

# C.U.SHAH UNIVERSITY

## Winter Examination-2015

Subject Name: Stereochemistry in Organic Synthesis

Subject Code: 4LS02CHM1 Branch: B.Sc. (Microbiology)

Semester: II Date: 20/11/2015 Time : 10.30 To 1.30 Marks : 70

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
- (2) Instructions written on main answer book are strictly to be obeyed.
- (3) Draw neat diagrams and figures (if necessary) at right places.
- (4) Assume suitable data if needed.

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<b>Q-1</b>	<b>Attempt the following questions:</b>	<b>(14)</b>
a)	What is stereospecific reaction?	1
b)	Define enantiomers	1
c)	Define solvent	1
d)	Define activation energy	1
e)	Define rate of reaction	1
f)	State Saytzeff rule	1
g)	What is stereoselective reaction?	1
h)	Draw energy diagram for two step reaction	1
i)	State Hoffman rule	1
j)	Write the characteristic features of inductive effect.	1
k)	What will be the structure and bond angle of molecules formed by sp hybridization?	1
l)	Define $S_N^1$ reaction	1
m)	Define hybridization	1
n)	Define $E^1$ (CB) reaction	1

Attempt any four questions from Q-2 to Q-8

<b>Q-2</b>	<b>Attempt all questions</b>	<b>(14)</b>
a)	Write differences between tautomerization and resonance with suitable example	7
b)	What are the differences between E1 and E2 reaction mechanism?	7



<b>Q-3</b>	<b>Attempt all questions</b>	<b>(14)</b>
	a) What is Friedel Crafts Alkylation reaction? Write different steps involved in the reaction mechanism.	7
	b) Write a note on effect of substituent's on acidic strength of carboxylic acid.	7
<b>Q-4</b>	<b>Attempt all questions</b>	<b>(14)</b>
	a) Discuss the basic criteria for aromaticity and antiaromaticity by suitable example.	7
	b) Write a note on displacement of electron through hyperconjugation with suitable example.	7
<b>Q-5</b>	<b>Attempt all questions</b>	<b>(14)</b>
	a) Explain <i>R,S</i> and threo-erythro nomenclature for stereoisomers with suitable examples.	7
	b) What are the different steps involved in drawing Fischer projection of organic compounds.	7
<b>Q-6</b>	<b>Attempt all questions</b>	<b>(14)</b>
	a) Write a note on chirality in a molecule with no stereogenic centre	7
	b) What is hybridization? Explain the structure of ethylene based upon the concept of hybridization.	7
<b>Q-7</b>	<b>Attempt all questions</b>	<b>(14)</b>
	a) Write a note on stability of carbocation based upon inductive effect and resonance.	7
	b) Explain internal nucleophilic substitution and unimolecular elimination (conjugated base) reaction mechanism with suitable example.	7
<b>Q-8</b>	<b>Attempt all questions</b>	<b>(14)</b>
	a) Explain the stability of free radicals based upon resonance and hyperconjugation.	7
	b) Write a note on displacement of electron through inductive effect with suitable example.	7

