

**Model Question Paper**  
**Coordination Compounds and Bio-Coordination Compounds - Part II**

12th Standard

**Chemistry**

Reg.No. : 

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I. Answer all the questions.

II. Use Blue pen only.

Time : 00:50:00 Hrs

Total Marks : 60

5 x 1 = 5

**Section-A**

- 1) The oxidation number of Nickel in the complex ion,  $[NiCl_4]^{2-}$  is  
(a) +1 (b) -1 (c) +2 (d) -2
- 2) Which is not an anionic complex?  
(a)  $[Cu(NH_3)_4]Cl_2$  (b)  $K_4[Fe(CN)_6]$  (c)  $K_3[Fe(CN)_6]$  (d)  $[NiCl_4]^{2-}$
- 3) The geometry of  $[Ni(CN)_4]^{2-}$  is  
(a) Tetrahedral (b) Square planar (c) Triangular (d) Octahedral
- 4) An example of an ambidentate ligand is  
(a)  $CN^-$  (b)  $Cl^-$  (c)  $NO_2^-$  (d)  $I^-$
- 5)  $[FeF_6]^{4-}$  is paramagnetic because  
(a)  $F^-$  is a weaker ligand (b)  $F^-$  is a strong ligand (c)  $F^-$  is a flexidentate ligand (d)  $F^-$  is a chelating ligand

**Section-B**

- 6) Calculate the charge on the central metal ion present in the following complexes. a)  $[Fe(NH_3)_4Cl_2]NO_3$  b)  $Na[B(NO_3)_4]$
- 7) Name the following complexes a)  $[Co(NH_3)_5(H_2O)]Cl_3$  b)  $Na[B(NO_3)_4]$
- 8) Write the formula structure of the following a) tris(ethylenediamine)cobalt(III)ion b) pentaamminesulphatocobalt(III)chloride
- 9) Draw the structure of cis and trans  $-[Pt(NH_3)_2Cl_2]$

4 x 3 = 12

**Section-C**

- 10) Mention the type of hybridisation and magnetic property of the following complexes using VB theory a)  $[FeF_6]^{4-}$  b)  $[Fe(CN)_6]^{4-}$
- 11) For the complex  $K_4[Fe(CN)_6]$ , mention a) Name b) Central metal ion c) Ligand d) Coordination number e) Geometry
- 12) What are the uses of co-ordination compounds?
- 13) Write notes on Haemoglobin.
- 14) Write notes on chlorophyll.
- 15) Explain the following isomerism in co-ordination compounds. i) Hydrate isomerism ii) Linkage isomerism iii) Ligand isomerism
- 16) a) For the complex  $K_4[Fe(CN)_6]$ ,  $[Cu(NH_3)_4]SO_4$  mention a) IUPAC name b) Central metal ion c) Ligand d) Co-ordination number e) Geometry of the complex f) Charge of the complex

7 x 5 = 35

(OR)

- b) In the co-ordination complex  $[Co(NH_3)_6]Cl_3$ ,  $[Co(NH_3)_3(NO_2)_3]$  mention of the following: a) IUPAC name of the complex b) Ligand c) Central metal ion d) Co-ordination number e) Nature of complex f) Geometry

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