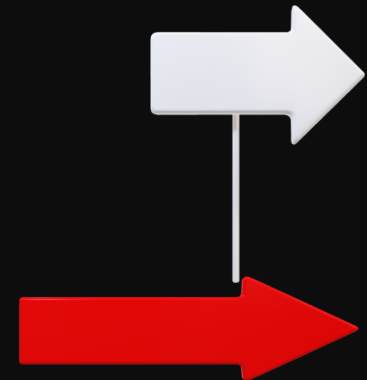


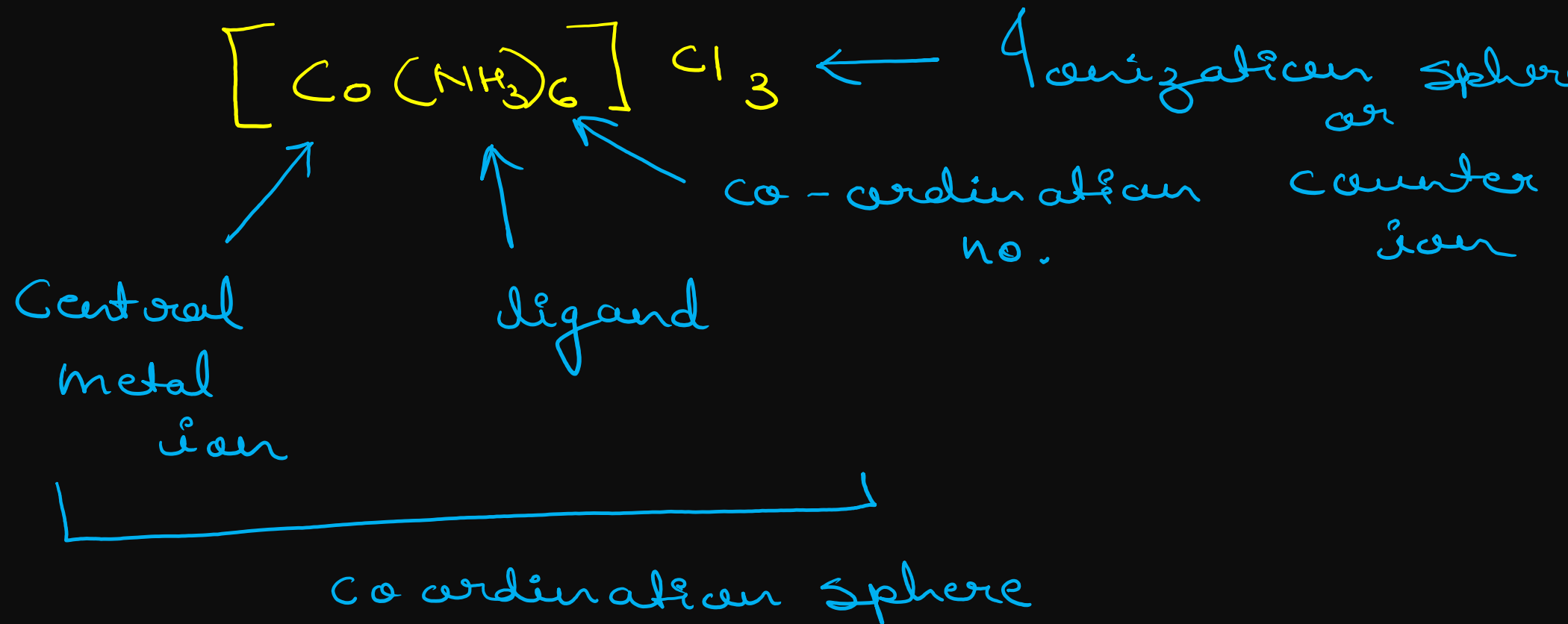


CO-ORDINATION COMPOUNDS NOMENCLATURE





IUPAC Name of Co-ordination Compound.





Rule :- order of Names :-

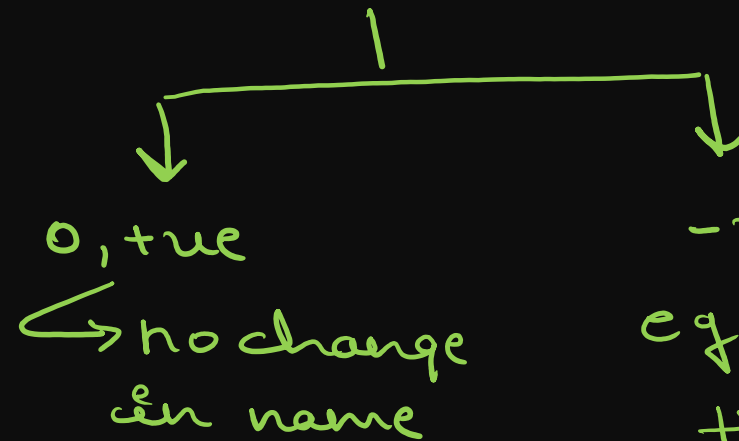
① ligands

(Alphabetical order)

(Prefix - di, tri tetra
or

Prefix - bis, tris, tetrakis

② Central
Metal atom/
ion



③ Oxidation
State

Roman no.s
(I, II, III, IV)



④ Ionic sphere
or
counter ion

Start naming from left \rightarrow right.

$K_4[Ni(CN)_6]$ potassium hexacyanidonickelate (II)

$$0.5 = 4 + x + (6 \times -1) = 0$$

$$4 + x - 6 = 0$$

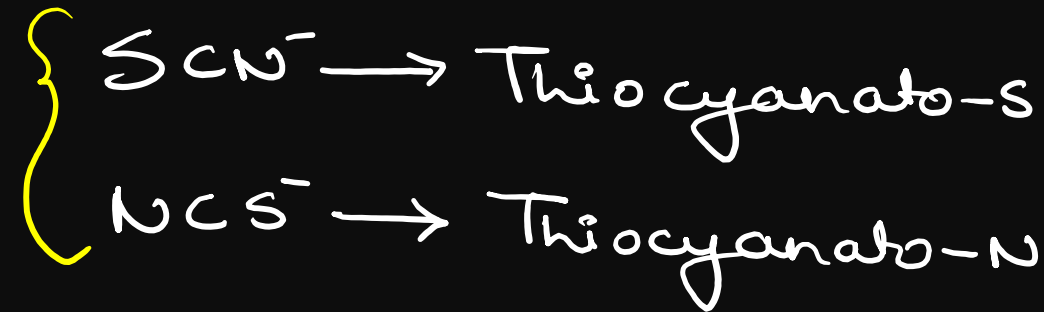
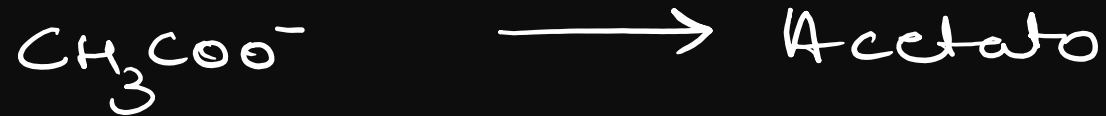
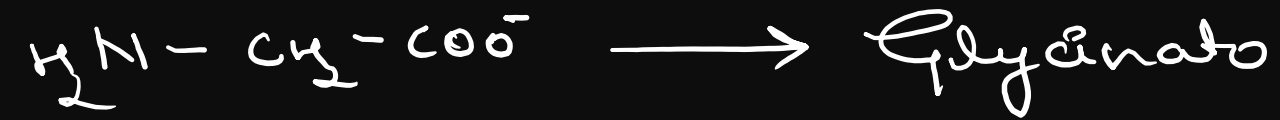
$$Ni = +2$$



Negative ligands

Ligandsold NamesNew Names

H^- Hydride	→	hydro	→	hydrido
F^- Fluoride	→	fluoro	→	fluorido
Cl^- Chloride	→	chloro	→	chlorido
Br^- Bromide	→	bromo	→	bromido
I^- Iodide	→	iode	→	iodido
CN^- Cyanide	→	cyano	→	cyanido
H_2O	→	aqua	→	aqua



ambidentate ligand



Naming of Neutral ligands :-

$\text{NH}_3 \longrightarrow$ Ammine

$\text{H}_2\text{O} \longrightarrow$ Aqua

$\text{NO} \longrightarrow$ Nitrosyl

$\text{CO} \longrightarrow$ Carbonyl

$\text{CS} \longrightarrow$ Thiocarbonyl

$\text{O}_2 \longrightarrow$ dioxygen

$\text{N}_2 \longrightarrow$ dinitrogen

$\begin{array}{c} \text{CH}_2-\text{NH}_2 \\ | \\ \text{CH}_2-\text{NH}_2 \end{array} \longrightarrow$ Ethane-1,2-diamine

$\text{PH}_3 \longrightarrow$ phosphine

$(\text{C}_6\text{H}_5)_3\text{P} \longrightarrow$ Triphenyl phosphine

 \longrightarrow dipyridyl

$\text{AsR}_3 \longrightarrow$ Trialkyl arsine



Naming of the ligands

NO^+ \longrightarrow Nitrosanium

NO_2^+ \longrightarrow Nitronium

$\text{NH}_2\text{-NH}_3^+$ \longrightarrow Hydrazinium

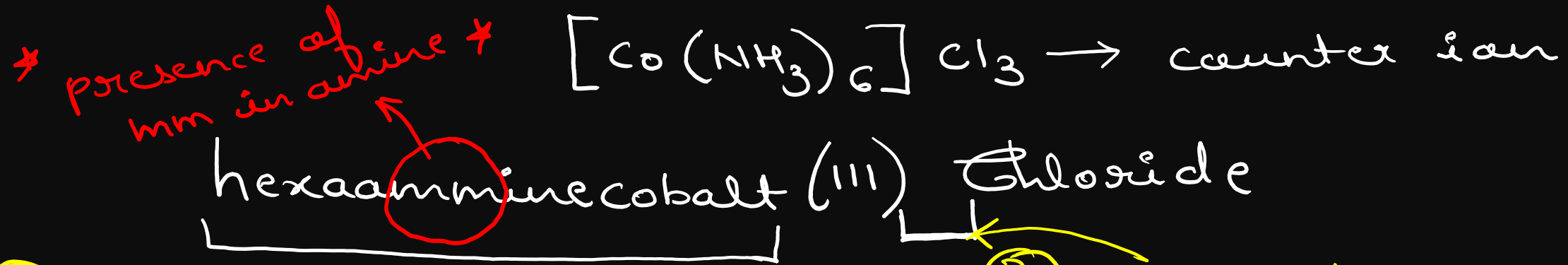
O_2^+ \longrightarrow Oxygenium

$\text{C}_6\text{H}_5\text{NH}_2^+$ \longrightarrow Anilinium

Sum the ligand.

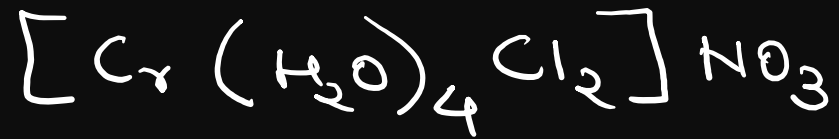


① Start IUPAC naming by small letter



② → no gap while writing the names of compounds present within coordination sphere

③ gap betⁿ counter ion and roman numerical.



tetraaquadichlorido chromium(III) nitrate

$$\hookrightarrow 0-5$$

$$x + (0 \times 4) + (-1 \times 2) + (-1) = 0$$

$$x - 3 = 0$$

$$\boxed{x = 3}$$

But, 'di', 'tri' are used when
"di", "tri" are already present
in ligand name



\hookrightarrow [↑]tris(ethane-1,3-diamine)



chlorobis(ethane-1,2-diamine) nitritocobalt(III) ion

$$\text{O.S} \quad x + (-1) + (0 \times 2) + (-1) = +1$$

$$x - 1 - 1 = +1$$

$$x - 2 = +1$$

$$x = 3$$