

Reg. No

M.Sc. DEGREE END SEMESTER EXAMINATION - NOVEMBER 2024**SEMESTER 1 : CHEMISTRY / PHARMACEUTICAL CHEMISTRY****COURSE : 24P1CHET02 / 24P1CPHT02 : BASIC ORGANIC CHEMISTRY***(For Regular - 2024 Admission)*

Duration : Three Hours

Max. Weights: 30

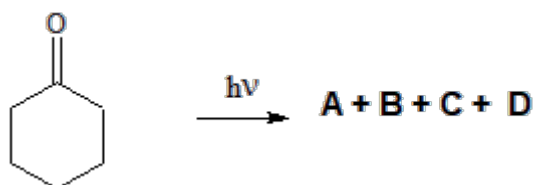
PART A**Answer any 8 questions****Weight: 1**

1. What is hyperconjugation? Give an example. (A)
2. Draw the most stable conformation of 1,2-difluoroethane. Rationalise your answer. (U)
3. Norbornene reacts with benzophenone triplet to give oxetane, while it reacts with acetone triplet to give its dimer. Account. (U, CO 3)
4. How can NMR be used as a tool for aromaticity? (A)
5. Explain the optical isomerism in spiran compounds. (U, CO 4)
6. View a butane molecule along the C2-C3 bond and provide a Newman projection of the lowest energy conformer. (U)
7. How the physical properties are useful in the determination of configuration of geometrical isomers? Explain with examples. (U, CO 4)
8. Write briefly on synthesis of carbon nanotubes? (R)
9. Explain Barton reaction citing a suitable example. (U, CO 3)
10. Illustrate the difference between a TS and an intermediate in a reaction graphically. (U, CO 2)

(1 x 8 = 8)**PART B****Answer any 6 questions****Weights: 2**

11. Describe the conformational analysis and stereochemistry of 1,3 and 1,1 dimethylcyclohexanes. (U)
12. Write a short note on the configurational nomenclature of allenes, spiranes and biphenyls. (U, CO 4)
13. Discuss the stereochemical aspects of debromination of various forms of stilbene dibromide. (U)
14. Write notes on
 - a) Electromeric effect (R, CO 1)
 - b) Hyperconjugation
15. Explain the mechanism of Barton reaction and Di- π methane rearrangement. (U, CO 3)
16. Explain Huckel's rule of aromaticity? Why cyclooctatetraene is antiaromatic? (A, CO 1)
17. Discuss the optical activity of nitrogen compounds. (U, CO 4)

18. Complete the reaction: -



(2 x 6 = 12)

PART C

Answer any 2 questions

Weights: 5

19. Explain HSAB principle and its applications in organic reactions (A, CO 2)
20. Discuss in detail the effect of conformation on semipinacolic deamination, dehydrobromination and pyrolytic eliminations taking any two examples for each type of reactions. (A)
21. (a) Explain S_NAr and Benzyne mechanism. (R, CO 1)
(b) Outline Michael addition reaction.
22. Give a detailed discussion on geometrical isomerism with special emphasis on configurational nomenclature, methods for the determination of configuration and interconversion of geometrical isomers. (U, CO 4)

(5 x 2 = 10)

OBE: Questions to Course Outcome Mapping

CO	Course Outcome Description	CL	Questions	Total Wt.
CO 1	Explain the basic concepts of organic chemistry.	R	14, 16, 21	9
CO 2	Illustrate the principles of physical organic chemistry.	U	10, 19	6
CO 3	Recognize the importance of organic photochemical reactions.	U	3, 9, 15, 18	6
CO 4	Demonstrate the reactivity and stability of organic molecules based on structure, including conformation and stereochemistry.	U	5, 7, 12, 17, 22	11

Cognitive Level (CL): Cr - CREATE; E - EVALUATE; An - ANALYZE; A - APPLY; U - UNDERSTAND; R - REMEMBER;