Sessional Exam 2025
North Gauhati College
B.Sc. Semester: VI (Honours)
Sub: Inorganic Chemistry
Paper: CHE-HC-6016

Time: 1 hour **Mark: 30**

1. Answer the following (**any three**): 1×3=3

a) Arrange the following ligands according to their increasing trans effect:

CO, py, Cl^-, NH_3

b) Give one example of a paramagnetic carbonyl complex.

c) Define hapticity.

d) Give an example of metal ion which generally forms square planar complexes.

e) Substitution in square planar complexes generally follows which mechanism?

2. Define trans effect with an example. 3

or

Write IUPAC name of following organometallic compounds (**any three**): 1+1+1=3

a) $K_3[Fe(CN)_5CO]$ b) $H_3C\text{-}Zn\text{-}CH_2\text{-}CH_3$ c) $(CH_3)_3As$ d) $(C_5H_5)_2Fe$

3. Explain EAN (18-electron) rule with an example. 3

or

In which of the following complexes EAN rule is obeyed? 3

a) $[Mn_2(CO)_{10}]$ b) $[Ru_3(CO)_{12}]$ c) $[Cu(NH_3)_4]^{2+}$ d) $[HCo(CO)_4]$

4. What are labile and inert complexes? Give example of each. 2+2=4

5. Explain the mechanism of nucleophilic substitution reactions in square planar complexes. 5

6. Discuss the outer sphere and inner sphere mechanisms of electron transfer reactions with suitable examples. 3+3= 6

7. State and explain relationship between overall and stepwise formation constants of coordination complexes. 3+3=6

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