

M.Sc.(Chem.) Semester - 3 (CBCS) Examination
OCT/NOV-2024 (AS PER SYLLABUS YEAR JUNE-2019)
Advanced Organic Chemistry (Core (New))

Time: 2:30 Hours

Marks: 70

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

Q.1 (A) Answer the following (04)

- 1) Describe con rotation and dis rotation of butadiene and allylic carbocation FMO.

Q.1 (B) Answer any two question out of three. (10)

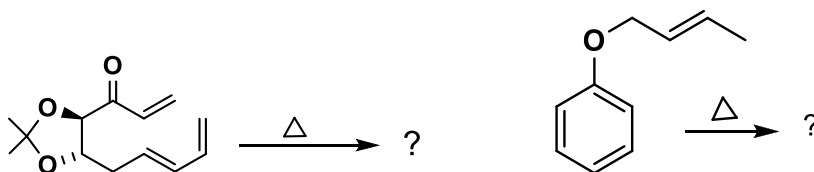
- 1) Describe Mobius-Huckel theory for pericyclic reaction.
- 2) What is conservation of Molecular orbital theory? Explain with one example
- 3) Give five examples of thermally induced electrocyclic reactions.

Q.2 (A) Answer the following (04)

- 1) Why [2+2] cycloaddition reaction of ethylene with ketene is thermally allowed? Explain with example.

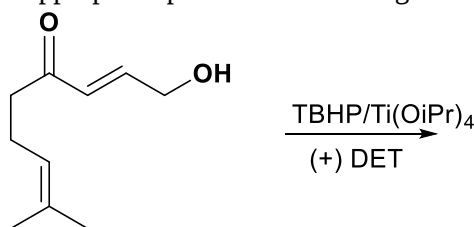
Q.2 (B) Answer any two question out of three. (10)

- 1) Discuss cheletropic reaction with three examples.
- 2) Explain Retro Diels-alder reaction with mechanism using suitable examples.
- 3) Identify the following reactions and write their products with mechanism:



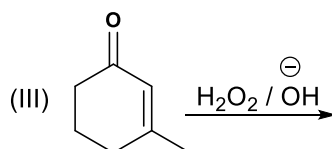
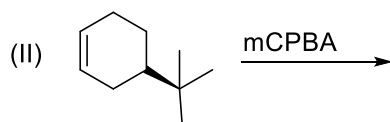
Q.3 (A) Answer the following (04)

- 1) Discuss any two methods for the epoxide synthesis from ketone compounds.
- 2) Write the appropriate product of following reaction and justify your answer



Q.3 (B) Answer any two questions out of three. (10)

- 1) What is chiral auxiliary? Describe the asymmetric synthesis of amino acid using suitable chiral auxiliary.
- 2) Write the appropriate product of following reactions sequence (I & II) with mechanism:



- 3) Write a note on Noyori reaction.

- Q.4 (A) Answer the following (04)**
1) What are alkaloids? Give classification.
2) Draw the following structure of alkaloid and enlist their importance:
(A) Ricinine (B) Quinine
- Q.4 (B) Answer any two questions out of three. (10)**
Describe the total synthesis of following Alkaloids:
1) Codeine
2) Atropine
3) Reserpine
- Q.5 (A) Answer the following (04)**
1) Provide the chemical structure and name of any four Nucleosides.
2) Write the full form and chemical structures of (a) AMP (b) ATP
- Q.5 (B) Answer any two questions out of three. (10)**
Describe the total synthesis of following Natural Product:
1) Adenosine
2) Theophylline
3) 2'-deoxyguanosine
