B.Sc. DEGREE EXAMINATION,APRIL 2020
III Year VI Semester
Inorganic Chemistry - II

Time : 3 Hours **Max.marks :60**

Section A $(10 \times 1 = 10)$ Marks

Answer any **TEN** questions

1. Write the IUPAC name of the following complexes:
   i) $K_3[Fe(CN)_6]$ ii) $[Co(NH_3)_5Cl]$.
2. Calculate the spin only magnetic moment of $[Mn(SCN)_6]^{4-}$.
3. What is solvate isomerism? Give an example.
4. Mention the any two uses of metal carbonyls.
5. What is Spectrochemical series?
6. Predict the CFSE value of $[Fe(CN)_6]^{4-}$ complex ion.
7. Write any two applications of EDTA.
8. Define nucleophilic substitution.
9. Why do we need green chemistry?
10. Define: COD.
11. List the merits of CFT.
12. What is chelate? Give examples.

Section B $(5 \times 4 = 20)$ Marks

Answer any **FIVE** questions

13. What is effective atomic number? Predict the EAN for the following complexes:
    i) $[Cr(CO)_4Cl]$ ii) $[PtCl_2(NH_3)_4]$
14. Explain the geometrical isomerism of octahedral complexes with suitable examples.
15. Describe the factors affecting 10 Dq values.
16. Discuss the uses of coordination compounds in quantitative analysis.
17. Write a note on water pollution in detail.
18. Explain the crystal field splitting in square planar complexes.
19. a) Illustrate the ionisation isomerism with examples. (2+2)
    b) Write the salient features of Werner's coordination theory.

Section C $(3 \times 10 = 30)$ Marks

Answer any **THREE** questions

20. Explain in detail about hybridisation and magnetic properties of $[Ni(CN)_4]^{2-}$ and $[Co(NH_3)_6]^{3+}$ complexes using VB theory.
21. Discuss the preparation, structure and bonding in Cr, Fe and Co carbonyls.
22. Explain the magnetic properties and colour of the complexes using CFT.
23. Describe the applications of trans effect in square planner complexes.
24. Explain the twelve principles of green chemistry in detail.

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