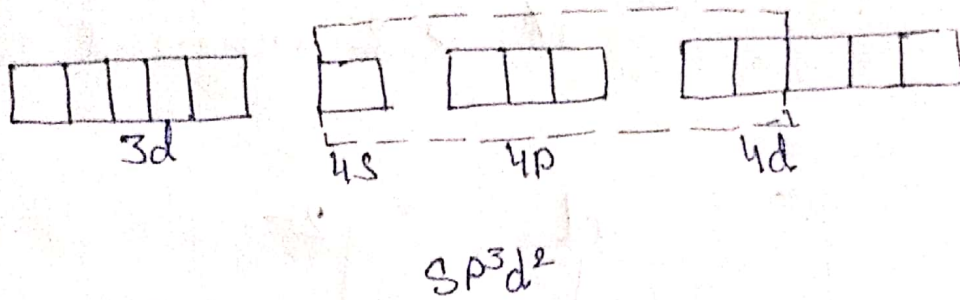


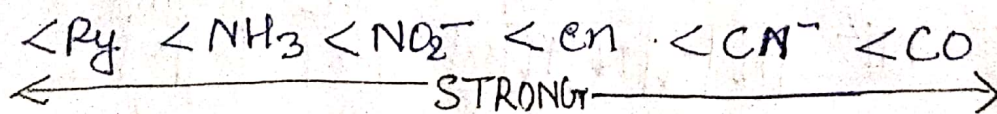
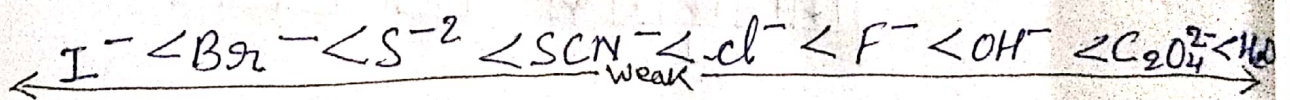
1

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Postulate - 4: If outer 'n d' orbitals take part in hybridisation then complex formed is K/n as outer orbital complex eg: sp^3d^2



Postulate-5:- outer orbital complex is formed in +ve of weak ligand while inner orbital complex is formed in +ve of strong ligand. Ligands are arranged in a series accⁿ to their strength known as spectrochemical series



Halogen atom < O-donor < N-donor < C-donor

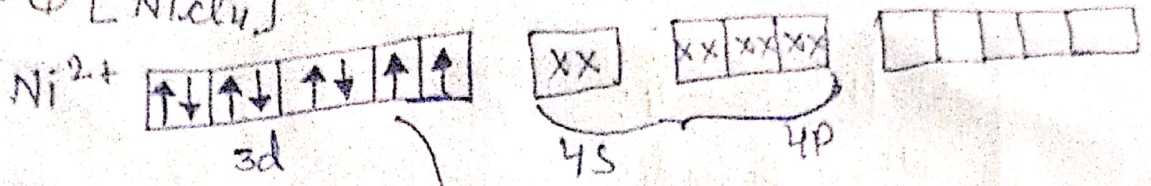
Postulate - 6:-

Generally, complex diamagnetic in +ve of strong ligand \because SL cause pairing of e^-

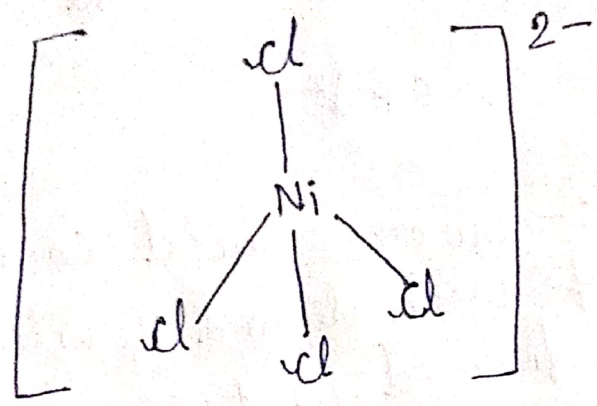
and in +ve of weak ligand complex are paramagnetic \because W do not cause pairing of e^-

② → outer orbital complex / high spin complex.

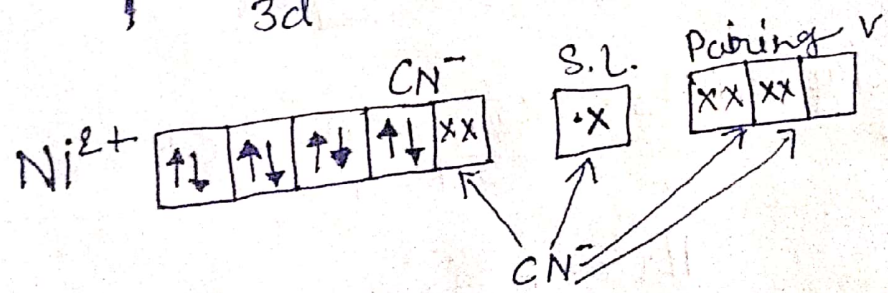
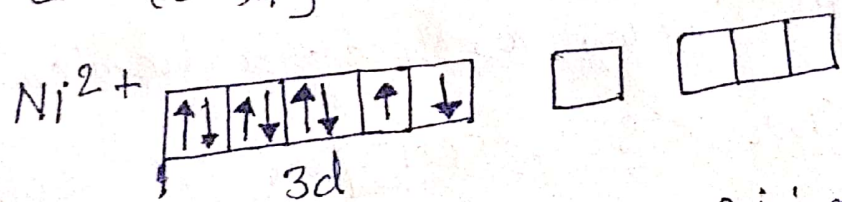
eg ① $[NiCl_4]^{2-}$



$cl^- \rightarrow W.L$
Pairing \times sp^3 tetrahedral
→ 2 unpaired, Paramagnetic



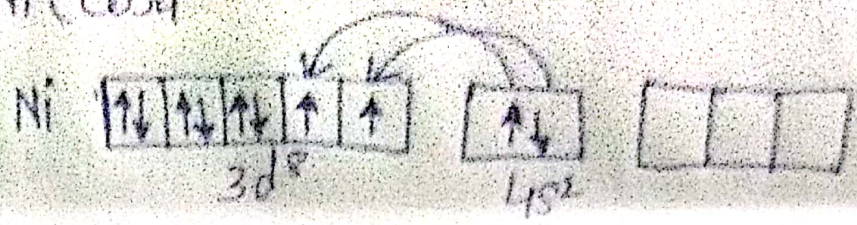
② $[Ni(CN)_4]^{2-}$



dsp^2 , Square planar
diamagnetic

3

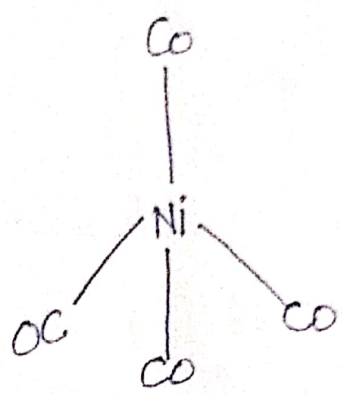
③ Ni(CO)₄



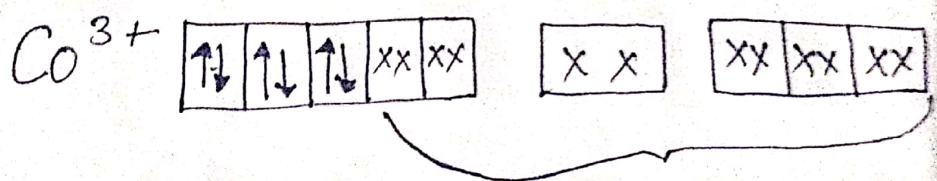
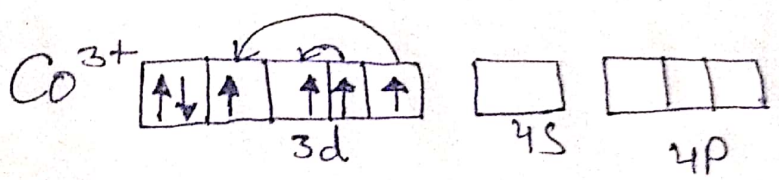
CO \rightarrow SL, Pairing \checkmark



SP³, tetrahedral
dia

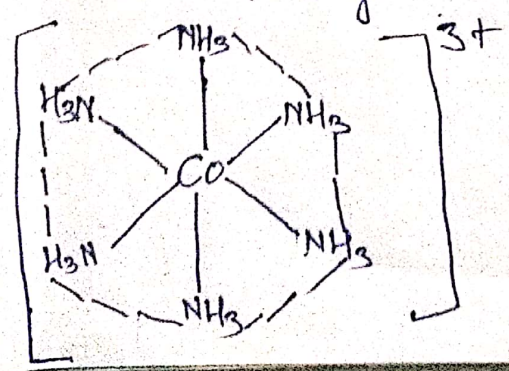


④ [Co(NH₃)₆]³⁺



NH₃ \rightarrow S.L.
Pairing

d²sp³, octahedral
dia. IOC / LSC



↓
Inner orbital complex
Low spin complex