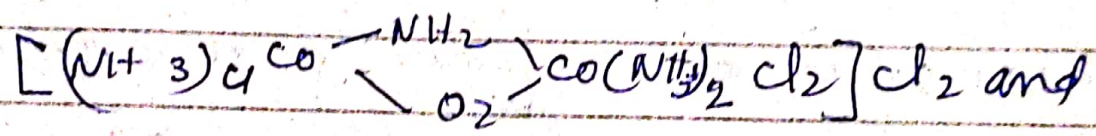


Nitro cobalt III ion

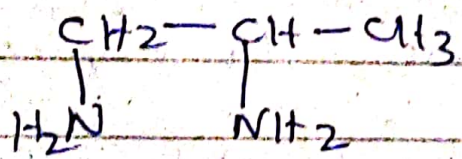


Nitrito pentaammine cobalt III

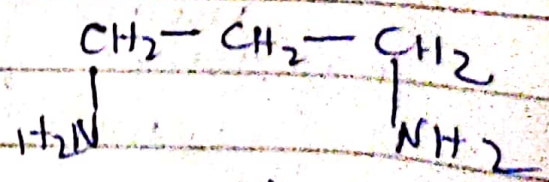
Co-ordination Position isomerism \rightarrow In polynuclear complexes an interchange of ligands between the different metal nuclei



Ligand isomerism \rightarrow when ligand itself is capable of showing isomerism



1,2-diaminopropane (pn)

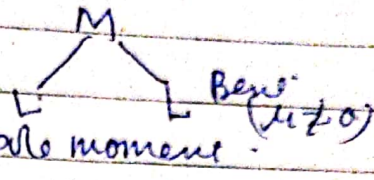
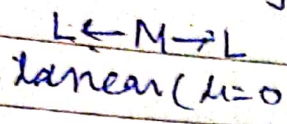


1,3-diaminopropane

Geometrical isomerism

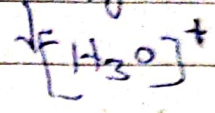
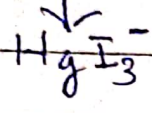
Differ into space arrangement. This is more important for coordination 4 and 6. But we start by C.N. = 2 to 9, only with suitable examples

C.N. = 2



C.N. = 3

trigonal planar or trigonal pyramids



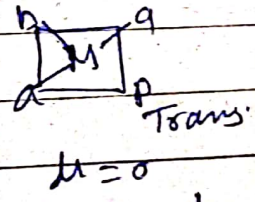
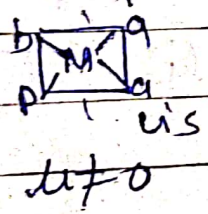
C.N. = 4

tetrahedral or square planar

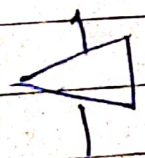


Tetrahedral does not show cis and trans isomers

where as square planar shows



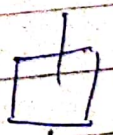
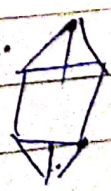
C.N. = 5



Trigonal bipyramidal

square planar

C.N. = 6



Hexagonal Planar

Trigonal bipyramidal

Regular octahedral

Hexagonal + Trigonal bipyramidal \rightarrow Both shows three isomers