

M.Sc DEGREE EXAMINATION, APRIL 2019
I Year II Semester
Inorganic Chemistry - II

Time : 3 Hours

Max.marks :75

Section A ($10 \times 2 = 20$) Marks

Answer any **TEN** questions

1. What is high temperature super conductor?
2. What is the difference between normal and inverse spinel?
3. Write two applications of ferrites.
4. Write any one preparation of $\text{Fe}_2(\text{CO})_9$.
5. Explain $[\text{Fe}(\eta^5\text{-C}_5\text{H}_5)_2]$ is more stable than $[\text{Co}(\eta^5\text{-C}_5\text{H}_5)_2]$.
6. Write two conditions to be satisfied by a metal to act as a catalyst.
7. Define β elimination with an example.
8. What is meant by polymer bound catalyst?
9. What is a photoanation reaction?
10. Define the term photosensitisation.
11. What is electron capture?
12. What is meant by Q value of nuclear reactions?

Section B ($5 \times 5 = 25$) Marks

Answer any **FIVE** questions

13. Explain sol - gel process.
14. Write note on order disorder transformation.
15. What are olefin complexes? Discuss bonding in olefin complexes.
16. How are metal carbonyls prepared? Discuss its properties.
17. What is cyclo oligomerization? How is it carried out.
18. Write a note on photoredox reactions of Cr^{3+} complexes.
19. Explain isotopic dilution analysis with suitable example.

Section C ($3 \times 10 = 30$) MarksAnswer any **THREE** questions

20. (a) Explain vacancy and interstitial diffusion mechanism.
(b) Discuss the ferro and antiferro magnetic behaviours of solids.
21. (a) Give the preparation and bonding of ferrocene.
(b) Explain briefly addition and elimination reactions with suitable example.
22. (a) What is Ziegler Natta catalyst? How does it catalyse the polymerization of olefins?
(b) Discuss the mechanism of hydrogenation of olefins using Wilkinsons catalyst.
23. (a) Write a note on photo substitution reactions of Pt^{2+} complexes.
(b) Discuss the solar energy conversion process of $[\text{Ru}(\text{bpy})_3]^{2+}$ complex.
24. (a) Explain the principle and working of GM counter.
(b) Write a note on thermal nuclear reactions.

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