QP CODE: 24018923

24018923

Reg No : .....

Name : .....

MSc DEGREE (CSS) EXAMINATION , APRIL 2024

Second Semester

CORE - CH500201 - COORDINATION CHEMISTRY

M Sc ANALYTICAL CHEMISTRY,M Sc APPLIED CHEMISTRY ,M Sc CHEMISTRY,M Sc PHARMACEUTICAL CHEMISTRY,M Sc POLYMER CHEMISTRY

2019 Admission Onwards

C2855D30

Time: 3 Hours Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. Comment on the sigma and pi bonding ability of the ligand CO.
2. Predict and explain the relative position of fluoride ion, water and hydroxide ion in the spectrochemical series.
3. Explain why the intensity of electronic transitions of Co(II) tetrahedral complex is considerably higher than that of Co(II) octahedral ones.
4. Explain the effect of Jahn teller distortion on the electronic spectra of a complex with a suitable example.
5. Write a note on anomalous magnetic moment of metal complexes with suitable examples.
6. Explain trans effect with a suitable example.
7. What is meant by anation reaction in complexes? Illustrate with an example.
8. Write any one method used for the synthesis of Sigma bonded Uranium complexes.
9. Explain the use of the concept Circular Dichroism (CD) in coordination chemistry.
10. Explain an experimental method to investigate linkage isomerism with a suitable example.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. State and explain Jahn Teller effect of d9 system.
12. Explain the MO energy level diagram of an octahedral complex with a suitable example.

13. What are Racah parameters? Explain their significance.

14. Explain diamagnetism and paramagnetism in coordination complexes with suitable examples.

15. Describe kinetics and mechanism of base hydrolysis and racemization reactions in octahedral complexes.

16. Explain outer sphere reactions with examples.

17. Explain electronic spectra of lanthanoid complexes with example.

18. Give an account of the electronic spectra and magnetic properties of actinides.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. What is the chelate effect? Explain the different factors influencing the chelate effect.

20. a) Explain the effect of temperature on magnetic properties of complexes b) Describe temperature independant paramagnetism

21. Explain subsitution in tetrahedral and five coordinate complexes.

22. Explain geometrical and optical isomerism in octahedral complexes with suitable examples.

(2×5=10 weightage)