

A-0560

Total Pages : 4

Roll No.

MSCCH-604

M.Sc. CHEMISTRY (MSCCH)

(Photo Chemistry and Allied Chemistry)

3rd Semester Examination, Session December 2024

Time : 2:00 Hrs.

Max. Marks : 70

Note :- This paper is of Seventy (70) 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 2×19=38

Note :- Section 'A' contains Five (05) Long-answer type questions of Nineteen (19) marks each. Learners are required to answer any two (02) questions only.

1. Explain the mechanism of the 1,2-alkyl shift involving benzavalene and prismane intermediates.
2. Discuss the concept of quantum yield in photochemical reactions. How is it calculated ?
3. What are phase-transfer catalysts (PTCs) ? Discuss some important applications of PTCs.
4. Describe the photoreduction process of carbonyl compounds and its significance in organic synthesis.
5. Write notes on the following :
 - (a) Hofmann Löffler Freytag reaction
 - (b) Flash photolysis
 - (c) Primary process, Secondary process

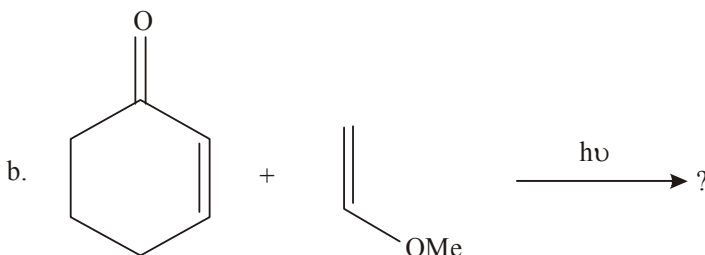
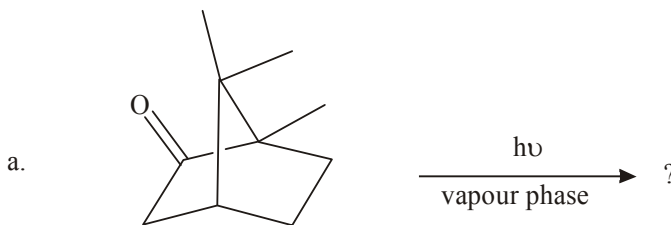
Section–B

Short Answer Type Questions 4×8=32

Note :– Section ‘B’ contains Eight (08) Short-answer type questions of Eight (08) marks each. Learners are required to answer any *four* (04) questions only.

1. Give mechanism of Norrish Type II reaction. Explain why cyclopropyl ketones are the most common class of compound for β -cleavage reactions.

2. Explain the di- π -methane rearrangement and its mechanism.
3. Explain photoaddition reactions of benzene with suitable examples.
4. Discuss about the photochemistry of 1,3-butadiene.
5. Write a note on photooxidation of alkenes and polyenes by singlet oxygen.
6. Write notes on the following :
 - (a) Fluorescence and Phosphorescence
 - (b) Luminescence
7. Complete the following reactions.



8. Discuss the concepts of singlet and triplet states in photophysical reactions and their role in intersystem crossing.
