

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) Chloroquin 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
- OR
- 6 a) Formulate the synthesis of trimethoprim and explain its mechanism of action.
b) Discuss briefly about drugs acting on Na⁺ channels.
c) Explain the mechanism of action of cephalosporins.
d) Write a brief note on drugs acting on K⁺ channels.

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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 metoprolol and explain its pharmacological activity.
- d) Write a brief note on drugs acting on amino acid receptors.