



**Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
(GIET UNIVERSITY)**

M.Sc. (Third Semester – Regular) Examinations, December – 2025
24MCYPC23002 – ORGANIC CHEMISTRY- III
(Chemistry)

Time: 3 hrs

Maximum: 60 Marks

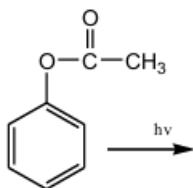
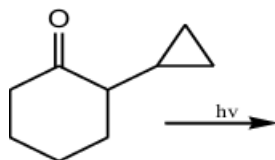
Answer ALL questions
(The figures in the right hand margin indicate marks)

PART – A**(2 x 5 = 10 Marks)**Q.1. Answer *ALL* questions

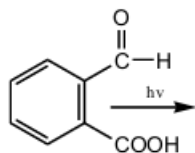
- | | CO # | Blooms
Level |
|---|------|-----------------|
| a. Sketch the pi molecular orbitals of (i) 1,3-butadiene (ii) 1,3,5-hexatriene. | CO1 | K2 |
| b. What do you mean by Retrosynthesis? | CO5 | K2 |
| c. Define law of photochemistry. | CO2 | K1 |
| d. What are primary and secondary structures of proteins? | CO4 | K2 |
| e. Elucidate the structure of cholesterol. | CO3 | K2 |

PART – B**(10 x 5 = 50 Marks)**Answer ALL the questions

2. a. Find out the products of the following.



5 CO1 K2

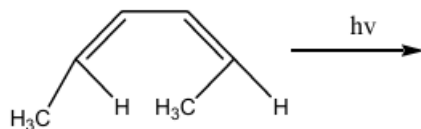


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|---|---|-----|----|
| b. Write Norrish type –2 reaction in details. | 5 | CO1 | K2 |
|---|---|-----|----|

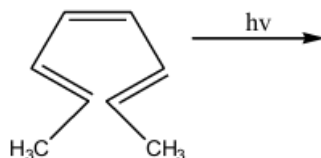
(OR)

- | | | | |
|--|---|-----|----|
| c. Explain the important chemical reactions of monosaccharides with suitable examples. | 5 | CO5 | K2 |
| d. Discuss about Structural features of Carotenoids. | 5 | CO5 | K2 |
| 3.a. Draw the correlation diagram which contain $4n\pi$ electron. | 5 | CO3 | K2 |

- b. Write the products of the following electrocyclic reactions and write whether the reaction proceeds in a conrotatory or disrotatory fashion. Also give the stereochemistry of the products.



5 CO3 K2



(OR)

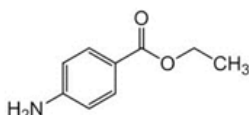
- c. What do mean by 1,3 dipolar cyclo addition reaction. Write its stereochemistry and FMO approach. 10 CO1 K2
- 4.a. Explain the synthesis process of penicillin G. 5 CO5 K2
- b. Explain the structure, synthesis process and uses of santonin. 5 CO5 K2

(OR)

- c. Justify the relationship between chemical structure and biological activity. 10 CO5 K2
- 5.a. Explain the important guidelines used for the retrosynthesis analysis of the aromatic compounds by disconnection approach? 10 CO6 K2

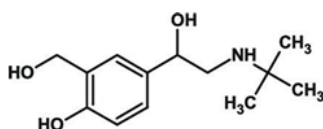
(OR)

- b. Write the synthesis and retrosynthesis of the following compound.



5 CO6 K2

- c. Write the synthesis and retrosynthesis of the following compound.



5 CO6 K2

- 6.a. Describe the reactions of monosaccharides leading to the formation of esters and ethers. 5 CO4 K2
- b. Describe in detail the structure, physical and chemical properties, and important reactions of disaccharides. 5 CO4 K2

(OR)

- c. What is electronic transition and write Beer's Lambert Law. 5 CO1 K1
- d. Give a brief idea about graphical construction of carbonyl compound. 5 CO1 K2

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