Enrollment No: _____ Exam Seat No: _____

C.U.SHAH UNIVERSITY

Summer Examination-2019

Subject Name: Stereochemistry in organic synthesis

Subject Code: 4SC02SOS1 **Branch: B.Sc. (Microbiology)**

Semester: 2 **Date: 30/04/2019** **Time: 02:30 To 04:30** **Marks: 50**

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.

Q-1 **Attempt the following questions:** **(10)**

a) What are anti-aromatic compounds? 01
b) Define: specific rotation 01
c) Write the hoffman rule. 01
d) Draw the structure of singlet and triplet carbene. 01
e) Define: hyperconjugation. 01
f) Give examples of cis and trans isomer. 01
g) Define Heterolytic cleavage of bond with suitable examples. 02
h) Write the stability order of 1^0, 2^0 and 3^0 carbocation and carbanion. 02

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

Q-2 **Attempt all questions** **(10)**

a) What is carbocation? Discuss about their stability. 05
b) What is free radical? Give the generation of it. 05

Q-3 **Attempt all questions** **(10)**

a) Discuss sp^3 and sp^2 hybridization in detail. 05
b) Explain Huckel's rule with examples for 2π, 6π, 12π system. 05

Q-4 **Attempt all questions** **(10)**

a) Discuss D/L and R/S nomenclature with examples. 05
b) Explain cis, trans and E, Z isomer with priority order rules. 05

Q-5 **Attempt all questions** **(10)**

a) Write a note on S_N1 reaction mechanism with energy diagram. 05

	b)	Explain E^2 reaction with example.	05
Q-6		**Attempt all questions**	**(10)**
	a)	Write a note on keto - enol tautomerism and resonance.	05
	b)	How the nature substrate and nature of nucleophile affect on the rate of reaction in S_N^2 reaction mechanism?	05
Q-7		**Attempt all questions**	**(10)**
	a)	Write about representation of molecule by saw horse, Fischer, flying-wedge and Newman projection methods.	05
	b)	What are chiral compounds? Explain optical activity.	05
Q-8		**Attempt all questions**	**(10)**
	a)	Discuss sulphonation of benzene with reaction mechanism.	05
	b)	Explain nitration of benzene with reaction mechanism.	05