Turn Over

QP CODE: 24000595

Max. Marks: 60

# B.Sc DEGREE (CBCS) REGULAR / REAPPEARANCE EXAMINATIONS, MARCH 2024

#### Sixth Semester

## **CORE COURSE - CH6CRT09 - INORGANIC CHEMISTRY**

Common for B.Sc Chemistry Model I, B.Sc Chemistry Model II Industrial Chemistry & B.Sc Chemistry Model III Petrochemicals

2017 Admission Onwards

E329CF35

Time: 3 Hours

Part A

### Answer any **ten** questions. Each question carries **1** mark.

- 1. Write the IUPAC name of complex [Co(en)<sub>3</sub>]Cl<sub>3.</sub>
- 2. What is ionisation isomerism? Give example.
- 3. What is chelate effect?
- 4. Calculate CFSE for  $[Cr(H_2O)_6]^{3+}$ .
- 5. How does oxidation state of the metal ion affect crystal field splitting in complexes?
- 6. Give the equation for calculating spin only magnetic moment value.
- 7. Which type of ligands show high trans effect?
- 8. What are pi bonded organometallic compounds? Give an example.
- 9. What is the oxidation state of Fe in Ferrocene?
- 10. Give an example for a compound exhibiting quadruple bonding.
- 11. Name the protein part of Haemoglobin.
- 12. Write two examples for interhalogen compounds.

(10×1=10)

Answer any **six** questions. Each question carries **5** marks.

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Part B

13. Discuss Sidgwick's concept of coordination compounds.



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Name



- 14. What are the evidences for the existence of covalent bonds in complexes? Explain.
- 15. Explain the application of coordination complexes in quantitative analysis.
- 16. Write a short note on synergic effect.
- 17. Write a short note on the catalytic applications of organometallic compounds.
- 18. Explain the role of Calcium and Magnesium ions in biological systems.
- 19. Write any two methods for the preparation of diborane. Also explain the properties of diborane.
- 20. What are pseudohalogens? Describe the important characteristics of pseudohalogens.
- 21. Explain the preparation, properties and structure of XeO<sub>3</sub>.

(6×5=30)

#### Part C

### Answer any **two** questions. Each question carries **10** marks.

- 22. (i) What are the postulates of VB Theory? (ii) Illustrate the formation of all the possible geometries of complexes with coordination number 6.
- 23. Describe and justify the preferred mechanism for ligand substitution reactions in square planar complexes
- 24. Discuss in detail, the structure and bonding in (a)  $Mn_2(CO)_{10}$  and (b)  $Fe_2(CO)_9$ .
- 25. What are Anticancer drugs? Explain the structure and significance of cis platin and carboplatin.

(2×10=20)