M. Sc. (Sem. IV) (CBCS) Examination

April / May - 2017

Inorganic Chemistry : C (I) - 404
(Co-ordination Chemistry)

Faculty Code : 003
Subject Code : 010410

Time : $2\frac{1}{2}$ Hours]   [Total Marks : **70**

Instructions :
   (1)   All questions are compulsory.
   (2)   All questions carry equal Marks

1   Answer the following : (Any Seven)   **14**
   a.   Explain Formation curves.
   b.   Define the term $\bar{n}$ and $\bar{n}_H$.
   c.   Explain different methods to determine stability constans.
   d.   Discuss the limitations of mole ratio method.
   e.   Explain the meaning of stepwise stability constant K_n.
   f.   Explain following order of trans effect of the ligands Pyridine < CO.
   g.   Discuss Optical isomerization.
   h.   Give the differences between labile and inert complexes.
   i.   Discuss Optical isomerization.
   j.   Give the difference between innersphere and outer sphere mechanism.

2   Answer the following : (Any Two)   **14**
   a.   What is stability? Define step wise and overall stability constants and obtain the relation between them.
   b.   Discuss factors affecting metal ligand stability constant.
   c.   Give an account of ligand substitution reaction with suitable example.

3   Answer the following : (Any Two)   **14**

   a.   Discuss the evidence for covalent metal complex.

   b.   Discuss Vosburgh and Copper correction to the Job's method.

   c.   Discuss half integral method to obtain the stepwise stability constant for ML_2 system.

4   Answer the following :   **14**

   a.   Discuss Irving -Rassotti method to determine stepwise stability constant in metal complex.

   b.   Explain Bjerrum's formation functions.

5   Answer the following :   **14**

   a.   Discuss reaction mechanism of base hydrolysis reaction in octahedral complexes.

   b.   Explain Correction method.

                              OR

5   Answer the following : (Any Two)   **14**

   a.   Discuss the Marcus theory of outersphere mechanism of electron transfer reaction in complexes.

   b.   What are labile and inert complexes ? Explain with proper complexes.