

21P211

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Name:

Reg.No:

SECOND SEMESTER M.Sc. DEGREE EXAMINATION, APRIL 2022

(CBCSS - PG)

(Regular/Supplementary/Improvement)

CC19P CHE2 C06 - COORDINATION CHEMISTRY

(Chemistry)

(2019 Admission onwards)

Time : 3 Hours

Maximum : 30 Weightage

Section A

Answer any *eight* questions. Each question carries 1 weightage.

1. Write the relationship between Stepwise and overall formation constants.
2. Explain the term ligand denticity with suitable examples.
3. What is Racah parameter?
4. Draw the MO diagram for tetrahedral complex.
5. State and explain spin selection rule.
6. Differentiate Curies Law and Curie-Weiss Law.
7. Explain ring whizzer. How can it be characterized?
8. Distinguish Sn(II) and Sn(IV) using Mossbauer spectroscopy
9. Explain trans effect, with its utility by taking suitable example.
10. Define photosubstitution and state Adamsons rules on photosubstitution.

(8 × 1 = 8 Weightage)

Section B

Answer any *four* questions. Each question carries 3 weightage.

11. Unstable ions get stabilised on the formation of complexes. Explain with examples.
12. What are the distinguishing features of charge transfer and d-d band?
13. Explain various type of Antiferromagnetic exchange pathways.
14. C=C vibrations for cyclobutene is 1556cm^{-1} while that of cyclopropene is 1656cm^{-1} . Substantiate.

15. Using EPR spectra explain the nature of bonding in Cu(II) complex.
16. Distinguish between outer sphere and inner sphere reactions with example.

(4 × 3 = 12 Weightage)

Section C

Answer any *two* questions. Each question carries 5 weightage.

17. Explain the stereochemistry of coordination compounds.
18. What are the salient features of VBT for bonding in complexes? Explain with two suitable examples.
19. Explain A,D & I mechanisms of substitution reactions in octahedral transition metal complexes, bringing out the factors affecting the reactions.
20. Account for the photoreactive excited states of cr(III) complexes. Giving suitable examples discuss the photo aquation reactions of Cr(III) complexes.

(2 × 5 = 10 Weightage)
