

Board – CBSE

Class – 12<sup>th</sup>

Topic – Coordination Compounds

1. What are Ambidentate ligands? Give two examples for each.
2. Draw the structures of optical isomers of:  $[\text{Cr}(\text{C}_2\text{O}_4)_3]^{-3}$
3. What is meant by the chelate effect? Give an example.
4. What is the shape of  $[\text{Fe}(\text{CO})_5]$ ?
5. How is EDTA used in estimation of hardness of water?
6. Give an example of coordination isomerism?
7. What IUPAC names of following complexes?  
(a)  $[\text{Co}(\text{NH}_3)_6]^{+3}$                       (b)  $[\text{Fe}(\text{C}_2\text{O}_4)_3]^{-3}$                       (c)  $[\text{Cr}(\text{CN})(\text{H}_2\text{O})_5]^{+2}$
8. Write formula for the following compounds.  
(a) Tetraamminedichlorocobalt (III) ion  
(b) Ammine chlorobis (ethylenediamine) cobalt (III) ion.  
(c) Diamminedichloroplatinum (II) ion  
(d) Pentamminenitro –N- Cobalt (III) Chloride.
9. Explain the synergic bonding in metal carbonyls.
10. Give some example showing importance of complexes in biological system?
11. Distinguish between homoleptic and hetroleptic ligands.
12. What are the different shapes of coordination polyhedra in the complexes?
13. What is spectrochemical series? Explain the difference between a weak field ligand and a strong field ligand.
14. Discuss the nature of bonding in metal carbonyls.
15. What is geometric isomerism? When can a compound show.  
(1) Cis – Trans isomerism                      (2) Fac and Mer isomerism.
16. Which isomerism is shown by a compound having ambidentate ligand? Give example.
17. The hexaaquamanganese (II) ion contains five unpaired electrons, while the hexacyano ion contains only one unpaired electron. Explain using Crystal Field Theory.
18. Aqueous copper sulphate solution (blue in color) gives:  
(i) a green precipitate with aqueous potassium fluoride, and  
(ii) a bright green solution with aqueous potassium chloride Explain these experimental results.
19. Draw figure to show the splitting of d orbitals in an octahedral crystal field.
20. What are ligands? Explain different types of ligands.