(i) Printed Pages : 3 Roll No. .....

(ii) Questions : 9 Sub. Code : 0 0 5 0

Exam. Code : 0 0 0 1

B.A./B.Sc. (General) 1st Semester

(2122)

CHEMISTRY

(Same for B.Sc. Microbial & Food Tech.)

Paper : II Organic Chemistry-A

Time Allowed : Three Hours] **[Maximum Marks : 22**

Note :— Attempt **FIVE** questions in all including Question No. **9** (UNIT-V) which is compulsory and taking at least **ONE** question each from Units I—IV.

UNIT—I

1. (a) What is Inductive effect ? Give its application. 2

   (b) Discuss the effect of resonance in explaining the relative acid strength of aryl and alkyl carboxylic acids. 2

2. (a) What are Free radicals ? Discuss the relative stability of different classes of free radicals. 2

   (b) How do the methods such as 'isotope effect' and 'stereochemical studies' help in determination of reaction mechanism ? 1

   (c) Assign formal charge on Methyl Carbanion and dichlorocarbene. 1

UNIT—II

3. (a) Give the mechanism of halogenation of alkane. 2

   (b) Give mechanism of Kolbe electrolysis reaction. 1

   (c) Write a note on alternation effect. 1

4. (a) Compare reactivity and selectivity in reference to halogenation of alkane. 2

   (b) Differentiate between Clemmenson Reduction and Wolff kishner reduction by taking suitable example. 2

UNIT—III

5. (a) Draw the structure of (R) and (S) isomers of smallest alcohol and explain why those particular forms you have drawn are 'R' and 'S'. 2

   (b) Give difference between enantiomers and diastereomers. 2

6. (a) Explain with examples Configurational and Conformational isomers. 2

   (b) By taking examples discuss that the presence or absence of chiral carbon atoms in a molecule is not the necessary and sufficient condition for the existence of optical activity. 1

   (c) Define and illustrate the terms : retention and inversion of configuration. 1

UNIT—IV

7. (a) Give effect of geometrical isomerism on melting and boiling point of alkenes. 2

   (b) Discuss the conformations of cyclohexane and their relative stabilities. 2

8. (a) Draw the two chair conformations of methyl cyclohexane. Also draw the Newman projection formulae. Which out of the two is more stable and why ? 2

(b) What are geometric isomers ? Explain why dehydration of maleic acid is easy while fumaric acid is not. 2

UNIT—V

(Compulsory Question)

9. (a) Define delocalized chemical bond by taking an example. 1

(b) What type of reactions alkanes undergo and why ? 1

(c) Draw the structures of all functional isomers having formula C_3H_6O. 1

(d) What is an asymmetric carbon atom ? Give example. 1

(e) Give the structures of the lowest molecular mass alkene which is chiral. 1

(f) What are meso compounds ? 1