



JBA-003-1103017

Seat No. _____

M. Sc. (Sem. III) Examination

December - 2019

Inorganic Chemistry

(C(I) - 304 : Organometallic Compounds & Catalysts)

Faculty Code : 003

Subject Code : 1103017

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

- Instructions :** (1) All questions are compulsory.
(2) All questions carry equal marks.

1 Answer the following : (any seven) 14

- Define Catalysis with suitable example.
- Discuss the nature of bonding in organo metallic compound.
- Give one preparative method for η^5 -cyclopentadienyl.
- How positive catalyst works ?
- What is Wacker process ?
- Discuss the use of compound for Polymerization reaction.
- Give the general characteristics of η^4 -cyclobutadiene Organometallic Compounds.
- What do you mean by atom economy and atom efficiency ?
- Classify pi-bonded organometallic compounds.
- Give one specific example of chemical rout developed using catalysis.

2 Answer the following : (any two) 14

- Discuss the Phase transfer and miscellar catalysis.
- Explain insertion and des-insertion reaction.
- Give the high light of Principle of green chemistry and role of catalysis.

- 3** Answer the following : (any **two**) **14**
- (a) Describe the reaction and application of η^4 - organometallic compounds.
 - (b) Write a note on water gas shift reaction.
 - (c) Give the difference between Homogeneous and heterogeneous reactions.
- 4** Answer the following : (any **two**) **14**
- (a) Explain reductive elimination reaction.
 - (b) Describe catalytic development and mechanistic aspect of ZeiglerNatta reaction.
- 5** Answer the following : (any **two**) **14**
- (a) Explain the fluxional Organometallic compound.
 - (b) Discuss the mechanism of Monsanto process.
 - (c) Discuss Heterogeneous catalysis involving metal complexes.
 - (d) Discuss the preparative methods of η^5 - Organometallic Compounds.
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