

FACULTY OF SCIENCE

M.Sc. III – Semester Examination, December 2016

Subject: Organic Chemistry

Paper – II

Asymmetric Synthesis, Synthesis Strategies & Heterocycles

Time: 3 Hours

Max.Marks: 80

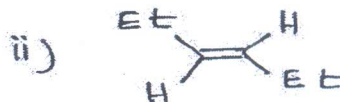
Note: Answer all questions from Part-A and Part-B.

Each question carries 8 marks in Part-A and 12 marks in Part-B.

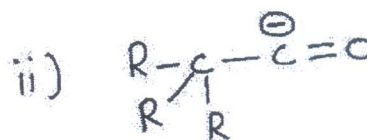
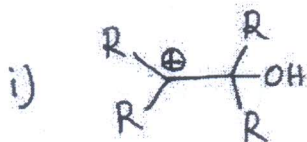
PART – A (4x8 = 32 Marks)

[Short Answer Type]

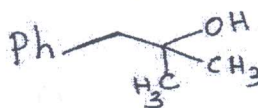
- 1 a) Define and explain the following terms with an example each. 4
 i) Diastereomeric excess
 ii) Chiral shift reagents
 b) Assign Si and Re nomenclature to the following compounds. 4



- 2 a) Give the structures of the following: 4
 i) CBS reagent
 ii) DET and $Ti(Opr)_4$ complex.
 b) Explain diastereoselective aldol condensation with one example. 4
 3 a) Give the synthetic equivalents for the following synthons. 4



- b) Suggest retrosynthetic analysis and synthesis of the following compounds. 4



- 4 Offer the explanation for the following: 4
 a) Imidazole undergoes electrophilic substitution only under vigorous conditions. 4
 b) A hydroxyl derivative of pyrimidine is less soluble in water than pyrimidine itself. 4

PART – B (4x12 = 48 Marks)

[Essay Answer Type]

- 5 Discuss the following briefly with suitable examples. 6
 a) What are stereoheterotopic groups / faces? Explain with suitable examples based on symmetry criteria. 6
 b) Enantioselective reactions. 6
 OR
 c) How % ee is determined by specific rotation and chiral derivatising agents? Explain. 6
 d) Write a brief note on methods of inducing enantioselectivity. 6

