

M.Sc. (Chemistry) (CBCS Pattern) Semester-III
PSCHT10.2 - Special Paper-I - Organic Chemistry-I

P. Pages : 2

Time : Three Hours



GUG/S/25/11334

Max. Marks : 80

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1. a) Discuss the following 8
i) Norrish type – I Reaction.
ii) Photochemistry of Paterno – Buchi reaction.
- b) Explain. 8
a) Photochemistry of Enones.
b) Photochemical synthesis of cedrene.

OR

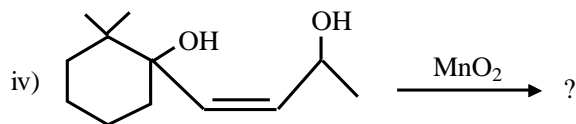
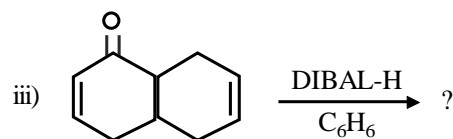
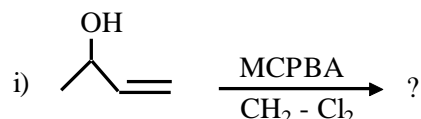
- c) Explain Norrish type – II reaction. 4
- d) Discuss the Barton reaction. 4
- e) Give the mechanism of Photo fries Rearrangement. 4
- f) Explain the Singlet and triplet state. 4
2. a) Discuss 8
i) Claisen Rearrangement.
ii) Sommelet – Hauser Rearrangement.
- b) i) Explain why Diel's Alder reaction is thermally allowed process by FMO approach. 8
ii) Explain the following electrocyclic reaction
Hexatriene \rightleftharpoons Cyclohexadiene
Using FMO approach.

OR

- c) What is sigma tropic rearrangement? Explain with suitable example why (1, 3) supra shift of hydrogen is symmetry forbidden and (1, 5). Supra shift of hydrogen on the other hand is symmetry allowed. 4
- d) Explain Ene Reaction. 4
- e) Discuss conrotatory and disrotatory motion of electrocyclic reaction. 4
- f) With the help of FMO approach; Explain [4+2] cycloaddition reaction. 4
3. a) i) Explain the role of DDQ in Dehydrogenation. 8
ii) Explain conversion of Ketones to α,β – Unsaturated ketones.
- b) Discuss the following with suitable example. 8
i) Birch reduction
ii) Enzyme catalyzed reduction reaction.

OR

- c) Explain Woodward and Prevost di-hydroxylation. 4
- d) Discuss the Baeyer – Villiger oxidation with suitable example. 4
- e) Write product. 4



- f) Explain Wilkinson catalyst. 4

4. a) Give preparation, stereochemistry and synthetic application of phosphorus ylide. 8

- b) Explain the preparation and properties of organoborane reagent. It's Hydroboration mechanism with stereo and regio selectivity properties? 8

OR

- c) Give synthetic application of 1, 3-dithiane. 4

- d) Explain EZ diene synthesis. 4

- e) Discuss the role of titanium compound in organic synthesis. 4

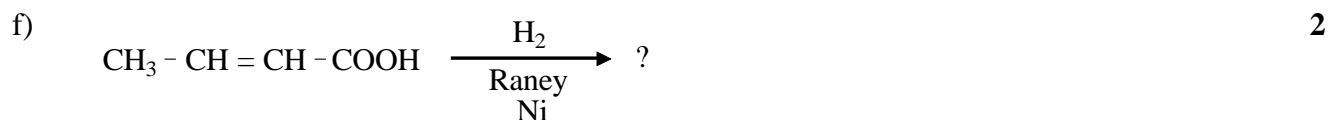
- f) Explain Paterson synthesis. 4

5. a) What is Quantum yield? 2

- b) Write one application of photochemical method. 2

- c) Explain suprafacial shift. 2

- d) Explain PMO approach of pericyclic reaction under thermal condition. 2



- h) What do you mean by organosilicon compound? 2
