647510 **Msc2CheC0210** **Seat No :_____**

M.Sc.(Chem.) Semester - 2 (*CBCS*) Examination
April/May-2023 (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 the following questions. (Any Seven) **(14)**

1. Explain law of photochemical equivalence.

2. What is photosensitizer? Give one example

3. Discuss why naphthalene is aromatic?

4. What is Quantum efficiency?

5. Write triplet state of carbene?

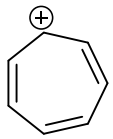
6. Write structures of [14] & [18] annulenes.

7. Draw miscellaneous carbcation and discuss its aromaticity.

8. Why antiaromatic compounds are less stable?

9. Draw the Molecular Orbital for 1,3,5-hexatriene and discuss HOMO and LUMO.

10. Which of the following compound (**i** or **ii**) is aromatic? Justify your answer.



(i)

(ii)

Q.2 Answer the following questions. (Any Two) **(14)**

1. Discuss a-cleavages with suitable example.

2. Give classification of pericyclic reactions with suitable examples.

3. Discuss: **(I)** Conrotatory **(II)** Disrotatory motion of orbitals for 1,4-butadine.

Q.3 Answer the following questions. **(14)**

1. Discuss fluorescence and phosphorescence using Jablonski diagram.

2. Classify the aromatic & anti-aromatic system with suitable example.

OR

Q.3 Answer the following questions.

1. Discuss PMO method with example.

2. Discuss Norish-II photochemical cleavages.

Q.4 A. Answer the following questions. (Any Two) **(14)**

1. What is electron transfer reaction? Discuss photo reduction reaction with suitable example.
2. Explain FMO approach for pericyclic reaction
3. Explain **(I)** supra-facial and

   (II) antra-facial addition in [3+2] cycloaddition reactions.
4. Discuss aromatic character of azulenes.

B. Answer the following questions. (Any One)

1. Explain any one [5,5] sigmatropic shift.
2. Discuss any one thermally allowed Diels-alder reaction.

Q.5 Answer the following questions. (Any Two) **(14)**

1. What is sigmatropic rearrangement? Discuss oxy-cope rearrangement in detail.
2. Write a note on the Woodward-Hoffmann correlation diagram.
3. Discuss photochemistry of olefins with suitable example.
4. Discuss mechanism of thermal electro-cyclic reaction of 1,3-butadiene by FMO or PMO method.

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