TDC-II
P-III
Co-ordination

Werner's Coordination Theory (1893)

- This theory is regarding Primary & Secondary Valency of metal in the Coordination Complex
- The 2 important Postulates of this Theory are as followed

(i) Primary Valency (PV) = In the Coordination complex, Central metal possesses ionizable valency which is Equal to the Oxidation State of metal ion. It is also called ionic Valency or Principal valency of metal in the Complex

- It is satisfied by negative ion & -ve ligands
- P.V. is denoted by dotted line (- - -)

Fe^{+2}	$\overset{P.V.}{+2}$	Pt^{+2}	$\overset{P.V.}{+2}$
Fe^{+3}	$+3$	Pt^{+4}	$+4$
Co^{+3}	$+3$	Pb^{+2}	$+2$
Ni^{+2}	$+2$	Cu^{+2}	$+2$

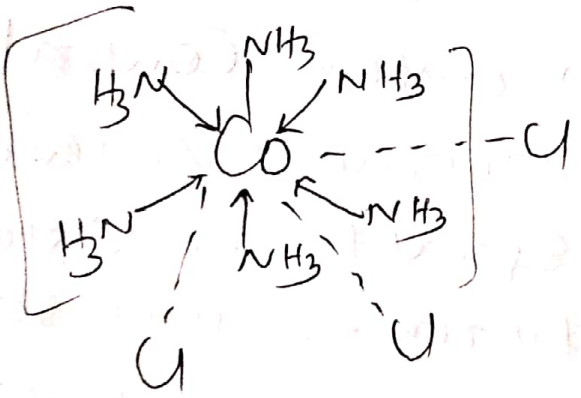
(II) Secondary or Auxiliary valency —

It is also termed as Coordination number or non ionizable valency

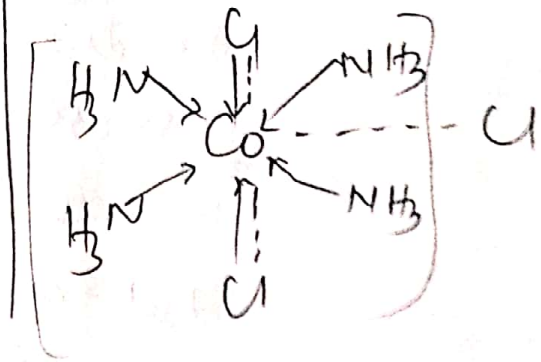
→ This valency is indicated by → sign

→ This valency is satisfied by negative ion or neutral molecules as ligand

$CoCl_3 \cdot 6NH_3$



$CoCl_3 \cdot 4NH_3$



Cl^- ligand satisfy only primary valency

two Cl satify both PV & SV and one Cl satisfies only PV.

(III) Every Element tend to satisfy both P.V & S.V. In order to meet this requirement a negative ion may show a dual behavior i.e. it may satisfy both PV & SV since in every case fulfillment of coordination number of central metal is essential.