

Roll No. Total No. of Pages : 02

Total No. of Questions: 09

M.Sc. (Chemistry) (2015 to 2017) (Sem.-1)
ORGANIC CHEMISTRY
Subject Code : MSCH-102

M.Code: 71596

Time: 3 Hrs. Max. Marks: 100

#### **INSTRUCTION TO CANDIDATES:**

1. Attempt Five questions in all including question no. I which is compulsory and selecting one each from Unit I to IV.

2. All Questions carry equal marks.

Q1. (a) Define linear and convergent synthesis.

- (b) Write a reterosynthethetic analysis for the protection of carboxylic group.
- (c) Write the reaction and name the catalyst used in Gilman's reagent.
- (d) Offer a suitable mechanistic pathway for the following transformation:

- (e) Discuss the use of ionic liquids in the synthesis of organic compounds.
- (f) How enantiomeric purity can be determined with NMR spectroscopy.
- (g) What do you understant by enantio-discrimination?
- (h) How is pyrrole prepared?
- (i) Write a short note on the reaction of chromones.
- (j) How the pyrylium salt is synthesized?

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#### **UNIT-I**

- Q2. (a) Discuss the protection and deprotection of amines.
  - (b) Discuss the use of dithiones in the synthesis of organic compounds (umpolung reaction).
- Q3. (a) Explain the applications of green chemistry to organic synthesis.
  - (b) Write a short note on synthon and synthetic equivalent with suitable examples.

### **UNIT-II**

- Q4. How Wilkinson's catalyst, crown ethers and dicyclohexylcarbodimide are useful reagents for synthesis of organic compounds. Discuss with suitable examples.
- Q5. (a) Write a short note on Merrifield resin.
  - (b) With suitable example, illustrate the use of 2,3-dichloro-5,6-dicyano-l,4-benzoquinone and trimethylsilyl iodide.

## **UNIT-III**

- Q6. What do you mean by asymmetric induction? Discuss in detail for the various methods of asymmetric induction.
- Q7. (a) Write a short note on asymmetric acyl transfer reactions.
  - (b) Discuss the use of chiral quaternary ammonium salts in asymmetric synthesis.

# UNIT-IV

- Q8. (a) Discuss the different methods used in the synthesis of oxiranes and indene derivatives.
  - (b) Outline the methods for the reactions of furan and coumarins.
- Q9. Give the synthesis of following:
  - (a) oxetanes
  - (b) azetidines
  - (c) pyrrolidine
  - (d) pyridones
  - (e) tetrahydrofuran

NOTE: Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

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