Chemistry

C 1113 (Pages : 2) Name.....

Reg. No.....

SIXTH SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION, MARCH 2021

Chemistry

CHE 6B 09—INORGANIC CHEMISTRY—IV

Time : Three Hours Maximum : 80 Marks

Section A (One Word)

Answer **all** *questions.*
Each question carries 1 *mark.*

1. The common oxidation state of lanthanides is ————————.
2. The ore of titanium is ————————.
3. The stability of complexes ———————— with increase of charge density on the central metal ion.
4. Zeise's salt is ————————.
5. The effective atomic number of copper in $[Cu(CN)_4]^{3-}$ is ————————.
6. Give the structure of oxaliplatin.
7. Peligot's salt is ————————.
8. The composition of gunmetal is ————————.
9. The IUPAC name of $Na_2[ZnCl_4]$ is ————————.
10. In a given transition series the atomic volume ———————— towards the end of the series.

(10 × 1 = 10 marks)

Section B (Short Answer)

Answer at least **five** *questions.*
Each question carries 4 *marks.*
All questions can be attended.
Overall Ceiling 20.

11. Explain why there is no low spin tetrahedral complexes.
12. Differentiate between calcination and roasting.
13. What are the uses of potassium permanganate ?
14. Which is more basic, $La(OH)_3$ or $Lu(OH)_3$. Why ?

Turn over

15. Explain the crystal field splitting in square planar complexes.
16. Give the structure and use of Wilkinson's catalyst.
17. Briefly describe the structure of $Fe_2(CO)_9$.
18. $[Ni(CN)_4]^{2-}$ is diamagnetic whereas $[Ni(Cl)_4]^{2-}$ is paramagnetic. Explain.
19. Give the structure and significance of cisplatin.
20. Write a note on trace elements in biological system.
21. Briefly describe the limitations of valence bond theory.
22. How is steel classified ?

(5 × 4 = 20 marks)

Section C (Paragraph)

Answer at least **four** *questions.*
Each question carries 7 *marks.*
All questions can be attended.
Overall Ceiling 28.

23. Explain lanthanide contraction, its cause and consequences.
24. Write a note on factors influencing stability of complexes.
25. Briefly describe the toxicity of lead and mercury.
26. Describe zone refining and electrolytic refining.
27. Explain preparation and bonding in ferrocene.
28. Give a brief account of structural isomerism of co-ordination compounds.
29. Give a comparison of 3d, 4d and 5d transition series.
30. Write a note on application of complexes in qualitative and quantitative analysis.

(4 × 7 = 28 marks)

Section D (Essay)

Answer any **two** *questions.*
Each question carries 11 *marks.*

31. Describe the metallurgy of Aluminium.
32. Write notes on (a) Sodium potassium pump ; (b) Biochemistry of calcium.
33. Discuss the M.O. theory of octahedral complexes with onlyo bond.
34. Give an account of the preparation, properties, structure and uses of potassium dichromate.

(2 × 11 = 22 marks)