K-403

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MCH-601

REACTION MECHANISM AND PERICYCLIC REACTION

M.Sc. Chemistry (MSCCH)

3rd Semester Examination, 2023 (Dec.)

Time : 2 Hours] **[Max. Marks : 35**

Note : This paper is of Thirty Five (35) marks divided into two (02) Sections A and B. Attempt the questions contained in these sections according to the detailed instructions given therein. Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer sheet will be issued.

SECTION–A
(Long Answer Type Questions)

Note : Section 'A' contains Five (05) long answer type questions of Nine and Half (9½) marks each. Learners are required to answer any Two (02) questions only. (2×9½=19)

1. Write notes on the following :

(a) Favorskii rearrangement.

(b) Lossen rearrangement.

2. Write short notes on the following :

(a) Migratory aptitude.

(b) Nucleophilic and electrophilic rearrangement.

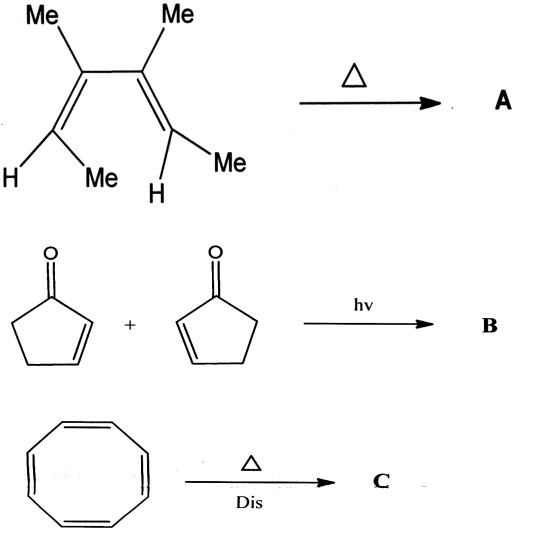
3. Predict the reaction condition for disrotatory electrocyclisation of 1, 3, 5-triene by PMO method.

4. Write notes on the following :

(a) Cope reaction.

(b) 1, 3 Sigmatropic rearrangement.

5. Complete the following reactions :



SECTION–B

(Short Answer Type Questions)

Note : Section 'B' contains Eight (08) short answer type questions of Four (04) marks each. Learners are required to answer any Four (04) questions only. (4×4=16)

1. Outline the method of formation of carbonium ion from :

(a) An alkyl halide.

(b) An alcohol.

2. Write notes on the following :

(a) Triplet carbene.

(b) Cyclopropanation reactions.

3. Formulate any two methods of formation of nitrene intermediates. Explain the addition reactions of nitrenes.

4. Discuss the mechanism of the reaction of benzamide with bromine and alkali.

5. Discuss the mechanism of E1 reaction with a suitable example.

6. Write notes on the following :

(a) Conrotation and disrotation.

(b) Ene reaction.

7. Define cycloaddition reactions. What are $(m + n)$ cycloadditions? Explain with suitable examples.

8. Complete the following reactions :

(a) Benzyne + Diethyl sulphide $\longrightarrow$ A

(b) Benzyne + Butyne-2 $\longrightarrow$ B