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

1. (a) Explain the terms prodrug and me too drug taking suitable examples.
   (b) Explain the discovery of penicillin.

2. (a) Differentiate the terms isosteres and bioisosteres with examples.
   (b) Apply the principles of ring fusion and variation of alkyl substituents to the
   following and write the resulting structures. Explain the increase in biological activity.

![Chemical Structure]

3. (a) Calculate the log P value for p-Fluoro anisole given the log P values for
   Benzene = 2.13; anisole = 2.11 and fluorobenzene = 2.27.
   (b) State and explain Lipinski’s rule of five.

4. (a) Define eutomer, identify it for the following and write their structures
   (i) Naproxen (ii) Enalapril
   (b) Discuss briefly the solid phase synthesis.

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

5. (a) Explain the structure pruning technique in lead modification taking an example of
   morphine.
   (b) Discuss the principles involved in design of salbutamol.
   OR
   (c) Explain how cimetidine developed from histamine.
   (d) Write short note on clinical trials.

6. (a) Discuss the role of following in drug design.
   (i) rigidification (ii) variation and position of hetero atoms
   (b) Discuss briefly SAR studies on benzodiazepines
   OR
   (c) Explain the principles of molecular modeling.
   (d) Describe the development of oxamquine from its lead.