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NEPWT—98—2024

FACULTY OF SCIENCE & TECHNOLOGY

M.Sc. (First Year) (Second Semester) EXAMINATION

NOVEMBER/DECEMBER, 2024

CHEMISTRY

Paper SCHEC-1452

(Organic Chemistry)

(Friday, 13-12-2024)

Time : 10.00 a.m. to 1.00 p.m.

Time—3 Hours

Maximum Marks—80

N.B. :— (1) Question No. 1 is compulsory.

(2) Solve any *three* questions from the remaining five questions.

(3) Simple calculator and log table is allowed.

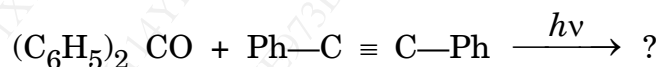
1. Solve the following : 20

(a) Explain Wittig reaction. Give its mechanism. How would you synthesis $C_6H_5-CH=CH-CH_3$?

(b) Illustrate the mechanism for Mannich reaction.

(c) Explain [3, 3] sigmatropic rearrangement.

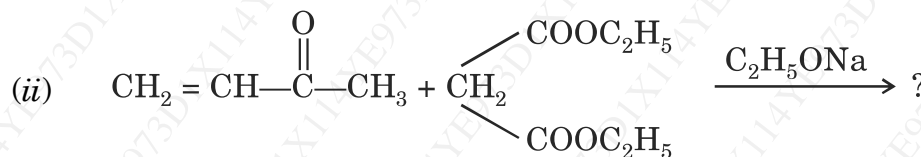
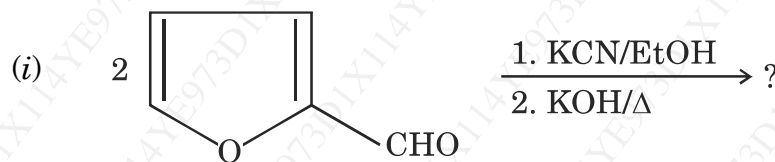
(d) Complete the reaction with mechanism :



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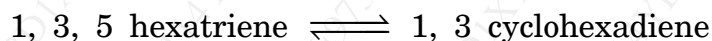
2. Solve the following : 20

- (a) What is hydroboration ? Explain the regioselectivity of hydroboration with suitable example and mechanism.
- (b) Predict the product of the following :



3. Answer the following : 20

- (a) Interconversion of :



under thermal and photochemical condition can be explained by FMO method.

- (b) With the help of correlation diagram method, show that Diel's Alder reaction is a thermally allowed process.

4. Discuss the following : 20

- (a) What are Norrish type-I and II reaction ? Explain its mechanism with suitable example.
- (b) Explain the Paterno-Buchi reaction with suitable example and its stereochemistry.

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(3)

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5. Explain the following : 20

- (a) What is photoreduction ? Explain the photoreduction of Benzophenone with mechanism.
- (b) Explain cycloaddition of 1, 3-butadiene and ethylene by FMO and PMO method.

6. Write short notes on the following : 20

- (a) 1, 3 dipolar cycloaddition
- (b) E¹CB mechanism
- (c) Aldol condensation
- (d) Stobbe reaction.

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