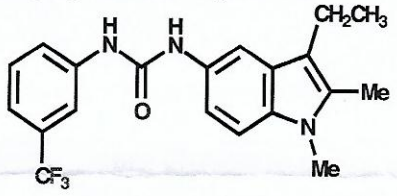
UNIVERSITY OF JAFFNA, SRI LANKA
BACHELOR OF PHARMACY
THIRD YEAR SECOND SEMESTER EXAMINATION – FEBRUARY 2018
PHAMC 3214 MEDICINAL CHEMISTRY II

Date: 02.03.2018 **Time: 2 Hours**

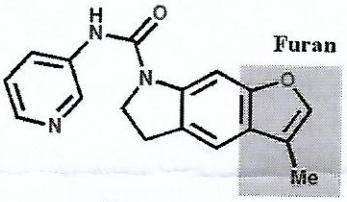
Answer all Six Questions.

1	**1.1**	Draw the structure of two (02) non-steroidal anti-inflammatory drugs (NSAID).	**(20 Marks)**
	1.2	Draw the general structure of following groups of NSAID and describe their structure activity relationship:	
		1.2.1 Salicylates	**(40 Marks)**
		1.2.2 Arylalkanoic acids	**(40 Marks)**
2	**2.1**	Draw the structures of tautomers of histamine and explain its chemical properties.	(30 **Marks**)
	2.2	Give the first experimental evidence to suggest that there are two types of histamine receptors available in a human body.	(20 **Marks**)
	2.3	Explain the reasons for having an electron withdrawing group in thiaburimamide.	**(40 Marks)**
3	**3.1**	Use a schematic diagram to describe the formation of HCl in the parietal cell.	**(30 Marks)**
	3.2	Describe with relevant structures, how the lead compound is converted to omeprazole during the drug discovery.	**(50 Marks)**
	3.3	Draw the synthetic pathway of omeprazole with relevant chemical structures.	**(20 Marks)**
4	**4.1**	Describe the structure activity relationship of Enkephalins.	**(20 Marks)**
	4.2		
		4.2.1 Briefly explain, why enkephalins cannot be used as a therapeutic agent.	**(20 Marks)**
		4.2.2 Give a solution for the above problem.	**(20 Marks)**
	4.3	Draw the structure of morphine and describe its structure activity relationship.	**(40 Marks)**
5	**5.1**	Describe the biological synthetic pathway of dopamine with relevant chemical structures.	(30 **Marks**)
	5.2	Draw the synthetic pathway of following drugs:	
		5.2.1 Levodopa.	**(35 Marks)**
		5.2.2 Carbidopa.	**(35 Marks)**
6	**6.1**	Draw two (02) structures of agonists for serotonin receptor.	**(20 Marks)**

6.2 Structure A synthesized as a lead compound for the 5-HT_{2C} receptor agonist by a pharmaceutical company. Explain with relevant chemical structures, how structure A is converted to structure B through the drug optimization process. **(50 Marks)**



Structure A



Structure B

6.3 Describe an *in vitro* test to determine the equilibrium dissociation constant (Kd) of structure B, mentioned in 2.2. **(30 Marks)**