CLASS XII
CHAPTER -COORDINATION COMPOUNDS

ONE MARK QUESTIONS

1. What are ambident ligands? Explain giving example.
2. Write the IUPAC name of the ionization isomer of $[Pt(NH_3)_3Br]Cl$
3. Write the formula of $CrCl_3.5H_2O$ that furnishes 2 moles of Chloride ions per mole of salt.

TWO MARK QUESTIONS

1. i) Write down the IUPAC name of the following complex :
   $[Pt(NH_3)(H_2O)Cl_2]$
   (ii) Write the formula for the following complex :
   tris(ethane-1,2-diamine)chromium(III) chloride (2015)
2. Write IUPAC names of the following:
   a) $[Co(NH_3)_5Cl]Cl_2$ b) $[Cr(NH_3)_6]^{3+}$

THREE MARKQUESTIONS

1. a) What type of isomerism is shown by $[Co(NH_3)_5ONO]Cl_2$?
   b) On the basis of crystal field theory, write the electronic configuration for d^4 ion if $\Delta o < P$.
   c) Write the hybridization and shape of $[Fe(CN)_6]^{3-}$.
   (Atomic number of Fe = 26) (2015)
2. Give the formula of the compound
   a) Nitrito – N-pentaamminecobalt(III)nitrate
   b) Potassium hexacyanocobaltate(III)
   c) Hexaammineplatinum(IV)chloride

3. 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) $[Ti(H_2O)_6]^{3+}$ is coloured while $[Sc(H_2O)_6^{3+}$ is colourless.

4. 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)

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

a) $[Cr(H_2O)_2(C_2O_4)_2]^-$

b) $[Co(NH_3)_2(en)_2]^{3+}$

(At no's: Cr = 24 , Co = 27) (2010)

FIVE MARKQUESTIONS

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

b) 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)

c) Discuss the nature of bonding in metal carbonyls.

VALUE BASED QUESTION

1. Swetha's father is working in a battery factory. These people are engaged in recycling lead acid batteries. Since few days Swetha's father is feeling sick. Swetha has taken his father to a doctor. Doctor found him suffering from lead poisoning. Swetha then goes to the factory and asks the seniors to take necessary steps for the health of the workers of the factory.

a) Which coordination compound is used for the treatment of lead poisoning?

b) How does it work in our body?

c) Write the value shown by Swetha in the above paragraph.

d) Write down two examples of coordination compounds which are of great importance to biological systems.

****