

UNIVERSITY OF JAFFNA, SRI LANKA

BACHELOR OF PHARMACY

THIRD YEAR SECOND SEMESTER EXAMINATION – AUGUST 2016

PHAMC 3202 MEDICINAL CHEMISTRY II

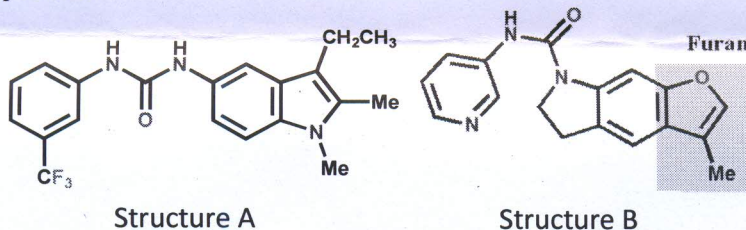
11.08.2016

Time – 2 hour

Answer all Eight Questions.

- 1 1.1 Illustrate the structural characteristics of a local anesthetic using a diagram. (30 Marks)
- 1.2 Describe the mode of action of a local anesthetic using a schematic diagram. (30 Marks)
- 1.3 Draw the synthetic route of two intravenous and two gaseous general anesthetics. (40 Marks)

- 2 2.1 Draw the structure of serotonin. (20 Marks)
- 2.2 Structure A synthesized as a lead compound for the 5-HT_{2C} receptor by a pharmaceutical company. Explain how structure A is converted to structure B through the drug optimization process. (50 Marks)



- 2.3 Describe an *in vitro* test to determine the Equilibrium dissociation constant (K_d) of structure B. (30 Marks)
- 3 3.1 Draw the structure of tautomers of histamine and explain its chemical properties. (30 Marks)
- 3.2 List the histamine receptors and describe their functions. (30 Marks)
- 3.3 Draw the structure of N^α-Guanyl histamine and explain why it acts as a partial agonist. (40 Marks)
- 4 4.1 Draw the schematic diagram of a Proton Pump and explain its function. (40 Marks)
- 4.2 Draw the structure of two Proton Pump Inhibitors (PPIs). (20 Marks)
- 4.2 Explain the mechanism of action of PPI with diagrams. (40 Marks)

- 5.1 Draw the structure of three (3) non-steroidal anti-inflammatory drugs. (30 Marks)
- 5.2 Draw the general structure of arylalkanoic acid and explain the structure activity relationship (SAR) (70 Marks)
- 6.1 Draw the pharmacophore of morphine (20 Marks)
- 6.2 Describe the structure activity relationship (SAR) of morphine. (40 Marks)
- 6.3 Describe the structure activity relationship of Enkephalins (40 Marks)
- 7.1 Describe the mechanism of actions of thyroxine (T_4). (20 Marks)
- 7.2 Draw the chemical synthetic route of thyroxine. (40 Marks)
- 7.3 Draw a synthetic route of Carbimazole. (40 Marks)
- 8.1 Describe the mechanism of actions of antiepileptic drugs with examples. (60 Marks)
- 8.2 Draw the structure of the antiepileptic drugs given as example in 8.1. (40 Marks)