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Unit-5

1) Werner's Theory

Primary valency	Secondary valency
1. Oxidation State	Co-ordination number
2. Positive or zero	positive, -ive, neutral.
3. Non-directional	directional

Inner Sphere → Co-ordination Sphere
Outer Sphere → Ionisation sphere

2) V.B. Theory

i) Ligand - metal (covalent nature)
ii) Ligand → lone pair of electrons
iii) metal → Vaccant orbital
iv) Number of ligand → Co-ordination number
v) (n-1)d orbital → inner orbital complex
nd orbital → outer orbital complex
vi) Unpaired electron - para magnetic
Paired electron - diamagnetic

3) Ionisation isomerism → gives different ions in solution

$[Co(NH_3)_5Br]SO_4$
$[Co(NH_3)_5SO_4]Br$

Linkage isomerism - Two different donar atom by ambidentate ligand EX:- NO_2, ONO

Solvate (or) Hydrate isomerism :- Exchange of Solvent molecule in Crystal lattice
EX:- $[Cr(H_2O)_6]Cl_3$

4) Why Colour & Colourless ?

Colour - Presence of unpaired electron
Colourless - Absence of unpaired electron.

Unit-9.

1. Kohlraush's law:-

$(\Lambda^\circ m)_{NaCl} = (\Lambda^\circ m)_{Na^+} + (\Lambda^\circ m)_{Cl^-}$

2. Faraday's first law

$\boxed{m \propto Q}$

m - mass of Substance liberated at electrode
Q - quantity of charge pass

Faraday's Second law

$\boxed{m \propto Z}$

m - mass of Substance
Z - Electrochemical equivalent of Substance

3. Nernst eqn:-

$$E = E^\circ - \frac{2.303\,RT}{nF} \log \frac{[C]^l[D]^m}{[A]^x[B]^y}$$

Unit-13.

1. Gabriel phthalimide Synthesis

phthalimide → i) al. KOH, ii) RX, iii) aq. KOH → $R-NH_2$

2. Carbyl amine reaction:- (Test for 1° amine)

$CH_3NH_2 + CHCl_3 + 3KOH \rightarrow CH_3NC + 3KCl + 3H_2O$

3. Chloropicrin :-

USE:- Insecticide

$CH_3NO_2 + 3Cl_2 \xrightarrow{NaOH} CCl_3NO_2 + 3HCl$

4. Mustard oil Reaction:-

$CH_3NH_2 + CS_2 \rightarrow CH_3NCS + H_2S$

5. Sandmayer Reaction

$C_6H_5N_2Cl \xrightarrow[HCl]{Cu_2Cl_2} C_6H_5Cl + N_2$

Glattermann Reaction

$C_6H_5N_2Cl \xrightarrow[HCl]{Cu} C_6H_5Cl + N_2$

All the Best