

**A-0415**

Total Pages : 3

Roll No. ....

**MSCCH-604**

**M.SC. CHEMISTRY (MSCCH)**

**(Photo Chemistry and Allied Chemistry)**

Examination, June 2025

Time : 2:00 Hrs.

Max. Marks : 70

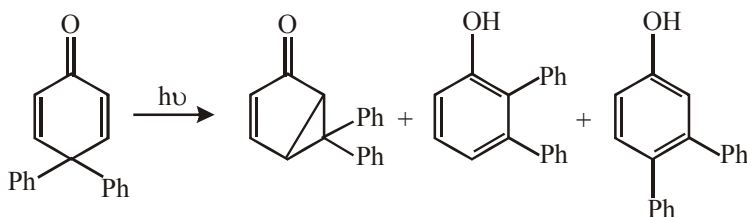
**Note :-** This paper is of Seventy (70) marks divided into Two (02) Sections 'A' and 'B'. Attempt the questions contained in these sections according to the detailed instructions given therein. *Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer 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. What is Paterno-Buchi reaction ? Discuss its mechanism along with the stereochemical consequences ?
2. Draw the Jablonski diagram and explain the radiative and non-radiative processes.
3. Discuss photorearrangement given by 4,4-diarylcyclohexa-2,5 dienones and explain the mechanism of the following reaction :



4. Write notes on the following :
  - (a) Photo-Fries rearrangement
  - (b) Barton reaction
  - (c) Singlet oxygen reactions
5. What is a green reagent ? Write down the preparation and properties of any three green reagent ?

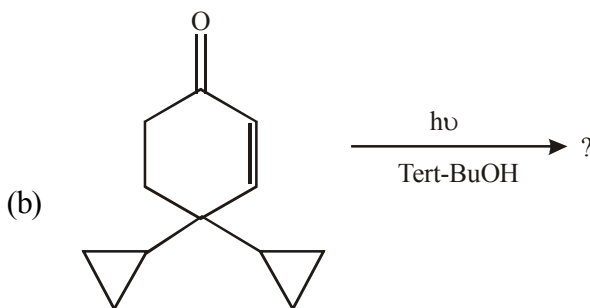
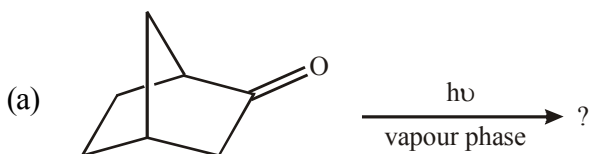
## Section-B

### 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. Explain the primary laws of photochemistry ?
2. What is Green Chemistry, and what are its first 12 listed principles ?
3. Discuss the photochemistry of 1,4-dienes.
4. What are ionic liquids ? Give some important applications of ionic liquids.
5. Write notes on the following :
  - (a) Photosensitizer
  - (b) Chemiluminescence
6. Discuss sensitized cis-trans isomerization in alkenes.
7. Explain the mechanism of Norrish type I photoreactions in carbonyl compounds.
8. Complete the following reactions.



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