D 40057

(Pages : 2)

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)