Roll No……..….. **Total No. of Printed Pages: 1**

Total No. of Questions: [11]

M.Sc. (Chemistry) (Semester – 4th)
PHOTOCHEMISTRY AND PERICYCLIC REACTIONS
Subject Code: MCHMS1-401
Paper ID: 20220222

Time: 03 Hours **Maximum Marks: 60**

Instruction for candidates:

1. Section A is compulsory. It carries 16 marks. It consists of 4 questions of 4 marks each.
2. Section B consist of 4 questions of 8 marks each. The student has to attempt any 3 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A **(4 marks each)**

Q1. Explain the concept of frontier orbitals using 1,3-butadiene as example?

Q2. Discus the factors Favoring the Diels–Alder Reaction.

Q3. Write a note on Paterno Buchi Reaction.

Q4. Explain aza-Cope rearrangement.

Section – B **(8 marks each)**

Q5. Define cycloaddition reactions. Explain 4+2 cycloadditions with the help of suitable example.

Q6. Explain Following:

(a) Cope rearrangement

(b) [2+2] cycloaddition of ketenes

Q7. Explain Following:

a) 1,7 sigmatropic shift of an alkyl group

b) Claisen rearrangement

Q8. Write a note on Photoinduced electron transfer reactions.

Section – C **(10 marks each)**

Q9. Discuss the Woodward-Hoffmann correlation diagram method for explaining different pericyclic reactions.

Q10. Explain Norrish type-I and Norrish type –II reaction with the help of suitable examples.

Q11. Draw schematically Jablonski diagram and explain the possible decay routes for an electronically excited molecule