

# C102

Total Pages : 3

Roll No. ....

## MCH-506

### Inorganic Chemistry-II

M.Sc. Chemistry (MSCCH)

2nd Semester Examination, 2022 (June)

**Time : 2 Hours]**

**Max. Marks : 40**

**Note :** This paper is of Forty (40) marks divided into two (02) Sections A and B. Attempt the questions contained in these sections according to the detailed instructions given therein.

### SECTION-A

#### (Long Answer Type Questions)

**Note :** Section 'A' contains Five (05) long answer type questions of Ten (10) marks each. Learners are required to answer any Two (02) questions only.

(2×10=20)

1. What is the wacker process? Describe the catalytic cycle in wacker process where ethylene gets oxidized to acetaldehyde.

2. Write short note on any two :
  - (a) Stepwise and overall stability constant.
  - (b) Marcus-hush theory.
  - (c) Base hydrolysis.
3. Explain inner-sphere mechanism and outer sphere mechanism with appropriate example.
4. What are polymerisation reaction? Illustrate the mechanism of alkene polymerisation reaction with the help of Ziegler-Natta catalyst.
5. Write short note on any *two* :
  - (a) Hemoglobin.
  - (b) Photosynthesis
  - (c) Biological nitrogen Fixation.

## **SECTION-B**

### **(Short Answer Type Questions)**

**Note :** Section 'B' contains Eight (08) short answer type questions of Five (05) marks each. Learners are required to answer any Four (04) questions only. (4×5=20)

1. Discuss at least two factors that affect that the rate of acid hydrolysis in octahedral metal complexes.

2. Explain the meaning of trans-effect with suitable example of a metal complexes.
  3. Draw the molecular orbital diagram of CO and explain its features.
  4. State HSAB rule and explain the applications of this rule.
  5. What are iron sulfur proteins? Describe their typical characteristics.
  6. Write short note on any *two* in brief :
    - (a) Carboxypeptidase-A.
    - (b) Chelate effect.
    - (c) Thermodynamic stability.
  7. Define the hydroformylation reaction with the help of mechanism.
  8. Explain complementary and non-complementary redox reaction.
-

