

Model Question Paper
Coordination Compounds and Bio-Coordination Compounds - Part V

12th Standard

Chemistry

Reg.No. :

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I. Answer all the questions.

II. Use Blue pen only.

Time : 01:00:00 Hrs

Total Marks : 60

5 x 1 = 5

Section-A

- 1) Analysis of a mixture of metal ions using EDTA makes use of the _____ property of EDTA
(a) masking (b) ionising (c) coagulating (d) precipitant
- 2) Extraction of which of the following metal/metals is/are carried out by complexation
(a) Cr and Zn (b) Zn only (c) Cu and Cu (d) both Ag and Au
- 3) Which is responsible for the conversion of atmospheric carbon dioxide to carbohydrate?
(a) chlorophyll 'a' (b) chlorophyll 'b' (c) porphyrin (d) heme
- 4) In photosynthesis chlorophyll acts as
(a) an oxidizing agent (b) a reducing agent (c) a light sensitizer (d) oxygen carrier
- 5) Iron porphyrin complex acts as
(a) an oxygen carrier (b) a reducing agent (c) a light sensitizer (d) a colouring matter

Section-B

- 6) Why $[\text{FeF}_6]^{4-}$ is paramagnetic whereas $[\text{Fe}(\text{CN})_6]^{4-}$ diamagnetic?
- 7) Discuss the role of chlorophyll 'a' in photosynthesis
- 8) Mention any two bio-coordination compounds with their functions
- 9) Apart from chlorophyll, what are the four other metal complexes required for photosynthesis?
- 10) Give one example for a
a) monodentate b) bidentate and c) chelating ligands

5 x 3 = 15

Section-C

- 11) Outline the analytical application of coordination compounds
- 12) What are bio-organic coordination compounds? Outline their importance.
- 13) Discuss the relationship between coordination number, type of hybridization and geometry with an example.
- 14) Write the name, central metal ion, ligands coordination number and shape of (i) $[\text{Cu}(\text{NH}_3)_4]\text{SO}_4$ (ii) $\text{K}_4[\text{Fe}(\text{CN})_6]$
- 15) Write the IUPAC names of
(i) $[\text{Co}(\text{NH}_3)_5\text{H}_2\text{O}]\text{Cl}_3$ (ii) $\text{Na}[\text{B}(\text{NO}_3)_4]$
(iii) $[\text{Co}(\text{en})_2\text{Cl}_2]^+$ (iv) $\text{K}_3[\text{CoCl}_6]$
- 16) How is paramagnetic moment due to the number of unpaired electrons in (a) $[\text{K}_4(\text{FeCN})_6]$ (b) $[\text{K}_3(\text{FeCN})_6]$
- 17) $[\text{Ni}(\text{CN})_4]^{2-}$ is square planar whereas $[\text{NiCl}_4]^{2-}$ is tetrahedral. Why?

7 x 5 = 35
