

M.Sc.(Chemistry) (NEP Pattern) - Semester-III
STPG03CHE01 - Special-I : Organic Chemistry

P. Pages : 2

Time : Three Hours



GUG/W/24/15960

Max. Marks : 80

Notes : 1. All question are compulsory and carry equal marks.

1. A) Explain the following. 8
i) Norrish type – II reaction. ii) Hoffmann-locfler -freytag reaction.

- B) Define photochemical isomerization of cis and trans alkene. 8

OR

- C) Discuss singlet and triplet state. 4

- D) Explain Paterno-Buchi reaction. 4

- E) Write a short note on Barton Reaction. 4

- F) Discuss Photo-Fries rearrangement. 4

2. A) Discuss the following. 8
i) [3, 5] sigmatropic rearrangement. ii) [4 + 2] cycloaddition of ketones.

- B) Discuss the following. 8
i) Sommelet-Hauser rearrangement. ii) [3, 3] Sigmatropic rearrangement.

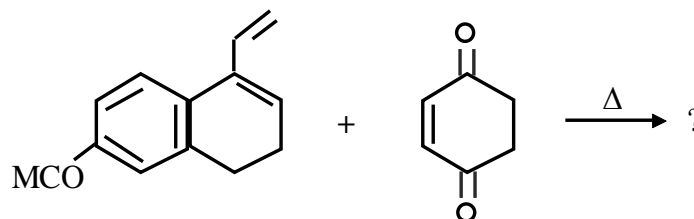
OR

- C) Explain conrotatory and disrotatory motion for $(4x + 2)$ system. 4

- D) Explain Claisen rearrangement. 4

- E) Write a note on Ene reaction. 4

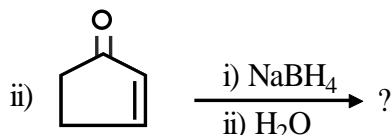
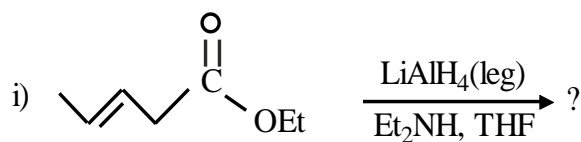
- F) Identify the reaction and give its mechanism. 4



3. A) Discuss the following reaction and mechanism. 8
i) Woodward Hydroxylation.
ii) Write a note on pyridinium chlorochromate –(PCC)

B) Write the mechanism of following.

8



OR

C) Write a note on Epoxidation of olefins.

4

D) Explain Wilkinson catalyst.

4

E) Write a note on Diisobutylaluminium hydride (DIBAL-H)

4

F) Discuss Birch reduction with example.

4

4. A) Discuss the preparation and properties of

8

i) Catechol borane

ii) 9-BBN

B) Explain preparation and synthetic applications of sulphur ylide.

8

OR

C) Discuss the role of 1,3 dithiane in organic synthesis.

4

D) Write the synthesis of ZZ dione.

4

E) Write a note Paterson synthesis.

4

F) Discuss the role of Me_3SiCl in organic synthesis.

4

5. a) Define quantum yield.

2

b) Define photochemical reaction.

2

c) Give one example of [2+2] cycloaddition reaction.

2

d) Write cope reaction.

2

e) What is suprafacial and antarafacial shift?

2

f) Write a note DDQ.

2

g) Write Prevost hydroxylation.

2

h) Define homogeneous hydroxylation.

2
