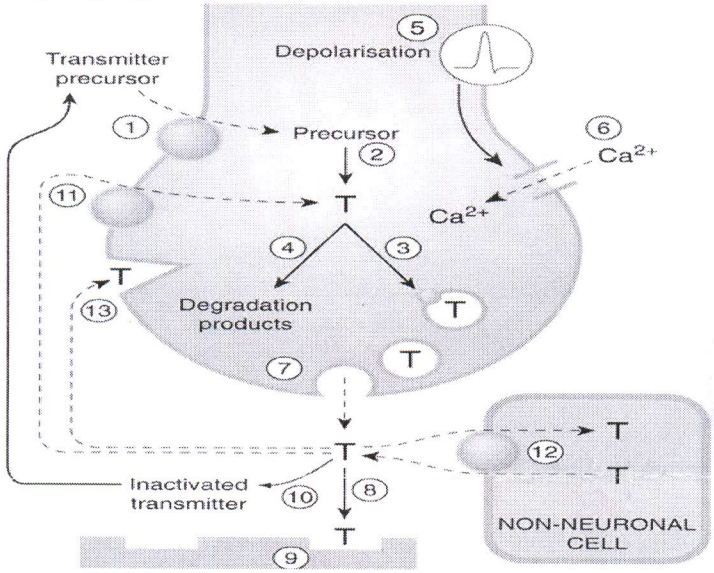
UNIVERSITY OF JAFFNA, SRI LANKA
BACHELOR OF PHARMACY
FOURTH YEAR FIRST SEMESTER EXAMINATION – JULY 2013

PHAMCH 4101 PHARMACEUTICAL CHEMISTRY IV
PAPER II

Date:12.08.2013 **Time: 2 Hours**

ANSWER ALL EIGHT QUESTIONS.

1 1.1 The following diagram describes the nerve transmission process. Name the steps marked 1 to 13. **(50 marks)**



1.2 Describe the Structure Activity Relationship (SAR) of the acetyl choline. **(50 marks)**

2 2.1 List five consequences of genetic defects in the context of cancer. **(20 marks)**
2.2 Write short notes on extrinsic apoptosis pathway with the help of a diagram. **(80 marks)**

3 3.1 What are the differences between type I and type II protein kinase inhibitors? **(20 marks)**
3.2 Give an example for type I and type II protein kinase inhibitors. **(10 marks)**
3.3 Describe the binding interactions of Imatinib with protein kinase. **(70 marks)**

4 4.1 Draw the structure of sulphonamides. **(10 marks)**
4.2 Briefly describe the antibacterial mechanism of sulfonamides. **(40 marks)**
4.3 Describe the structure activity relationship of the sulfonamides. **(50 marks)**

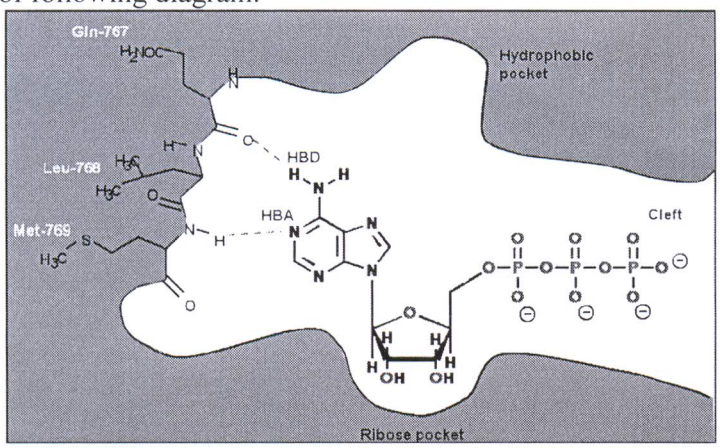
5 5.1 Draw the general structure of the catecholamine. **(10 marks)**
5.2 Draw the biosynthesis of adrenaline using its chemical structure from L-tyrosine. **(50 marks)**
5.3 5.3.1 How Salmeterol differs from Salbutamol? **(20 marks)**
5.3.2 What are the advantages of Salmeterol over Salbutamol? **(20 marks)**

6 6.1 Provide two natural sources to obtain cardiac glycosides. **(10 marks)**

6.2 Describe the mechanism of action of cardiac glycosides. **(40 marks)**

6.3 Describe the structure activity relationship of the cardiac glycosides. **(50 marks)**

7 7.1 Describe the ATP binding interactions of the protein kinase receptor of the help of following diagram. **(70 marks)**



7.2 Sorafenib is a multi-tyrosine receptor kinase inhibitor. Describe its binding interactions. **(30marks)**

8 8.1 Use a schematic diagram to illustrate the signal transduction mechanism of G_s protein. **(40 marks)**

8.2 What kind of drug is Physostigmine? **(10 marks)**

8.3 Describe diagrammatically how Physostigmine acts on acetylcholine esterase. **(50 marks)**