

Enrolment No:



Course: (Organic Chemistry I)

Program:
Time: 3 hrs.

BSc. Hons Chemistry
Max. Marks:100


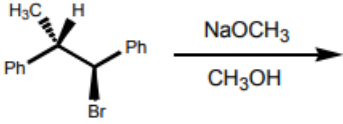
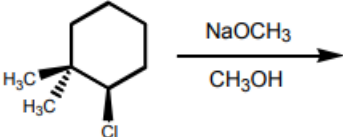
Section - A (All Questions are compulsory)

(30 marks)

1.	State whether true or false: a. Inductive effect is a permanent effect b. SN2 reaction proceeds via inversion of stereochemistry c. Benzene has a planar structure d. Hyperconjugation effect stabilizes carbocations. e. Primary carbanion is stable as compared to the secondary.	[5]	CO1
2.	Fill in the blanks a. pKa value of an alkyne is _____ as compared to alkane and alkene b. Wilkinson catalyst is chemically named as _____ c. Lindlar catalyst is _____ d. _____medium is required for the addition of water to alkenes e. Friedel Craft reaction occurs in the presence of _____	[5]	CO3
3.	a. Which metal is used in Wurtz reaction? b. Name the reaction which locates the position of the double bond? c. Name two ortho and two meta directing groups in benzene? d. Which electrophile is formed during nitration of benzene? e. State whether the cyclopentadienyl anion is aromatic or non-aromatic.	[5]	CO2
4.	What causes the stabilization of Allyl and Benzyl carbanions? Resonance or Hyperconjugation?	[5]	CO4
5.	Which of the following statements applies to the E2 mechanism? A) It occurs with inversion of stereochemistry. B) It occurs with racemization of stereochemistry. C) It proceeds through the more stable carbocation intermediate. D) The C-H and C-X bonds that break must be anti. E) Use of a bulky base gives the more highly substituted alkene product	[5]	CO1
6.	Write the names of any two chemical test to identify Unsaturation in a given compound.	[5]	CO3

SECTION - B (All Questions are compulsory)

(50 marks)

7.	<p>Explain whether the following molecules are aromatic or non-aromatic. Give reasons to support your answer.</p> <div style="text-align: center;">  <p>(i) <chem>C=Cc1ccccc1</chem> (ii) <chem>C1=CC=CC1</chem> (iii) <chem>C1=CC=CC=CC=C1</chem></p> </div>	[10]	CO1
8.	<p>Addition of HBr to propene yields 2-bromopropane, while in the presence of benzoyl peroxide, the same reaction yields 1-bromopropane. Explain and give mechanism.</p>	[10]	CO2
9.	<p>Out of benzene, m-dinitrobenzene and toluene, which will undergo nitration most easily and why?</p>	[10]	CO3
10.	<p>Identify the major products in the following reactions. Write a suitable mechanism.</p> <div style="text-align: center;"> <p>1) </p> <p>2) </p> </div>	[10]	CO4
11	<p>Compare the elimination and substitution reactions of alkanes with suitable examples.</p>	[10]	CO2
<p>SECTION - C (All questions are compulsory)</p>		<p>(20 marks)</p>	
12.	<p>a. How does the presence of a Nitro group effects the reactivity of Benzene ring towards electrophilic substitution reactions?</p> <p>b. Discuss the stability order of carbocations on the basis of Hyperconjugation effect and resonance.</p> <p style="text-align: center;">OR</p> <p>. Give reasons for the following</p>	[10+10]	CO5

