SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, APRIL 2025
(Regular/Improvement/Supplementary)
CHEMISTRY
GCHE6B09T: INORGANIC CHEMISTRY - IV

Time: 2 Hours   **Maximum Marks: 60**

SECTION A: Answer the following questions. Each carries *two* marks.
(Ceiling 20 marks)

1. Give any two limitations of VBT.

2. Draw the structure of any two anticancer drugs.

3. Calculate the spin-only magnetic moment of Mn^{2+}.

4. Tetrahedral complexes are generally high spin. Explain.

5. What are polynuclear carbonyls? Give any two examples.

6. Calculate the CFSE of $[Fe(H_2O)_6]^{3+}$.

7. Give the preparation and structure of Ziese's salt.

8. State Beer Lambert's Law.

9. Name any two scanning probe instruments.

10. Transition metal ions form a large number of complex compounds. Why?

11. What is Wilkinson's Catalyst? Give its synthetic importance.

12. Name two bulk elements and two trace elements in biological system.

SECTION B: Answer the following questions. Each carries *five* marks.
(Ceiling 30 marks)

13. Explain the mechanism of sodium-potassium pump.

14. Discuss the biochemical functions of Zinc.

15. Explain the crystal field splitting in square planar complexes.

16. Give the principle and applications of SEM.

17. Discuss the steps involved in the isolation of lanthanides from monazite sand.

18. What are the factors influencing the stability of complexes?

19. Discuss the bonding in metal carbonyls.

SECTION C: Answer any *one* question. The question carries *ten* marks.

20. a) Discuss the principle and applications of AFM.

     b) Explain lanthanide contraction. What are its consequences?

21. Discuss the MO theory for octahedral complexes with sigma bonds only.

(1 × 10 = 10 Marks)