FACULTY OF SCIENCE
M. Sc I - Semester Examination, January 2018
Subject: Chemistry

Paper- II : Organic Chemistry

Time: 3 Hours  Max. Marks: 80

Note: Answer all the Questions from Part-A and Part-B. Each Question Carries 8 Marks in Part-A and 12 Marks in part-B.

PART-A (4x8=32 Marks)
(Short Answer Type)

1. (a) Draw the Fisher, Newman and Saw-Horse Formulae of D-tartaric acid.

(b) How the configuration of Aldoximes determined? Explain.

2. (a) Discuss E1cB reaction with example. Give mechanism.

(b) What is chemical trapping? How it is useful in the determination of mechanism of the reaction?

3. (a) State and Explain the Curtin-Hammett principle.

(b) Draw the conformation of Acetaldehyde and Ethylene chlorohydrin and explain them.

4. (a) Outline the Synthesis of Carbazole.

(b) Explain isoprene and special isoprene rule with examples.

PART-B (4x12=48)
(Essay Answer Type)

5. (a) What are Chiral biaryls? Give examples and discuss their Stereochemistry.

(b) Assign R/S configuration to the following.

(c) Differentiate between relative and absolute configuration of an optically organic compound with examples.

(d) Explain the determination of configuration of E, Z-isomers by chemical methods.
6. (a) Predict the major product from the following and give reasons.

(i) Erythro-3-Phenyl-2-Butylacetate $\xrightarrow{\Delta} \ ?$

(ii) $\beta, \gamma \xrightarrow{NaOMe} \xrightarrow{MeOH} \ ?$

(b) Explain how the product isolation and detection of intermediate useful in determination of reaction mechanism.

(c) Neomethyl chloride under E2 condition gives 3-Mentene as major product, where as menthylchloride gives 2-menthene, explain.

(d) Complete the following reaction and also give mechanism.

7. (a) Explain the use of spectral methods in conformational analysis.

(b) Draw the staggered conformations of possible diastereomers of 2-3-butanediols and indicate the preferred one for each. Give reasons.

(c) What is Klyne-prelog terminology? Illustrate with examples.

(d) Explain the reactivity of (2S), (3R)-2, 3-dibromobutane and (2R), (3R) – dibromobutane towards iodide induced debromination.

8. (a) Explain Skraup Synthesis of Quinoline with mechanism.

(b) Give an account of the structure determination of $\alpha$-terpineol.

(c) Outline the synthesis of Papaverine.

(d) Complete the following with mechanism.