23105130

QP CODE: 23105130

Reg No : .....

Name : .....

B.Sc DEGREE (CBCS) REGULAR / REAPPEARANCE EXAMINATIONS, MARCH 2023

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

EE2846E1

Time: 3 Hours Max. Marks : 60

Part A

*Answer any **ten** questions.*

*Each question carries **1** mark.*

1. Write the IUPAC name of complex $[Fe(C_5H_5)_2]$
2. What is primary valency?
3. Calculate the EAN of (a) $[Cr(CO)_6]$ and (b) $[Ni(CO)_4]$
4. Calculate CFSE for Octahedral complex having d^3 electronic configuration.
5. What is Spectrochemical series? Give two examples of strong field ligands.
6. What is paramagnetism?
7. Which type of ligands show high trans effect?
8. Show that $Co_4(CO)_{12}$ obeys 18-electron rule.
9. Write any one method of synthesis of Ferrocene.
10. What is Wilkinson's catalyst?
11. What is carboxy peptidase?
12. Name two compounds of noble gas that involve sp^3d hybridisation.

(10×1=10)

Part B

*Answer any **six** questions.*

*Each question carries **5** marks.*

13. Explain the different kinds of structural isomerism in coordination complexes with suitable examples.
14. Find out the hybridisation, geometry and predict the magnetic property of the complex $[Pt(NH_3)_4]^{2+}$
15. Explain the application of coordination complexes in quantitative analysis.
16. Describe bonding in metal-alkene complexes.
17. What is EAN rule? Apply it to metal carbonyls taking any two examples.
18. Explain the structure of Haemoglobin.
19. Write any two methods for the preparation of Boric acid. Explain the structure of the same.
20. How will you prove the electropositive character of iodine?
21. Elaborate the structure and bonding in $XeOF_4$.

(6×5=30)

Part C

*Answer any **two** questions.*

*Each question carries **10** marks.*

22. What is Jahn -Teller effect? Explain Jahn – Teller distortion in Cu (II) complexes.
23. Describe and justify the preferred mechanism for ligand substitution reactions in square planar complexes.
24. Describe bonding in (a) metal-alkene complexes and (b) metal carbonyl compounds taking suitable examples.
25. Comment on the biological functions and toxicity of Cobalt, Lead, Cadmium and Mercury.

(2×10=20)