FACULTY OF SCIENCE

M.Sc. IV – Semester Examination, May / June 2017
Subject: Organic Chemistry
Paper – II
Mechanism of Action of Drugs

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) How are drugs classified based on pharmacological activity? Give one example for each type.
   b) Discuss briefly about the structure of human cell.

2. a) Give the general structure of polymixin and explain its action on cell membrane.
   b) Formulate the synthesis of Nifedipine.

3. a) Give the structural formula of:
   i) Swansonine
   ii) Chloroquine and mention their medicinal use.
   b) Give the synthesis of Tinidazole.

4. a) Write a brief note on vaccines.
   b) Give the biosynthesis of dopamine.

PART – B (4x12 = 48 Marks)
[Essay Answer Type]

5. Discuss briefly the following:
   a) Proteins as drug targets
   b) Ion channels
   c) Enzyme inhibition
   d) Folate metabolism in bacteria

6. a) Formulate the synthesis of trimethoprim and explain its mechanism of action.
   b) Discuss briefly about drugs acting on Na⁺ channels.

OR

   c) Explain the mechanism of action of cephalosporins.
   d) Write a brief note on drugs acting on K⁺ channels.
7 Discuss briefly the following:
   a) DNA – intercalating agents
   b) ACE inhibitors

OR

c) Formulate the synthesis of A2T and explain its mode of action.

d) Give the structure of tetracycline and explain how it interferes with the translation process.

8 a) Give the synthesis of Ranitidine and mention its pharmacological activity.
   b) Write a brief note on cholinergic receptor antagonists.

OR

c) Formulate the synthesis of metaprolol and explain its pharmacological activity.

d) Write a brief note on drugs acting on amino acid receptors.