

Reg. No

Name

24U676

B. Sc. DEGREE END SEMESTER EXAMINATION - MARCH 2024

SEMESTER 6 - CHEMISTRY

COURSE : 19U6CRCHE13 - APPLIED INORGANIC CHEMISTRY (EL)

(For Regular 2021 Admission and Supplementary 2020/2019 Admissions)

Time : Three Hours

Max. Marks: 75

PART A

Answer any 10 (1 mark each)

1. What is Nessler's reagent?
2. Give two examples for HNCC.
3. The two ores which can be subjected to roasting are.....
4. The metal present in hemoglobin is.....
5. What is an inorganic polymer?
6. Distillation process is used for the refining of which type of metals?
7. The healthy range for hemoglobin in women is.....
8. Write the structure of Zeigler natta catalyst.
9. Write any two chelators used in chelation therapy.
10. Give the relation between transmittance and absorbance.
11. Give two examples for LNCC.
12. η represents -----in organometallics.
13. The temperature below which a polymer is brittle and above which it is flexible is known as-----?

(1 x 10 = 10)

PART B

Answer any 10 (2 marks each)

14. What is ion-exchange method in metallurgy?
15. Give the structure and function of cytochromes.
16. Explain siderosis.
17. Principle of DTA analysis is
18. What is electrolytic refining in metallurgy?
19. Which one is having higher M-CO stretching frequency? $V(CO)_6^-$ or $Cr(CO)_6$
20. Write the reaction steps for the carboxylation of ferrocene?
21. Prove $Fe(CO)_5$ obeys $18e^-$ rule.
22. What is crystallinity of a polymer?
23. Principle of DSC analysis is
24. Elaborate free volume theory and its relation with T_g
25. What is oxidative refining?
26. Consider the 18 electron rule as a guide and determine the value of n in the following complex.
 $MnBr(CO)_n$

(2 x 10 = 20)

PART C

Answer any 5 (5 marks each)

27. Na⁺/K⁺ pump works as an active transport mechanism in biological system. Explain.
28. Explain any two methods for the reduction of metal oxide to crude metal.
29. Elaborate Nitration and bromination reactions in Ferrocene?
30. What are organometallic compounds with multicenter bonds? Draw an example?
31. Distinguish between organic and inorganic polymers.
32. Write briefly on the electron counting scheme in HNCCs.
33. Write a note on anti cancer drugs.
34. Explain the principle for colorimetric determination of Chromium in a solution

(5 x 5 = 25)

PART D

Answer any 2 (10 marks each)

35. Define Zeise salt and illustrate its structure? Give one method of preparation and discuss the salient features
36. Write a note on TGA. Give its principle and applications. Explain TGA of Calcium oxalate monohydrate.
37. Explain the different metallurgical processes.
38. What is Quadruple bonding. Explain the bonding and structure of [Re₂ Cl₈]²⁻ with suitable diagram.

(10 x 2 = 20)