COORDINATION COMPOUNDS
CHAPTER –9
Weightage - 7 marks

VERY SHORT ANSWER TYPE QUESTIONS: (1 MARKS EACH)

1. Write ionization isomers of [Co $(NH_3)_5$ Br] SO_4?
2. Define co-ordination number?
3. What is the difference between double salt and complex compound?
4. Name the type of isomerism that occurs in complexes in which both cations and anions are complex ions?
5. Name the metal present in chlorophyll and hemoglobin?
6. How many coordination sites are there in ethylene diamine?
7. Give an example of hexadentate ligand?
8. Give an example of chelate complexes?
9. Write the name of didentate ligand?
10. Give an example of ambidentate ligand?
11. Give the chemical formula for the compound potassiumhexacynocobaltate (iii)?
12. How many isomers are there for octahedral complex [$COCl_2$en $(NH_3)_2$]?
13. Write the formula of tetrachloro cuprate (ii) ion?
14. Give an example of hexadentate ligand?
15. How many coordination sides are there in ethylene diamine?

SHORT ANSWER TYPE: (OF 2 MARKS EACH)

16. How is magnitude of Δo affected by nature of ligand and oxidation state of metal ion?
17. Using the valence bond approach predict the shape and magnetic character of [Fe $(CN)_6]^{-3}$ ion?
18. Illustrate with an example of ionization isomerism in coordination compounds?
19. Describe briefly the nature of bonding in metal carbonyl?
20. How is stability of coordination compounds determined in aqueous solution?
21. What type of isomerism is exhibited by [Co $(NH_3)_4Cl_2]^+$ Br^-? Write the structures of the possible isomers and the state of hybridization of the central metal atom?
22. Write all isomers of [Co $(NH_3)_5NO_2]$ Cl_2
23. What is meant by hexadentate ligand? Give one example. How is such ligand useful for measuring hardness of water?
24. Mention applications of coordination compounds in following areas giving an example of each: - (a) Analytical Chemistry (b) Extraction of metals
25. Using valence bond theory explain the bonding in $[Cr(H_2O)_6]^{3+}$. (At No Cr = 24)
26. Write the state of hybridization and the oxidation state of the central atom in each of the following species: (a) Cis – [Co $(NH_3)_4Cl_2]^+$ (b) $[PtCl_3(C_2H_4)]^-$ (Atomic Number of Pt = 78)
27. Using the valence bon approach, deduce the shape and magnetic behavior of [Cr $(NH_3)_6]^{3+}$ ion.

28. Predict the shape and magnetic character of each of the following:
(a) $[Cr\ (NH_3)_6]^{3+}$ (b) $[Cr\ (CO)_6]$ (Atomic number of Cr = 24)
29. Write the structures of a pair of complexes showing geometrical isomerism?
30. In a complex ion: $[Co\ (NH_3)_3(H_2O)_2\ Cl]^+$
(a) Identify the ligand's formula and the change on each one of them
(b) Write the geometry of complex ion.

SHORT ANSWER TYPE: (OF 3 MARKS EACH)
31. Illustrate with a example ionization isomerism in coordination compounds?
32. How is stability of coordination compounds is determined in aqueous solution?
33. Explain crystal field theory?
34. Explain Werner's theory of coordination chemistry?
35. Define secondary valence with examples?
36. Define chelating ligand?
37. What do you mean by linkage isomerism, explain with examples?
38. Give an example of linkage and ionization isomerism?
39. Write the postulates of Valence Bond Theory?
40. What is meant by hexa dentate ligands.

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