A-069

Total Pages : 3 **Roll No. ----------**

MCH-506

Inorganic Chemistry-II

M.Sc. Chemistry (MSCCH)

2nd Semester, Examination 2024 (June)

Time: 2:00 hrs Max. Marks: 35

Note : This paper is of Thirty five (35) marks divided into Two (02) Section A and B. Attempt the questions contained in these sections according to the detailed instructions given therein. Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer sheet will be issued.

Section-A (Long-Answer-Type Questions)

Note : Section 'A' contains Five (05) long-answer-type questions of Nine and Half (9.5) marks each. Learners are required to answer any Two (02) questions only.

[2x9.5=19]

P.T.O.

Q.1. What is the role of metal complexes in biological system.

Q.2. Explain Isopoly and heteropoly oxometallates.

Q.3. Explain the following:

a. Stepwise formation of complexes.

b. Metalloboranes

Q.4. Explain the factors that influence the rate of acid hydrolysis.

Q.5. Write short notes on the following:

a. What is Marcus theory? Explain with examples.

b. Outersphere electron transfer Reaction.

Section-B (Short-Answer-Type Questions)

Note : Section 'B' contains Eight (08) short-answer-type questions of Four (04) marks each. Learners are required to answer any Four (04) questions only.

[4x4=16]

Q.1. Write down in brief with example about some of co-ordination compounds in biological system.

Q.2. Explain the following:

a. Thermodynamic stability of a complex.

b. Carboranes

Q.3. Explain the structure and bonding in B_2H_6.

Q.4. Explain the Kinetics of unimolecular nucleophilic substitution reaction (SN^1) or dissociative substitution reaction.

Q.5. What are anation reactions. Explain with suitable example.

Q.6. Comment on the role of pi bonding in determining the geometry of the product formed during the acid hydrolysis of octahedral complexes.

Q.7. Write short notes on the following:

a. Nucleophillic substitution reactions of second order kinetics (SN 2):

b. Chelate effect

Q.8. Explain why the electron transfer in $[Co(NH_3)_6]+2 \longrightarrow [Co(NH_3)_6]+3$ is quite slow, however, when one ammonia is replaced by a halide group the rate is significantly increases?

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