TB206185W **Reg. No :.....**

Name :.....

B. Sc. DEGREE (C.B.C.S.) EXAMINATION, MARCH 2023

(2020 Admission Regular, 2019, 2018 Admissions Supplementary)

SEMESTER VI - CORE COURSE (CHEMISTRY)

CH6B09B18 - INORGANIC CHEMISTRY

Time : 3 Hours **Maximum Marks : 60**

Part A

I. Answer any Ten questions. Each question carries 1 mark **(10x1=10)**

1. Explain spectrochemical series.
2. Explain EAN with example.
3. Sketch the axial and non- axial orbitals. What are they called in CFT?
4. Define co-ordination sphere. Give one example.
5. Give the structure and use of Wilkinson's catalyst
6. Sketch $Fe(CO)_5$.
7. Memorise Quadruple bond.
8. List the toxicity effect of Co and Cd.
9. Identify the term nitrogenase.
10. Tabulate the Importance of Ca and Mg.
11. Molten ICl_3 has high electrical conductivity. Justify.
12. Represent the equation by which Borax is converted to Boric acid.

Part B

II. Answer any Six questions. Each question carries 5 marks **(6x5=30)**

13. Discuss the arrangement of electrons in d orbitals in a weak field ligand field in octahedral complexes based on CFT.
14. Explain trans effect and its application.
15. Discuss the arrangement of electrons in d orbitals in a strong ligand field in octahedral complexes based on CFT.
16. Compare the splitting of d orbitals in a) Octahedral and b) Square planar ligand field.
17. Articulate the term bridged carbonyls.
18. Write the preparation of Ferrocene.
19. Explain essential and trace elements in biological systems.
20. Speculate the structure of haemoglobin.
21. IIlustrate with example the structure of interhalogen compounds.

Part C

III. Answer any Two questions. Each question carries 10 marks **(2x10=20)**

22. Disuss the following a) VBT - its merits and demerits b) CFT - its merits and demerits.
23. Ilustrate the following with examples a) anionic and cationic ligands b) SN1 and SN2 mechanism of ligand substituton reactions c) Octahedral and tetrahedral splitting of d orbitals
24. Describe the preparation and properties of carbonyls.
25. a) Explain the properties of Boric acid and list out its uses. b) Discuss the structure of Boric acid.