FACULTY OF SCIENCE
M.Sc. IV Semester Examination, May/June 2012
ORGANIC CHEMISTRY
Paper – II (402) : Mechanism of Action of Drugs

Time : 3 Hours

Note: Answer all questions.

SECTION – A

(4x8=32 Marks)

1. a) Explain the principles of enzyme inhibition.
   b) What are neurons ? Describe the nervous system.

2. a) Describe the synthesis of sulpha guanidine from aniline.
   b) Explain the mechanism of action of trimethoprim.

3. a) Present a synthesis of metronidazole.
   b) What is AZT ? Write its structure and explain its importance.

4. a) What are the structures of L-Dopa and chlorpromazine ? Describe their pharmacological activities.
   b) Explain the pharmacological activities of metaprolol and atenolol.

SECTION – B

(4x12=48 Marks)

5. a) Explain the structure of human-cell and the importance of proteins and carbohydrates.
   b) Describe the immune system and principles of enzyme inhibition.
   OR
   c) What are receptors ? How are they classified and explain their importance.
   d) Discuss the structure of bacterial cell wall and folate mechanism in bacteria.

6. a) Explain the mechanism of action of penicillins and cephalosporins.
   b) Outline the synthesis of cycloserine and describe its importance.
   OR
   c) What are beta-lactamase inhibitors ? Explain the mechanism of action of sulbactam and clavulanic acid.
   d) What do you understand by drugs acting on ion-channels ? Present a sequential synthesis of nefedipine.

(This paper contains 2 pages)
7. a) What are anti-cancer agents? Explain their mechanism of action with an example.
   b) Describe the synthesis of ofloxacin and explain its therapeutic uses.

   OR

c) What are anti-leprosy agents? Name any two of them. Describe their mechanism of action.

d) Discuss the importance and synthesis of omeprazole from the basic stage.

8. a) Draw the structural formulae of atropine, nicotine and turbocurarine. Explain the biological activity of these drugs.

   b) Describe the synthesis of serotonin and its mode of action.

   OR

c) What are histamine receptor agonists and antagonists? Write the structures and importance of ranitidine and cimetidine.

d) Discuss the synthesis and geological action of Baclofen.