(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

1128

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 selecting **one** from each Unit. Q.No. **9** is compulsory.

UNIT—I

1. (a) Define resonance effect. Explain why allyl and benzyl halides are more reactive than primary alkyl halides towards nucleophilic substitution reaction ?

   (b) What conditions are to be satisfied for a compound to be aromatic ? State which of the following are aromatic and why ?

2,2

2. (a) What are substitution reactions ? Give one example each for nucleophilic, electrophilic and free radical reactions.

   (b) Give details for the various methods available for determining the reaction mechanism of a reaction.

2,2

UNIT—II

3. (a) Give the details for preparation of alkanes via decarboxylation of carboxylic acids.

   (b) Write a note on nitration of alkanes. 2,2

4. (a) Write a note on [2 + 2] cycloaddition reactions for the preparation of cycloalkanes.

   (b) Discuss the salient features of Baeyer's strain theory. Calculate the angle strain in cyclobutane. 2,2

UNIT—III

5. (a) What is metamerism ? Give a suitable example.

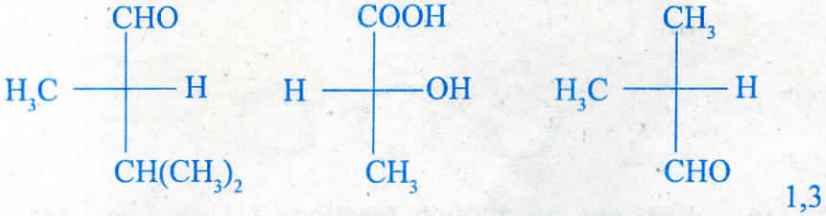
   (b) Define the term, specific rotation.

   (c) Write a note on the inversion, retention of configuration and racemization. 1,1,2

6. (a) Giving suitable examples, differentiate between chiral centres and chiral molecules.

   (b) Draw the various possible stereoisomers for 2, 3-dichloro-pentane.

   (c) Assign R or S configuration to the different chiral centres in the following compounds, showing the proper priority according to the CIP rule :



1,3

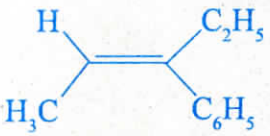
UNIT—IV

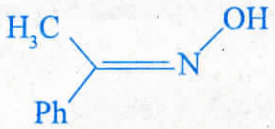
7. (a) With the help of the Newmann projection formula, explain why the chair form of methylcyclohexane is more stable as compared to the boat form ?

   (b) What is the necessary and sufficient condition for geometrical isomerism in oximes ? 2,2

8. (a) Write a detailed note on the determination of configuration of geometrical isomers on the basis of their physical properties.

(b) Assign E or Z nomenclature to the following compounds, showing the proper priority according to the CIP rule :





2,2

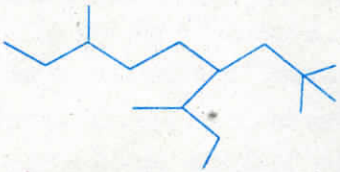
COMPULSORY QUESTION

9. (a) Differentiate between localized and de-localized bonds.

(b) What are nitrenes ? Differentiate between singlet and triplet nitrenes.

(c) Give the IUPAC nomenclature for the following compounds :

(i)



(ii)

(d) Draw the Sawhorse, Fischer, Newmann and Flying-Wedge projection for lactic acid.

(e) How does geometrical isomerism affect melting point and boiling points ?

(f) Discuss the various methods for the resolution of a racemic mixture. 1×6

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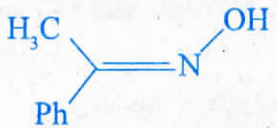

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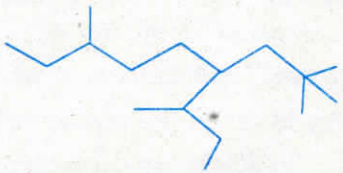

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