No. of Printed Pages : 4

# MCH–016

## M. SC. IN CHEMISTRY/
## M. SC. IN ANALYTICAL CHEMISTRY
## (MSCCHEM/MSCANCHEM)
## Term-End Examination
## June, 2025

### MCH-016 : INORGANIC CHEMISTRY–2

*Time : 2 Hours* *Maximum Marks : 50*

***Note :*** *Answer any* ***five*** *questions. All questions carry equal marks.*

1. (a) What are the intimate type of mechanisms possible for substitution in octahedral complexes ? Why do nickel complexes undergo much faster substitution than platinum complexes ?

5

(b) With the help of a suitable diagram, explain the Bailar twist mechanism followed in intramolecular racemisation reactions. 5

2. (a) Explain Berry's pseudorotation mechanism. What is the effect of charge on the reactivity of the square planar complexes ? 5

(b) Compare the hydrolysis mechanism in acidic medium with the conjugate base mechanism. 5

3. (a) How are the ligands classified based on their trans effects for synthesizing octahedral complexes ? Give examples for each class. 6

(b) Give the stoichiometric classification of redox reactions with suitable examples. 4

4. (a) What are the different types of molecular rearrangement processes possible in octahedral metal complexes ? Briefly explain. 6

   (b) With the help of a suitable diagram, explain the formation of a precursor complex in the outer sphere mechanism. 4

5. (a) Briefly explain the different classes of mixed valence complexes. 5

   (b) What are siderophores ? Explain. Give any *two* of their applications. 5

6. (a) Why are hemoglobin and myoglobin involved in transport of oxygen but not cytochrome $P_{450}$ ? Give reasons. 3

   (b) Name the metals that are present in the active centres of nitrogenase. 2

   (c) Explain the different types of binding of metals to nucleic acid bases. 5

7. (a) Describe the blue copper proteins. 5

(b) How is lead poisoning treated ? 2

(c) What is daily intake requirement of zinc by an adult human ? Give any *three* symptoms of Zn deficiency. How is zinc deficiency treated ? 3

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