

2012
B.A./B.Sc. (General) First Semester
Chemistry
Paper – II: Organic Chemistry – A
(Same for Microbial and Food Technology)

Time allowed: 3 Hours

Max. Marks: 22

NOTE: Attempt five questions in all, including Question No. IX (Unit-V) which is compulsory and selecting one question each from Unit I - IV.

x-x-x

UNIT – I

- I. a) What kind of molecules show delocalization.
b) Chloroacetic acid is a stronger acid than acetic acid. Why?
c) Why hyperconjugation is also known as no bond resonance? (2,1,1)
- II. a) How isotope effect helps in determining the mechanism of a reaction?
b) Pick out nucleophilic from the list:-
 CN^- , BF_3 , H_2O , Cl^+ , NH_3 , OH (2,2)

UNIT – II

- III. a) Explain nitration of alkanes.
b) What is Dieckmann condensation reaction for the preparation of cycloalkanes. (2,2)
- IV. a) Calculate angle strain in cyclopropane, cyclobutane and cyclopentane ring and give their stability order. (2½)
b) Why iodination method is much slower in comparison with chlorination inspite of the fact that I-I bond is much weaker than Cl-Cl bond. (1½)

UNIT – III

- V. a) Define $[\alpha]_D^{25}$. Write factor on which it depends.
b) Suggest and explain a method to resolve racemic acids. (2,2)
- VI. a) What is e.e. of a mixture containing 25% (+)-2butanol and 75% (-)-2 butanol if specific rotation of (+)-2-butanol is 13.5° .
b) Difference between erythro and threo isomer. Give examples too. (2,2)

P.T.O.

(2)

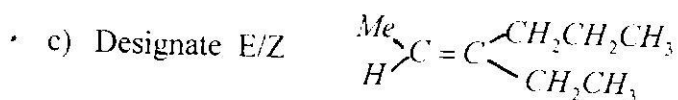
UNIT - IV

- VII. a) Draw possible conformation of 1,2-dimethyl cyclohexane. Which is more stable and why?
 b) Draw energy profile diagram of butane conformations. (2,2)
- VIII. a) What is difference between conformation and configuration?
 b) Out of cis and trans 1,3-dimethyl cyclohexane which is more stable conformer and why? (2,2)

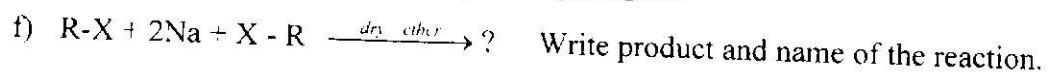
UNIT - V

IX.. Attempt the following:-

- a) Carboxylic acid exist as dimer. Why?
 b) What is functional isomer of $\text{CH}_3 - \text{O} - \text{CH}_3$



- d) What is a meso compound?
 e) Draw fisher projection of $\text{CHO}(\text{CHOH})_2\text{CH}_2\text{OH}$



(6x1)

x-x-x