

Code No. 8507

**FACULTY OF SCIENCE**  
**M.Sc. I-Semester Examination, December 2013**

**Subject : Chemistry**

**Paper - II : Organic Chemistry**

**Time : 3 hours**

**Max. Marks : 80**

**Note : Answer all questions from Part-A and Part-B. Each question carries 8 marks in Part-A and 12 marks in Part-B.**

**PART – A (4 x 8 = 32 Marks)**

*(Short Answer Type)*

- 1.a) Explain the stereochemistry of chiral allenes with an example.
- b) Draw the Fischer projection formulae of tartaric acids and explain the symmetry elements in them.
- 2.a) Describe the stereospecific addition of bromine to cis-2-butene.
- b) What is  $\alpha$ -elimination? Explain with an example.
- 3.a) Discuss the preparation and importance of (+) glucosylamines.
- b) How was the structure of sucrose established?
- 4.a) Outline a simple synthesis of coumarins.
- b) Explain the reactivity of carbazole towards electrophiles.

**PART – B (4 x 12 = 48 Marks)**

*(Essay Answer Type)*

- 5.a) Describe a chemical method for the resolution of a ( $\pm$ ) mixture of  $\alpha$ -phenylethanols.
  - b) With the help of an example, discuss a chemical method to determine the configuration of geometrical isomers.
- OR**
- c) Differentiate between absolute and relative configuration for optical isomers with examples.
  - d) Write a note on chiral chromatography techniques used for separation of enantiomers.
- 6.a) State and explain the dihydroxylation of cis-1-butene with OsO<sub>4</sub>.
  - b) What are E<sub>2</sub> eliminations? Explain the orientation of stereoselectivity in these reactions.
- OR**
- c) What is chemical trapping? How it is useful in determining the mechanism of a reaction?
  - d) Discuss pyrolytic syn-eliminations with examples.
- 7.a) How was the configuration of D-glucose established?
  - b) Explain the structural features of starch.
- OR**
- c) Formulate a simple synthesis of ala-gly-ala.
  - d) Write notes on acid and enzymatic hydrolysis of proteins.
- 8.a) Describe the Fisher-Indole synthesis with mechanism.
  - b) Explain the reactivity of quinolines towards electrophiles and nucleophiles.
- OR**
- c) Discuss the synthesis and reactivity of benzothiophens.
  - d) Write the synthesis of (only one method)
    - i) Acridine
    - ii) Flavone