UNIVERSITY OF JAFFNA, SRI LANKA
BACHELOR OF PHARMACY
THIRD YEAR FIRST SEMESTER EXAMINATION – FEBRUARY 2017
PHAMC 3114 MEDICINAL CHEMISTRY I
PAPER II

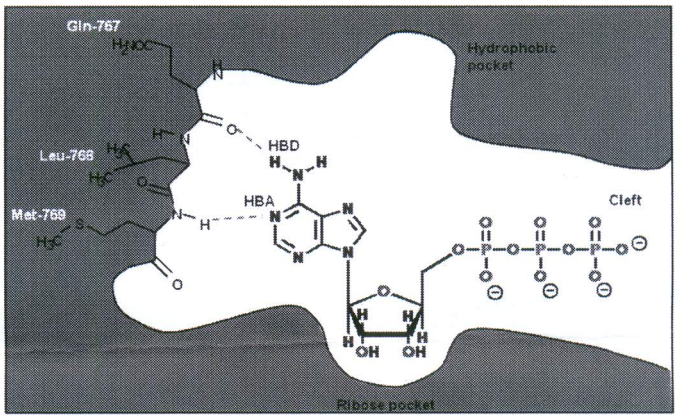
Date: 14/02/2017 **Time: 2 Hours**

Answer all 6 questions.

1	1.1	Draw the structure of acetylcholine and explain why it cannot be used as a therapeutic agent.	**(20 marks)**
	1.2	Describe the structure activity relationship of acetylcholine.	**(40 marks)**
	1.3	Compare the structural similarities and binding interactions between atropine and acetylcholine molecules.	**(40 marks)**
2	2.1	Use the chemical structure to draw the biosynthesis of adrenaline from L-tyrosine.	**(40 marks)**
	2.2	The Isoprenaline molecule has gone through number of steps to be converted to Propranolol. Draw each step in the conversion and explain them.	**(60 marks)**
3	3.1	Draw the structure of Physostigmine?	**(20 marks)**
	3.2	Diagrammatically show how Physostigmine acts on acetylcholine esterase.	**(50 marks)**
	3.3	Describe the structure-activity relationship of Physostigmine.	**(30 marks)**
4	4.1	Define the term prodrug and give an example.	**(20 marks)**
	4.2	Briefly describe the antibacterial action mechanism of Sulphonamides.	**(30 marks)**
	4.3	Draw the structure of Sulphonamide and describe its structure-activity relationship.	**(50 marks)**
5	5.1	List three (03) analogues of chloromethane.	**(15 marks)**
	5.2	Briefly describe the mechanism of action of chloromethine.	**(50 marks)**
	5.3	Draw the mechanism of action of cisplatin.	**(35 marks)**

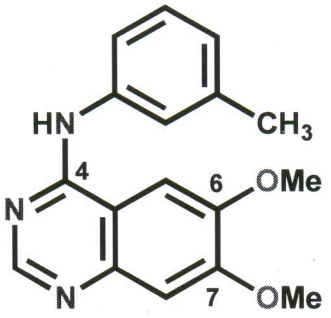
PTO

6 6.1



Describe the ATP binding interactions of the protein kinase receptor with the help of the above diagram. **(60 marks)**

6.2



Structure 1

The structure **1** is the lead compound for the drug discovery of Gefitinib, which is metabolised by cytochrome P450 enzymes.

6.2.1 Draw the metabolic products of the lead compound. **(20 marks)**

6.2.2 Suggest a structural change that can prevent the metabolism. **(20 marks)**