Name: **Enrolment No:**	

UPES

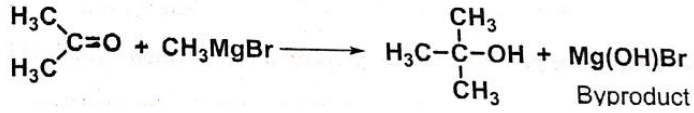
End Semester Examination, May 2025

Course: Green Chemistry **Semester: VI**
Program: B.Sc. (H) Chemistry **Time : 03 hrs.**
Course Code: CHEM3058P **Max. Marks: 100**

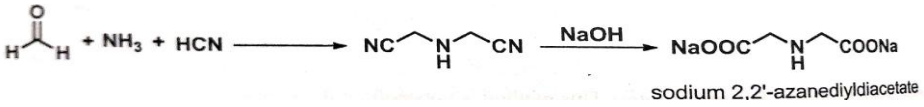
Instructions: Read all the below mentioned instructions carefully and follow them strictly:

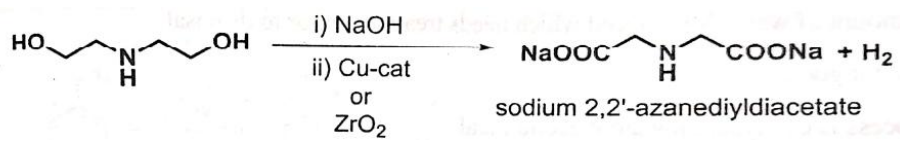
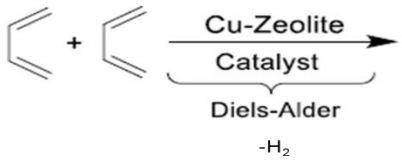
1). Mention Roll No. at the top of the question paper.
2) Internal choice has been given in Q8 and Q11.
3) ATTEMPT ALL THE PARTS OF A QUESTION AT ONE PLACE ONLY.

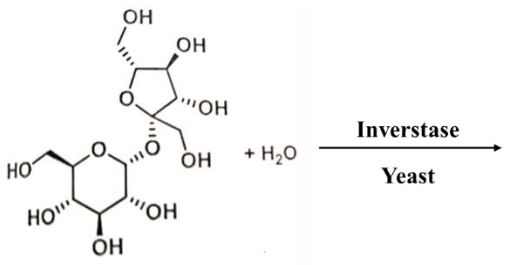
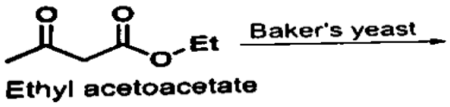
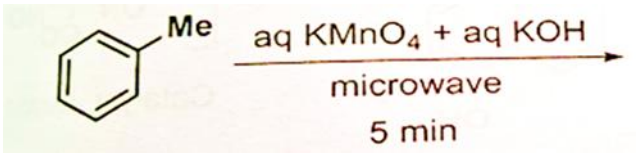
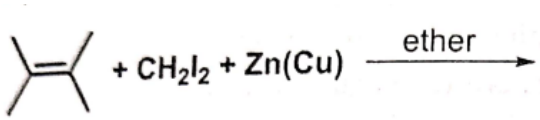
SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	Discuss healthier fats and oils.	**4**	**CO3**
Q 2	Define sonochemistry. Give one example of ultrasonic assisted reactions.	**4**	**CO2**
Q 3	The following Grignard reaction gives 100% yield. Is it 100% economical? Give reason. 	**4**	**CO2**
Q 4	State the key criteria used to classify solvents as green. Give two examples of commonly used green solvents.	**4**	**CO2**
Q 5	Outline the environmental benefits of green chemistry.	**4**	**CO1**

SECTION B
(4Qx10M= 40 Marks)

Q 6	What are the main ingredients of commonly used carpets? Why do "ECO WORX" carpets are more ecofriendly than PVC back carpet.	**10**	**CO3**
Q 7	Justify, which one of the following two processes is better in the light of green chemistry with suitable reason: **Route 1** 	**10**	**CO2**

	Route 2  		
Q 8	Explain the term Inherently safer design (ISD)? Write the subdivisions of ISD and discuss in brief. OR Explore the following Green Chemistry principles, providing suitable examples to illustrate their practical application: a) Less Hazardous Chemical Synthesis b) Reduce Derivatives	**10** **5+5**	**CO2**
Q 9	Give two examples of each of the following: a) Biopolymer b) Enzymes c) Super critical fluid d) Photocatalyst e) Green oxidants	**10**	**CO2**
	SECTION-C **(2Qx20M=40 Marks)**		
Q 10	Describe the traditional commercial synthesis of adipic acid and explain various drawbacks of this synthesis in the context of green chemistry. Also, mention the green synthesis of adipic acid with the help of chemical reactions.	**10+10**	**CO3**
Q 11	a) Analyze the environmental impacts of traditional marine antifoulants such as tributyl tinoxide (TBTO) and propose eco-friendly alternatives that align with green chemistry principles. b) How can biomimetic reagents contribute to green chemistry principles like atom economy and reduction of hazardous by-products? OR Complete the following reactions: a)  	**10+10**	**CO3**

	b)  c)  Ethyl acetoacetate d)  e) 	**4x5=20**	