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MCH-606

Photochemistry & Stereochemistry

M.Sc. Chemistry (MSCCH)

4th Semester Examination, 2023 (June)

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 answer 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. Give mechanism of Norish type II reaction. Explain why cyclopropyl ketones are the most common class of compound for beta cleavage reactions .

2. Draw Jablonski diagram and explain various thermal and non radiative decay processes.

3. What is Paterno-Buchi reaction and discuss its mechanism along with the stereochemical consequences.

4. (a) Write a note on confirmation of disubstituted cyclohexanes.

(b) Explain the effect of conformation on the reactivity of organic compound.

5. Explain photo addition reactions of benzene with suitable example.

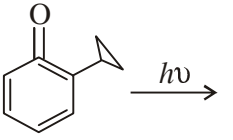
SECTION–B

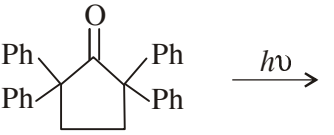
(Short Answer Type Questions)

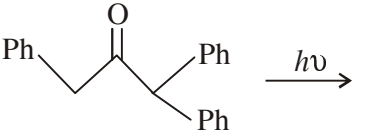
Note : Section 'B' contains Eight (08) short answer type questions of Four (04) marks each. Learners are required to answer any Four (04) questions only. (4×4=16)

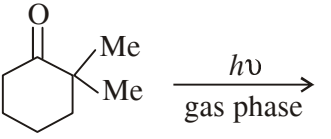
1. Discuss photochemistry of azo compounds.

2. Find the product :

(a) 

(b) 

(c) 

(d) 

3. Give mechanism of intramolecular hydrogen abstraction reaction given by carbonyl compounds.

4. Give mechanism of photodimerisation of concerted [2 + 2] cyclo addition.

5. Write short note on singlet and triplet state.

6. Write short note on photochemistry of 1,5-diene.

7. With suitable example discuss the effect of angles strain and intramolecular hydrogen bonding on the stability of conformation.

8. Discuss which conformation of Trans -1,2 - dimethyl hexane is stable and why.