Enrollment No: _____ Exam Seat No:_____

C.U.SHAH UNIVERSITY

Winter Examination-2022

Subject Name: Stereochemistry in Organic Synthesis

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

Semester: 2 **Date: 21/09/2022** **Time: 11:00 To 01:00** **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 is Carbanions? **(01)**
b) Define nucleophile with one example. **(01)**
c) Define:Keto-enol Tautomerism **(01)**
d) Define: Homolytic bond cleavage **(01)**
e) Write the stability order of Carbocation. **(01)**
f) Give the any two examples of chiral carbon compounds. **(01)**
g) Define: Saytzeff rule **(01)**
h) Give one example of meso compound. **(01)**
i) State the definition of chiral reagent. **(01)**
j) Define: Bond angle. **(01)**

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

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

a) State the difference between E1 and E2 mechanism reactions. **(05)**
b) Introduced the carbanion with discussion of its hybridization, geometry and stability. **(05)**

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

a) Write a note on Free radical intermediate. **(05)**
b) Write a brief note on Carbene. **(05)**

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

a) Write note on $S_N2$reaction mechanism in details. **(05)**
b) Explain Friedel Crafts alkylation reaction with mechanism. **(05)**

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

a) What is hybridization? Explain the structure of ethane molecule based on **(05)**

hybridization concept.

b) Write a note on nitration and sulphonation of benzene with all mechanism steps.. **(05)**

Q-6 **Attempt all questions** **(10)**

a) Define Huckel's rules and state the difference between aromaticity and anti-aromaticity with examples. **(05)**

b) Write ashort note on acidic character of carboxylic acid group. **(05)**

Q-7 **Attempt all questions** **(10)**

a) Discuss the different steps included in Fischer projection of organic compounds. **(05)**

b) Write down a note on stereo selective and stereo specific reaction. **(05)**

Q-8 **Attempt all questions** **(10)**

a) Discuss the following nomenclatures with proper examples. **(05)**

a) R and S
b) Erythro and Thereo
c) Cis and Trans

b) Write a note on tautomerization, mesomeric effect and inductive effect with proper examples. **(05)**