

D 40057

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Name.....

Reg. No.....

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, MARCH/APRIL 2018

(CUCBCSS—UG)

Chemistry

CHE 6B 09—INORGANIC CHEMISTRY—IV

Time : Three Hours

Maximum : 80 Marks

Part A

(Q. No. 1-10 answer all in one word/sentence)

1. Give the composition of brass.
2. What is roasting in metallurgy ?
3. Write the general electronic configuration of actinides ?
4. What is the oxidation state of Chromium in $K_2Cr_2O_7$?
5. Calculate the Effective Atomic Number of the central metal atom/ion in the complex $[Fe(CN)_6]^{4-}$
6. Write the IUPAC name of the complex : $[Co(NH_3)_4Cl_2]Cl$
Dichlorotetraamminecobalt(III)chloride
7. Draw the structure of a mononuclear carbonyl of Co.
8. What is Zeigler Natta catalyst ?
9. Name the metal present in myoglobin.
10. Draw the structure of oxaliplatin.

(10 × 1 = 10 marks)

Part B

(Q.No. 11-22 Answer any ten. Each carries 2 marks)

11. What is metallurgy ?
12. Write a note on Ellingham diagrams.
13. How is oxidative refining of metals carried out ?
14. Explain giving reasons why iron, cobalt, and nickel are ferromagnetic.
15. Compounds of transition metals are generally coloured. Why ?

Turn over

16. Discuss the position of lanthanides in the periodic table.
17. Explain why primary valency is non-directional while secondary valency is directional in nature.
18. Explain the hybridization expressed by $K_4[Fe(CN)_6]$.
19. What is spectrochemical series?
20. What is meant by back bonding in metal carbonyls?
21. Discuss the toxicity of mercury.
22. Name the trace metals present in human body.

(10 × 2 = 20 marks)

Part C

(Q.No. 23-30 Answer any five. Each carries 6 marks)

23. Explain the terms: Mineral, ore, gangue, flux and slag. Give examples.
24. Write a note on concentration of ore.
25. What are lanthanides? Discuss the ion exchange method for the separation of lanthanides.
26. How do d-block elements differ from f-block elements?
27. Discuss the splitting of d orbitals in tetrahedral complexes.
28. Write a note on high spin and low spin complexes.
29. What are metal carbonyls? Give examples and discuss the nature of M-CO bonding in carbonyls.
30. Discuss sodium-potassium pump.

(5 × 6 = 30 marks)

Part D

(Q.No. 31-34 Answer any two. Each carries 10 marks)

31. Discuss the open hearth process for the manufacture of steel.
32. What is lanthanide contraction? Discuss the Causes and Consequences.
33. Discuss the geometrical isomerism in coordination compounds.
34. Discuss the application of Wilkinson's catalyst in the hydrogenation of alkenes.

(2 × 10 = 20 marks)