(i) Printed Pages : 4 Roll No. .....

(ii) Questions : 9 Sub. Code : 0 0 4 9

Exam. Code : 0 0 0 1

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

1125

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

Paper–II : Organic Chemistry–A

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

Note :– (i) Attempt **five** questions in all, selecting at least **one** question from each Unit. Unit–V is compulsory.

(ii) Compulsory question carries 6 marks and remaining all questions carry 4 marks.

UNIT–I

1. (a) What is Hydrogen Bonding ? What are the conditions for hydrogen bonding ? 2

(b) Define Hyperconjugation. Explain greater stability of propylene as compared to Ethylene. 2

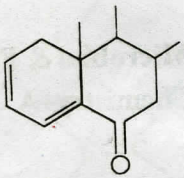
2. (a) What are Carbocations ? Give structure and methods of formation of carbocation. 2

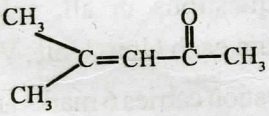
(b) $AlCl_3$ behaves as electrophile whereas NH_3 is a nucleophile. Explain. 2

UNIT–II

3. (a) Explain the applications of u.v spectroscopy in detection of conjugation and determination of configuration of geometrical isomers by examples. 2

(b) On the basis of Woodword Fieser rule calculate the λ_{max} for the following compounds :

(i) 

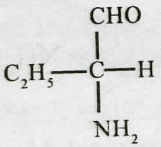
(ii)  2

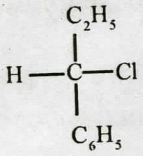
4. (a) The molar Extinction coefficient of n — π* transition is low ($< 10^2$) while π — π* transition is high (10^4–10^5). Explain. 2

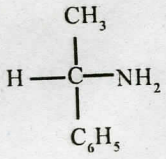
(b) Describe the various types of electronic transition observed in organic compounds when exposed to u.v. and visible light. 2

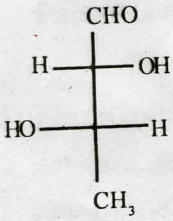
UNIT–III

5. (a) Assign R and S configuration :

(i) 

(ii) 

(iii) 

(iv)  2

(b) Distinguish between Enantiomers and Diasteromers. 2

6. (a) Explain the terms with examples :

(i) Optical activity

(ii) Specific rotation

(iii) Functional isomerism

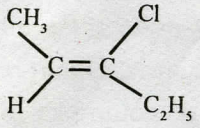
(iv) Stereogenic centre. 2

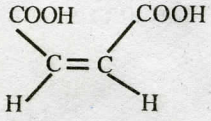
(b) What is meant by Resolution ? Describe the methods for resolving a racemic mixture. 2

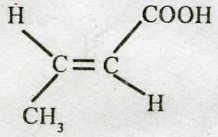
UNIT–IV

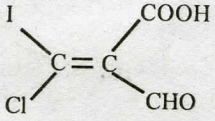
7. (a) Give difference between conformation and configuration. 2

(b) Assign E and Z conformation to the following :

(i) 

(ii) 

(iii) 

(iv) 

2

8. (a) Write the conformations of n-butane and discuss their relative stabilities. 2

(b) Give geometrical isomerism of oximes. How is the configuration of geometrical isomers of oximes established ? 2

UNIT–V

9. (i) State Huckel's rule of aromaticity.
(ii) What are nitrenes ?
(iii) Why is Ethanol a solvent of choice in u.v. spectroscopy ?
(iv) What are Threocompounds ?
(v) What is meant by Walden Inversion ? Explain with example.
(vi) Assign E and Z configuration to the following :
(a) Maleic Acid
(b) Trans-But-2 enoic Acid. 1×6=6