

Name

Enrolment No:



Course: CHEM-7002

Programme: M.Sc Chemistry

Course Name: Organic Reaction Mechanism & Stereochemistry

(End Semester Examination Dec 2019)

Semester: I

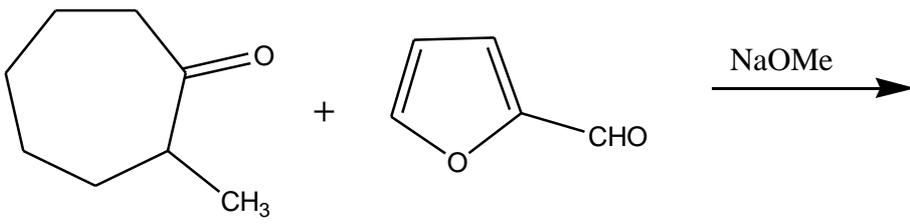
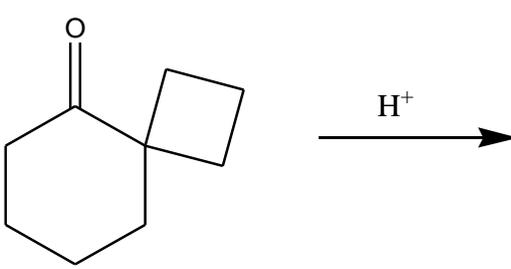
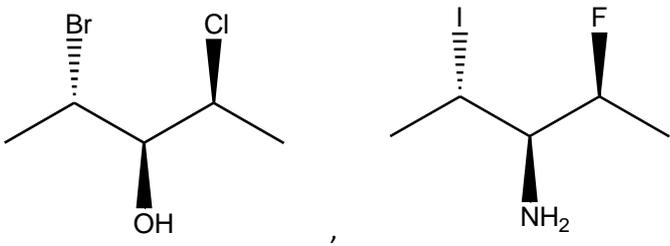
Time: 03 hrs.

Max. Marks:100

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

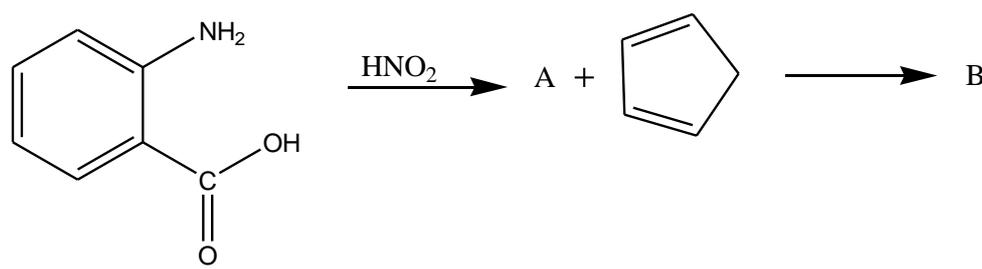
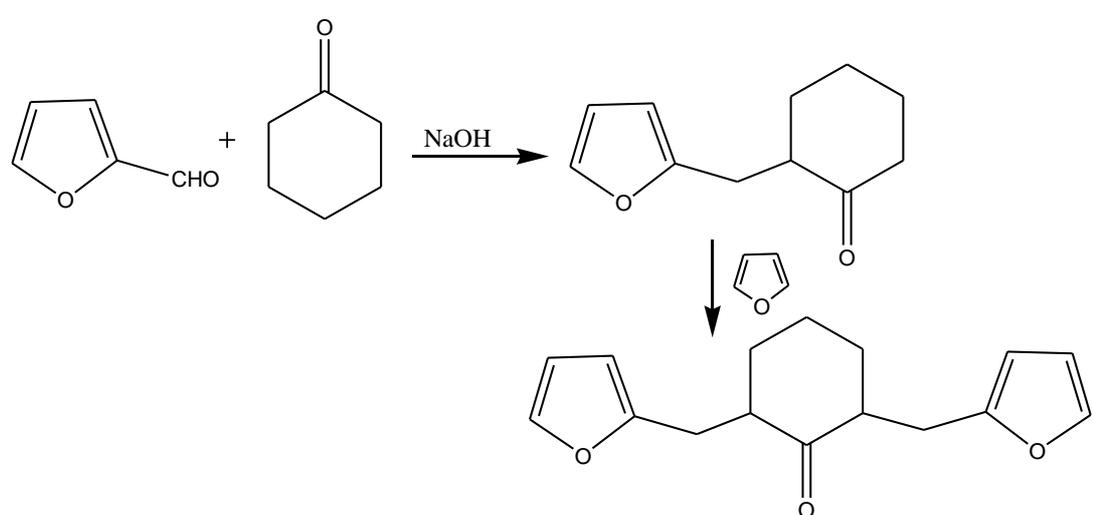
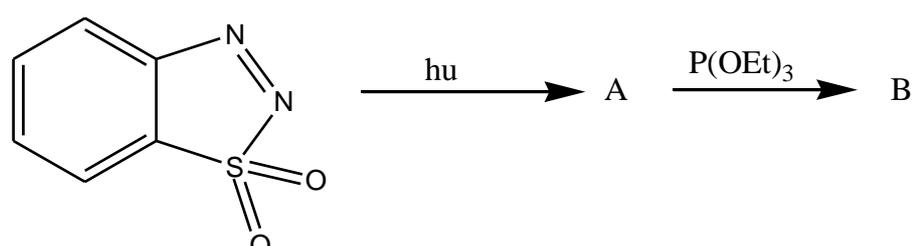
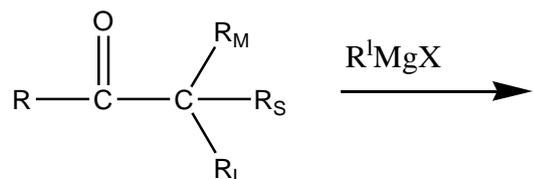
- 1) Write your enrolment number on the top left of the question paper
- 2) Do not write anything on the question paper except your enrolment number
- 3) Attempt all part of a question at one place only
- 4) Internal choice is given for question number 9 and 11 only

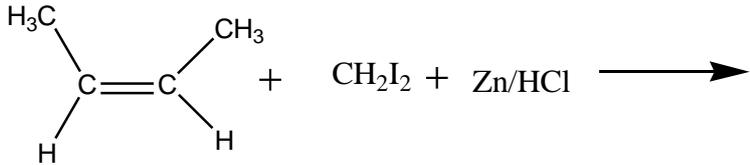
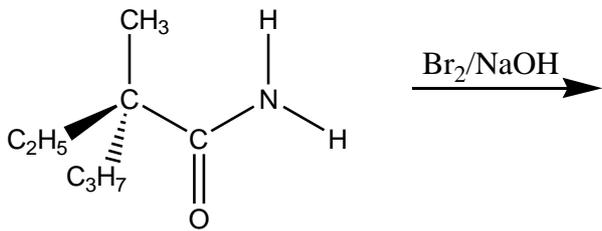
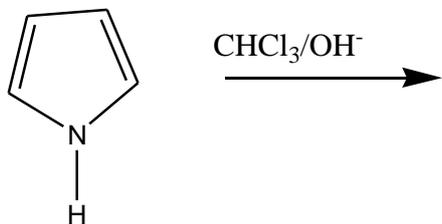
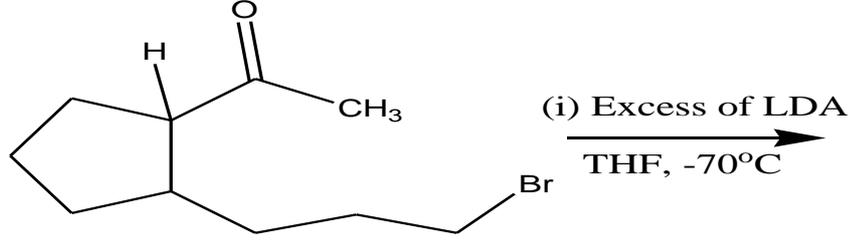
Section - A (Attempt all FIVE Questions)

1.	Elucidate the product with mechanism 	[4]	CO1
2.	Explain the product with mechanism 	[4]	CO1
3.	Draw Fischer projection of following compounds 	[4]	CO2
4.	Discuss any two methods for determination of mechanism of reaction	[4]	CO1
5.	Show the hydride attack from lithium aluminum hydride from Re and Si face of 2-butanone.	[4]	CO3

SECTION-B

(Question No. 6, 7 and 8 are Compulsory); attempt any one from 9A & 9B

6.	<p>Mention product A and B in the following reaction with mechanism</p>  <p>The reaction shows 2-aminobenzoic acid reacting with HNO_2 to form product A. Product A then reacts with cyclopentene to form product B.</p>	[10]	CO2
7.	<p>Discuss the mechanism of the following reaction</p>  <p>The reaction shows furfural reacting with cyclohexanone in the presence of NaOH. The product is a cyclohexanone ring substituted with two furfuryl groups at the 2 and 6 positions.</p>	[10]	CO2
8.	<p>Mention product A and B in the following reaction with mechanism</p>  <p>The reaction shows 2-benzothiazole sulfone reacting with light ($h\nu$) to form product A. Product A then reacts with P(OEt)_3 to form product B.</p>	[10]	CO1
9.A	<p>i) Predict the product with proper reasoning and mechanism</p>  <p>The reaction shows a substituted ketone reacting with R^lMgX. The ketone has a carbonyl group bonded to R, and a central carbon bonded to R_M, R_S, and R_L.</p> <p>ii) Predict the hydrogen atoms in cis-1,2 dichlorocyclopropane as homotopic, enantiotopic and diastereotopic</p>	[5+5]	CO2 & CO3

OR			
9B	i) Deduce product with mechanism  <chem>CC=CC + CHI2 + Zn/HCl >></chem> ii) Write the most stable conformation of trans-1,2-dimethylcyclohexane, is it chiral?	[5+5]	CO2 & CO3
SECTION - C (Question No. 10 is Compulsory; Attempt any one from question numbers 11A & 11B)			
10.	i) Write the product with mechanism  <chem>CC(C)C(N)C(=O)NCCC + Br2/NaOH >></chem> ii) Write various method for generation of Benzyne intermediate. Also discuss its structure and few important reactions.	10+10	CO1
11A.	i) Discuss chemical correlation method which involve diastereomers. ii) Complete the reaction.  <chem>C1=CN=C1 + CHCl3/OH- >></chem> <p style="text-align: center;">OR</p>	10+10	CO3
11B.	i) Discuss the structure and stereochemistry of cis-decalol. ii) Complete the reaction with mechanism.  <chem>CC(=O)C1CCC2(C1)CCCC2Br >></chem> (i) Excess of LDA THF, -70°C	10+10	CO3