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GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY UNIVERSITY, ODISHA, GUNUPUR
(GIET UNIVERSITY)

M. Sc. (Third Semester) Regular Examinations, December– 2024

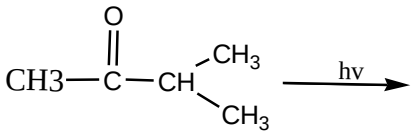
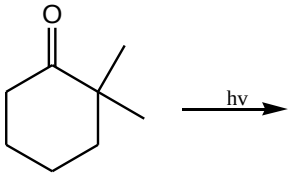
22CHPE302– Organic Chemistry-III

(M.Sc.- Chemistry)

Time: 3 hrs | Maximum: 60 Marks

(The figures in the right-hand margin indicate marks.)

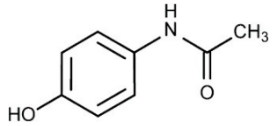
PART – A **(2 x 10 = 20 Marks)**

Q.1. Answer ***ALL*** questions	CO #	Blooms Level
a. What are HOMU and LUMO? Why those orbitals are so important in pericyclic reactions?	CO1	K2
b. [1,3] sigmatropic shift of hydrogen is thermally forbidden but photo chemically allowed. Explain?	CO1	K3
c. Complete the reactions. 	CO2	K3
d. Discuss about Grothur's Drapper law.	CO2	K1
e. Elucidate the structure of morphine.	CO3	K3
f. Explain the stereochemistry of santonin.	CO3	K3
g. Discuss about cycloaddition reaction?	CO1	K1
h. What do you mean by Retrosynthesis?	CO4	K1
i. Write the note on functional group interconversion?	CO4	K1
j. Complete the reaction. 	CO2	K3

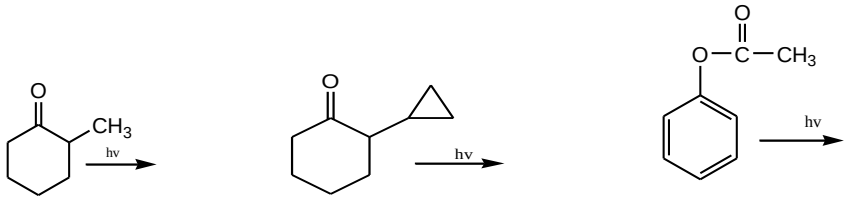
PART – B **(50 Marks)**

Answer ***ANY FIVE*** questions	Marks	CO #	Blooms Level
2. a. Write Barton reaction in details.	6	CO2	K3
b. Write notes on photo fries rearrangement with examples.	4	CO2	K3
3.a. Explain the synthesis process of penicillin G.	5	CO3	K2
b. Justify the relationship between chemical structure and biological activity.	5	CO3	K2

4. a.	Write the synthesis and retrosynthesis of the following compound	5	CO4	K3



b.	Write the two group C-X disconnection approach of synthesis in 1,1- & 1,2-, bifunctional compounds?	5	CO4	K2
5.a.	Write a detail about Diel's alder reaction and what do you mean by zwitter ion?	6	CO1	K2
b.	Explain why Con rotatory is based on c_2-axis and dis rotatory is based on mirror symmetry in corelation diagram?	4	CO1	K2
6. a.	Find out the products of the following	6	CO2	K3



b.	Write the products	4	CO2	K3

7.a.	Explain Retrosynthesis with suitable example and state it's advantages.	4	CO4	K2
b.	What is sigmatropic rearrangement and discuss the classification with FMO approach.	6	CO1	K2
8. a.	With the help of correlation diagram, show that [2+2] cycloaddition reaction is photochemically allowed process.	5	CO1	K3
b.	Find out number of nodes, symmetry properties (m- symmetry, C_2- symmetry) of 1,3,5-Hexatriene from its molecular orbital diagram.	5	CO1	K2