S-455

Total Pages : 3 Roll No. .....

MCH-606

Photochemistry & Stereochemistry

M.Sc. Chemistry (MSCCH)

4th Semester Examination, 2022 (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.

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 1 process. How many types of carbonyl compounds give this reaction give one example for each.

2. Discuss the mechanism of the photo reduction of benzophenone leading the formation of Benzpinacol.

3. Explain photochemistry of alkenes and dienes in detail.

4. (a) Discuss stereochemistry of E1 reaction.

(b) Write a note on the conformation of mono substituted cyclohexane.

5. Alkenes give two types of photo dimerization :

(a) Concerted [2 + 2] cyclo addition.

(b) Nonconcerted cyclo addition.

Give mechanism of both these 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)

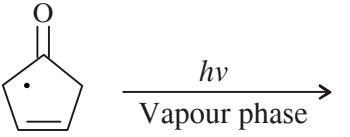
1. Explain fluorescence and phosphorescence with suitable example.

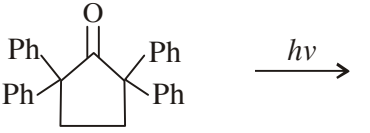
2. Discuss photochemistry of 1,3 -butadiene.

3. Draw the most stable conformation of cis -1-tert-butyl -4 -methyl cyclohexane.

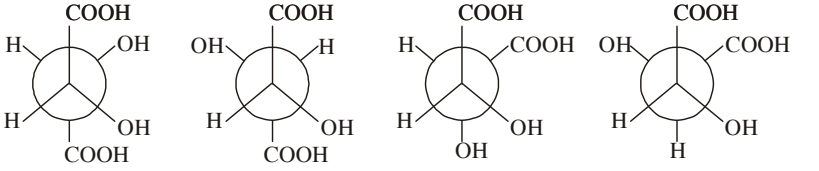
4. Explain the effect of conformation on the reactivity of organic compound.

5. Complete the following reactions :

(a) 

(b) 

6. Comment on the stereochemical and identity aspect of the following Newman projection of tartaric acid



7. With suitable example discuss the effect of angle strain and torsional strain on the stability of conformation.

8. Give mechanism of intramolecular hydrogen abstruction reaction given by carbonyl compounds.