

**M.Sc. II Semester Degree Examination, October - 2023****CHEMISTRY****Chemistry of Coordination Compounds****(NEP)**

Time : 3 Hours

Maximum Marks : 70

Note : Answer **any five** of the following questions with Question No. **1 compulsory** and each question carries **equal** marks.

1. (a) Discuss the treatment of coordination compounds involving Sigma bonding. 5+5+4
(b) What is CFT ? Give salient features of CFT.
(c) List the limitations of VBT.

2. (a) Write notes on : 5+5+4
(i) Charge transfer bands
(ii) Interface of charge transfer bands
(b) Explain, Racah parameters in metal complexes.
(c) Discuss :
(i) Orgel diagrams
(ii) Term symbol of complexes

3. (a) Describe coordination isomerism in metal complexes. 5+5+4
(b) Describe Faraday method for measurement of magnetic susceptibility.
(c) Discuss briefly, ferro and antiferromagnetism in metal complexes.

4. (a) Comment on thermodynamic stability of metal complexes. 5+5+4
(b) Discuss the factors affecting the stability of metal complexes.
(c) Explain, the determination of binary formation constants of complexes by polarography.



5. (a) Discuss the kinetics of octahedral substitution reactions in complexes. **5+5+4**
(b) Describe the molecular rearrangement of six coordinated metal complexes.
(c) Write a note on complementary electron transfer reactions.
6. (a) Discuss effect of spin orbit coupling and band intensity of metal complexes. **5+5+4**
(b) Write a note on :
(i) Ionisation isomerism.
(ii) Linkages isomerism of metal complexes.
(c) Explain, Gouy method for measurement of magnetic susceptibility.
7. (a) Explain the relationship between kinetic and thermodynamic stability of metal complexes. **5+5+4**
(b) Discuss the determination of binary formation constant by spectrophotometry.
(c) Explain two electron transfer reactions.
8. (a) Explain stereochemistry of metal complexes having coordination number. **5+5+4**
(b) Write a note on Tanabe - Sugano diagrams.
(c) Comment on :
(i) Stability of metal complexes
(ii) Energy profile of complex reactions

