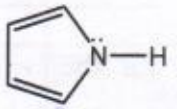
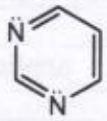
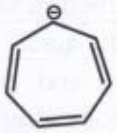
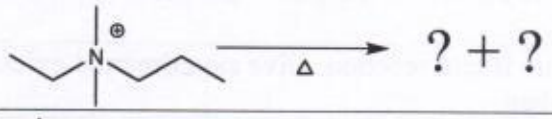
MANIPAL
ACADEMY of HIGHER EDUCATION
(Institution of Eminence Deemed to be University)

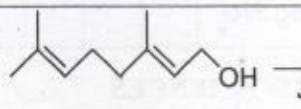
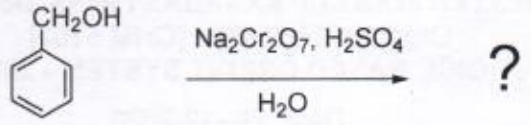
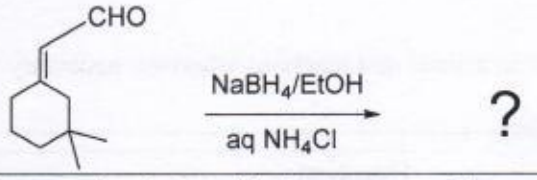
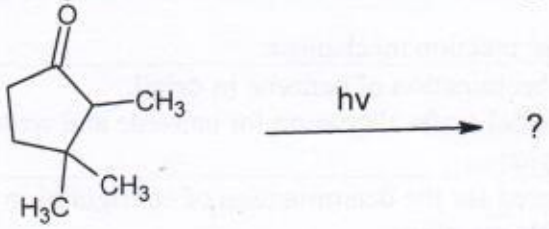
Reg.No.									

DEPARTMENT OF SCIENCES
I SEMESTER M.Sc. (Chemistry)
END SEMESTER MAKEUP EXAMINATIONS, December 2023
Organic Chemistry-I [CHM 5102]
(CHOICE BASED CREDIT SYSTEM - 2021)

Time: 3 Hours | Date: 29 -12-2023 | MAX. MARKS: 50

Note (i) Answer ALL questions
(ii) Draw diagrams, and write structures and reactions wherever necessary

	Question	Marks	CO	BL
1A	i) State Huckel rule and classify the following compounds into aromatic, non-aromatic or anti-aromatic with proper justification. a)  b)  c)  d) cyclo octatetraene ii) Justify the following statements. a) Acetic acid is a weaker acid than chloroacetic acid. b) Protonated methanol is more acidic than CH_3OH.	5	1	2
1B	i) Explain the factors affecting E1 and E2 reaction mechanisms. ii) Name the following reaction and account for the major and minor products. 	3	1	3
1C	Briefly explain the following: i) Ortho effect ii) Effect of substrate on S_N1 reaction mechanism.	2	1	3
[illegible]	i) Explain the mechanism of bromination of benzene in detail. ii) Explain the mechanism of Friedel crafts alkylation for benzene and write on the limitations of Friedel Crafts alkylation.	5	1	2
2B	Explain two chemical methods used for the determination of configuration of geometrical isomers using suitable reactions.	3	2	2
2C	Give reasons for the following. i) It is not convenient to draw Fischer formula for describing reaction mechanisms. ii) Threo and erythro nomenclature system is not suitable for molecules with more than two chiral centres.	2	2	2
3A	i) Discuss the mechanism of Baeyer – Villiger oxidation reaction with suitable example. ii) Write the products obtained for the following reactions.	5	3	3

	a)  b)  c) 		
3B	i) Give a suitable example along with the corresponding catalyst used for Meerwin-Ponndorf Verley reaction. ii) Briefly explain Clemmensen Reduction with suitable mechanism.	3	3
3C	Explain any two synthetic utilities of per iodic acid.	2	3
4A	What is Cotton effect? State octant rule and describe its application for the conformational analysis of (+)-3-methylcyclohexanone.	5	2
4B	Illustrate Cram's rule using suitable examples. Why does mechanism vary depending on substituents?	3	2
4C	Explain the use of model compounds in the study of conformation and reactivity using an example.	2	2
5A	Give a comparative account of Norrish type I & type II reactions using suitable examples. Predict the product of photolysis of cycloheptanone with suitable justifications.	5	4
5B	Write the mechanism of Paterno Buchi reaction. Give experimental evidence to support the suggested mechanism.	3	4
5C	Predict the product and explain the mechanism of the following. 	2	4