

This question paper contains 5 printed pages]

**NY—124—2023**

**FACULTY OF SCIENCE**

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

**NOVEMBER/DECEMBER, 2023**

**(New/CBCS Pattern)**

**CHEMISTRY**

**Paper—CH—422**

**(Organic Chemistry—II)**

**(Friday, 8-12-2023)**

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

*Time—3 Hours*

*Maximum Marks—75*

*N.B. :—* (i) Attempt *all* questions.

(ii) Figures to the right indicate full marks.

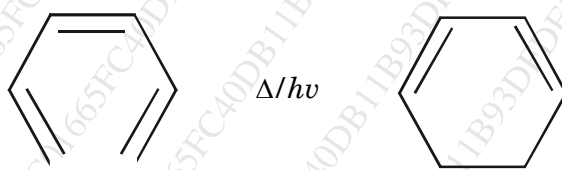
1. Attempt any *three* of the following : 15
- (a) What is Jablonski diagram ? Explain in detail with suitable example.
- (b) Cis-Butene on addition of bromine gives dl mixture of 2, 3 dibromobutane.
- (c) Explain cis-trans phenomena in Wittig reaction with example.
- (d) Define the sigmatropic rearrangement. Explain aza cope rearrangement with mechanism.
- (e) Explain arenium ion mechanism with example.

P.T.O.

2. Answer any *three* of the following : 15

- (a) Explain sharpless asymmetric epoxidation.
- (b) With the help of correlation diagram method, show that Diels Alder reaction is a thermally allowed process.
- (c) Carbon dioxide reacts with Grignard reagent to form carboxylic acid but on treatment with Organolithium compound yields ketone.
- (d) Explain photochemistry of cis-trans isomerism in olefins.
- (e) What is photofries reaction ? Explain the photofries reaction of anilides with suitable example.

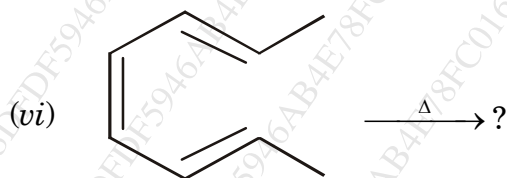
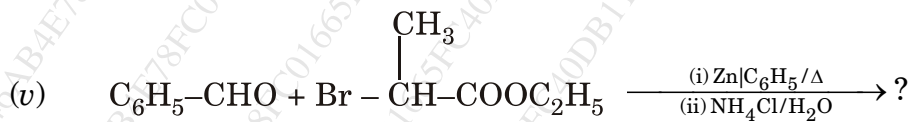
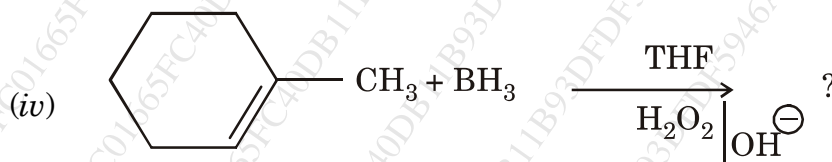
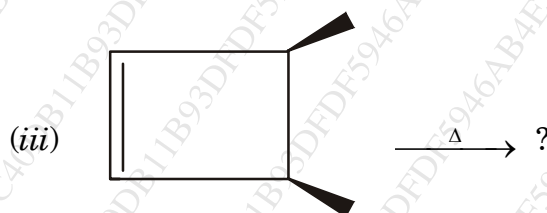
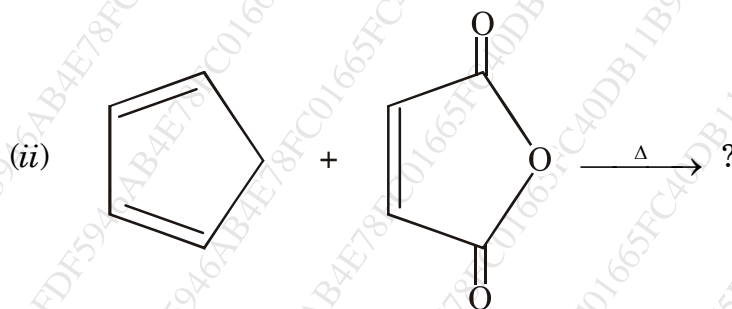
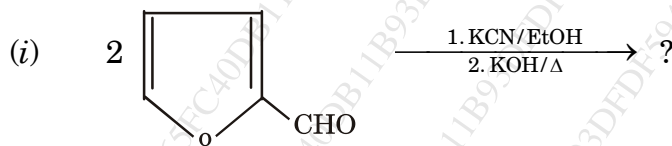
3. (a) Construct correlation diagram and FMO method for the following transformations. Predict whether these transformations are thermally or photochemically allowed : 7

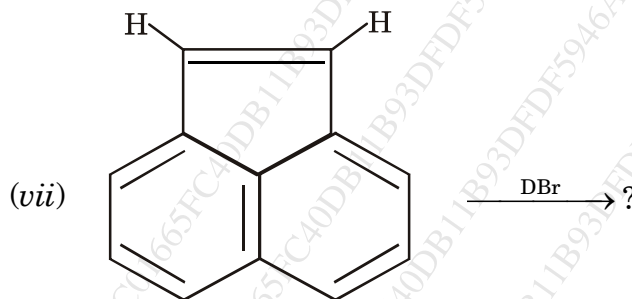


Or

What are Norrish type I and II reaction ? Explain its mechanism with suitable example.

(b) Predict the product with mechanism of the following (any *four*) : 8





4. (a) What is photochemistry? Explain  $n\pi - p\pi$  rearrangement with suitable example. 7

Or

- (i) Reduction of ketone with  $\text{LiAlH}_4$  is a hydride transfer reaction.
- (ii) Explain hydroboration.
- (b) With the help of FMO and correlation diagram method explain interconversion of 1, 3 butadiene into cyclobutene under thermal and photochemical condition. 8

Or

Explain with mechanism :

- (i) IPSO substitution reaction
- (ii) Vilsmeier reaction.

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5. Write short notes on (any *three*) : 15

- (a) Cheletropic reaction
- (b) Stobbe reaction
- (c) Photochemical formulation of smog
- (d) Perkins reaction
- (e) Photochemistry of olefins.

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