

FACULTY OF PHARMACY

M. Pharmacy (Pharmaceutical Chemistry) I – Semester (PCI) (Main & Backlog)
Examination, January 2019

Subject : Advanced Organic Chemistry – I

Time : 3 hrs

Max. Marks : 75

Note : Answer any FIVE questions. All questions carry equal marks.

- 1 a) What are the commonly used methods for determining the mechanisms of a reaction? Explain with suitable examples.
b) Explain the stability of carbocations and carbanions. 7+8
- 2 Discuss the mechanism and synthetic applications of any three of the following named reactions.
a) Ullmann coupling reaction b) Dieckmann reaction
c) Sharpless asymmetric epoxidation d) Michael addition reaction
e) Baeyer-Villiger oxidation 3 x 5 = 15
- 3 a) Explain the role of protection in organic synthesis. Explain how hydroxyl group (1, 2- and 1, 3-diols), carboxyl group are protected and deprotected in organic synthesis. 6
b) Write the method of preparation, mechanism and applications of any three of the following synthetic reagents.
i) N-bromosuccinimide ii) Dicyclohexyl carbodiimide
iii) Diethyl azodicarboxylate iv) Aluminium isopropoxide 3 x 3 = 9
- 4 Discuss the mechanism and stereochemistry of SN^1 and SN^2 reactions. Explain neighboring group participation in such reactions. 15
- 5 a) Discuss the advantages and important guidelines for disconnection of simple molecules in retrosynthesis.
b) Explain 1, 2-, 1, 3-, 1, 4- and 1, 5- difunctionalized disconnections with suitable examples. 7+8
- 6 a) Mention the heterocyclic nucleus present and also the synthesis of following drugs (any three)
i) Metronidazole ii) Celecoxib
iii) Promazine iv) Triamterene 3 x 3 = 9
b) Discuss Saytzeff and Hoffman rules of elimination. 6
- 7 Write a note on (any three)
a) Pinner pyrimidine synthesis b) Smiles rearrangement
c) Wilkinson reagent d) BOP reagent 3 x 5 = 15
- 8 a) Write the steps involved in the synthesis and important use(s) of following drugs :
i) Ketoconazole ii) Alprazolam iii) Mercaptopurine 3 x 3 = 9
b) Discuss the strategies for synthesis of five and six membered rings through disconnection approach. 6
