DEPARTMENT OF CHEMISTRY

**CLASS XII**

**CHAPTER -COORDINATION COMPOUNDS WORKSHEET - 7**

1. What are ambident ligands? Explain giving example.
2. Write the IUPAC name of the ionization isomer of [Pt(NH3)3Br] Cl
3. Write the formula of CrCl3.5H2O that furnishes 2 moles of Chloride ions per mole of salt.
4. i) Write down the IUPAC name of the following complex : [Pt(NH3)(H2O)Cl2]

ii) Write the formula for the following complex : tris(ethane-1,2-diamine)chromium(III) chloride

1. Write IUPAC names of the following:
   1. [Co (NH3)5 Cl ] Cl2

b) [Cr(NH3)6]3+

1. a) What type of isomerism is shown by[Co (NH3)5ONO]Cl2 ?
2. On the basis of crystal field theory, write the electronic configuration for d4 ion if ∆o < P.
3. Write the hybridization and shape of [Fe (CN)6]3─.

(Atomic number of Fe = 26) (2015)

1. Give the formula of the compound:

a) Nitrito – N-pentaamminecobalt(III)nitrate

b) Potassium hexacyanocobaltate(III)

c) Hexaammineplatinum(IV)chloride

1. Account for the following

a) [Fe (CN)6]3- is weakly paramagnetic while [Fe(CN)6]4- is diamagnetic.

b) [Ni (CO)4] is tetrahedral while [Ni(CN)4]2- is square planar.

c) [Ti(H2O)6]3+ is coloured while [Sc(H2O)63+ is colourless

1. a) For the complex [Fe(CO)5], write the hybridization, magnetic character and spin of the complex. (At. Number : Fe = 26 )

b) Define crystal field splitting energy. (2016)

1. Describe the state of hybridization, the shape and magnetic behavior of the following complexes:

a) [Cr(H2O)2(C2O4)2]─

b) [Co(NH3)2(en)2]3+

(At no’s: Cr = 24 , Co = 27) (2010)

1. a) What is a ligand? Give an example of a bidentate ligand.

a) Explain as to how the two complexes of nickel, [Ni(CN)4]2─ and [Ni(CO)4 ], have different structures but do not differ in their magnetic behavior. (At no: of Ni = 28)

b) Discuss the nature of bonding in metal carbonyls.

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