

Deg II Chem. Hons, Paper-III & Deg II subsidiary

Topic:- Nomenclature of Co-ordination Compounds

Nomenclature or I. U. P. A. C name of the Co-ordination Compounds:-

Neutral ligands

NH_3 — Amine

CO — Carbonyl

H_2O — Aquo

NO — Nitrosyl

Negative ligands:-

OH^- — Hydroxo $\text{C}_2\text{O}_4^{2-}$ — Oxalato

CN^- — Cyano F^- — Fluoro

Cl^- — chloro NO_2^- — Nitro

Br^- — Bromo

I^- — Iodo

Positive ligands:-

NO_2^+ — Nitronium NO^+ — Nitrosonium

W/Cationic complex or neutral complex

(1) Negative ligand first and then the neutral ligand followed by Positive ligand

Ans
(2) Name of the Central metal ion and its oxidation state in Roman in bracket.

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(3) Name of the group which is outside the co-ordination sphere.

For examples:-

(1) $[\text{Cu}(\text{NH}_3)_4]\text{SO}_4$ - Tetraamine Cu(II) sulphate

(2) $[\text{Co}(\text{NH}_3)_6]\text{Cl}_3$ - Hexaamine Cobalt(III) Chloride

(3) $[\text{Co}(\text{NH}_3)_4\text{Cl}_2]\text{Cl}$ - Dichlorotetraamine Cobalt(III) chloride

(4) $[\text{Ni}(\text{CO})_4]$ - Tetra carbonyl Ni(0) complex

(5) $[\text{Co}(\text{NH}_3)_3(\text{NO}_2)_3]$ - Trinitro triamine Cobalt(III) complex.

✓ Anionic Complex

(1) The cation outside the co-ordination sphere is named first.

(2) Among the ligand, the negative ligand and then the neutral ligand followed by positive ligand which is very rare

(3) Central metal ion with "ate" suffix followed by oxidation state in Roman in bracket.

For examples :-

(1) $K_4[Fe(CN)_6]$ - Potassium hexacyano ferrate (II)

(2) $K_3[Fe(CN)_6]$ - Potassium hexacyano ferrate (III)

(3) $K[PtCl_3 \cdot NH_3]$ - Potassium trichloroamine Platinate (II)

(4) $[CrCl_4(H_2O)_2]^-$ - Tetrachloro - diaquo chromate(III) ion

(5) $[PtCl_6]^{2-}$ Hexachloro Platinate(IV) ion

— x —

End