

M.Sc.(Chem.) Semester - 2 (CBCS) Examination
May/June-2022 (OLD COURSE)
ORGANIC CHEMISTRY(CORE)

Time: 2:30 Hours

Marks: 70

Instructions:

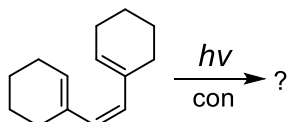
1. All questions are compulsory.
2. Figures to the right indicate marks.

Q.1 Answer any **seven of the following ten questions.****[14]**

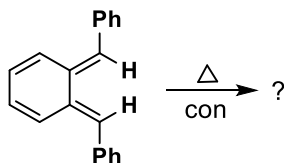
1. Explain Grothurs-Draper Law
2. Which of the following compound is aromatic [a] cyclobutadiene [b] Pyridine Justify your answer.
3. Discuss aromatic character of [18]annulene.
4. Discuss Lambert-Beer Law.
5. How will you determine the aromaticity of compound?
6. Explain the following term: (a) HOMO (b) LUMO
7. Give one example of electrocyclic reaction.
8. Describe various modes of electronic transition and write its energy order.
9. What is Quantum yield ? Write its equation.
10. Draw the pie(π) Molecular Orbital for allylic cation.

Q.2 Answer any **two of the following three questions.****[14]**

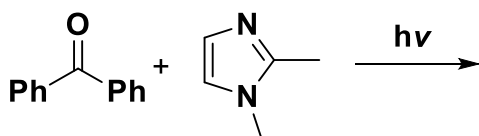
1. Complete the following sequence with mechanism:



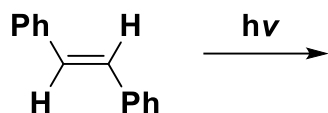
2. Discuss woodward-hoffmann rule for electrocyclic reaction with suitable example.
3. Complete the following sequence with mechanism:

**Q.3 Answer the following questions.****[14]**

1. Complete the following sequence with mechanism.



2. Explain mechanism of following photochemical isomerization:



OR

Q.3 Answer the following questions.

1. Draw Jablonski diagram and explain it briefly.
2. Differentiate Norrish-I & Norrish -II photochemical cleavages with example

Q.4 Answer any **two** of the following three questions. [14]

1. Write a note on Mobius-huckel approach for electrocyclization..
2. Write a note on [3,3] sigmatropic cope rearrangement
3. Write primary and secondary photochemical processes on 2-pentanone with mechanism.

Q.5 Answer any **two** of the following four questions. [14]

1. Describe principle and mechanism of Paterno-Buchi.
2. Why [2+2] cycloaddition reaction is photochemically allowed but thermally disallowed ? Explain with example
3. Describe suprafacial and antarafacial [1,5] Sigmatropic Hydrogen shift with suitable examples
4. Discuss claisen rearrangement with one example.
