

Time: 2:30 Hours

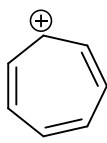
Marks: 70

Instructions:

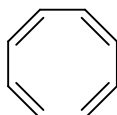
1. All questions are compulsory.
 2. Figures to the right indicate marks.
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Q.1 Answer any **seven** of the following ten questions. (14)

1. State Huckel's rule for Aromaticity.
2. Which of the following compound (**i** or **ii**) is aromatic ? Justify your answer.



(i)



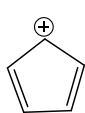
(ii)

3. What are annulene? Give examples.
4. Give example of quasi aromatic compound.
5. Give difference between excited singlet and triplet state.
6. Why precyclic reaction is also known as no reaction mechanism?
7. Explain Einstein law of photochemical equivalence.
8. Define (i) Quantum yield (ii) Quantum efficiency
9. What is photosensitizer ? Give one example
10. Draw the pie(π) Molecular Orbital for 1,3 butadiene.

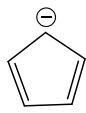
Q.2 Answer any **two** of the following three questions. (14)

1. What are pericyclic reactions ? Give its classification and give one example from each class.
2. Explain the following: (i) Conrotatory (ii) Disrotatory motion of orbitals.
3. Classify the following compounds (**i** to **iv**) between aromatic & anti-aromatic system.

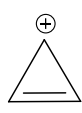
Justify your answer:



(i)



(ii)



(iii)



(iv)

Q.3 Answer the following questions. (14)

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

OR

Q.3 Answer the following questions. (14)

1. Explain $(2s+2s)\pi$ cycloaddition reaction of ethylene by FMO or PMO method.
2. Discuss Norrish-II photochemical cleavages with example.

Q.4 Answer any **two** of the following three questions. (14)

1. Describe photo addition and photo reduction reaction with suitable example.
2. Explain supra-facial and anta-facial addition in cycloaddition reactions.
3. Discuss photochemistry of olefins with suitable example.

Q.5 Answer any **two** of the following four questions. (14)

1. What is sigmatropic rearrangement ? Discuss cope rearrangement in detail.
2. Write a note on the FMO approach.
3. Discuss aromatic character of azulenes.
4. Explain electro-cyclic reaction of 1,3-butadiene with cyclo-butylene by FMO or PMO method.