

FACULTY OF SCIENCE
M.Sc. IV – Semester Examination, April / May 2014

Subject: Organic Chemistry
Paper – I: Drug discovery

Time: 3 Hours

Max.Marks: 80

Note : Answer all questions from Part - A and Part - B. Each question carries 4 marks in Part - A and 12 marks in Part - B.

PART – A (4 x 8 = 32 Marks)
[Short Answer Type]

- 1 (a) Define the terms:
 i) Lead ii) Prodrug and give two examples for each.
 (b) Write a brief note on targets for drug action.
- 2 (a) Discuss briefly the SAR studies in sulfa drugs.
 (b) How a biological activity of a drug changes with the variation and position of hetero atoms?
- 3 (a) What are Tafts and lipophilicity constants? Explain their significance in drug design.
 (b) What is QSAR? Illustrate with an example.
- 4 (a) Define and explain the following:
 i) Combinatorial synthesis ii) Combinatorial library
 (b) Draw the structures of
 i) Dilitiozem ii) Propanolol and mention which isomer of them is Eutomer.

PART – B (4 x 12 = 48 Marks)
[Essay Answer Type]

- 5 (a) Explain the concept of "drug pruning" taking morphine as the example.
 (b) Write short notes on clinical trials.

OR

 (c) Discuss briefly the following:
 i) Drug-receptor interactions ii) Natural products as leads
- 6 (a) Explain the development of captopril from its lead molecule.
 (b) What are bioisosteres? Explain their importance in drug design.

OR

 (c) How the drug oxaminoquin is discovered?
 (d) Discuss briefly the role of following strategies in development of drugs
 i) Extension of structure and ii) Ring expansion contraction
- 7 (a) Write short notes on:
 i) Toplin method ii) Craig's plot iii) Cluster significant analysis

OR

 (b) Explain linear and non-linear relationship between log P and biological activity.
 (c) Explain the use of Hammett substituent constant in QSAR study with an example.
- 8 (a) Write a brief note on:
 i) Automated parallel synthesis ii) High through put screening.
 (b) Outline the synthesis of S-Naproxen.

OR

 (c) What is three-point contact model? How it helps in discriminating enantiomers?
 (d) Describe the Haughton's tea bag procedure.
