

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

Date: 15/08/2017

Time: 2 Hours

Answer all 6 questions.

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| 1 | 1.1 | List five (05) receptors that can be activated by acetylcholine molecule. | (10 Marks) |
| | 1.2 | Explain reasons for an acetylcholine to activate number of receptors. | (20 Marks) |
| | 1.3 | Describe the steps and rationales involved in the development of bethnechol molecule from acetylcholine, with the relevant chemical structures. | (70 Marks) |
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| 2 | 2.1 | Draw a schematic diagram to indicate the drug targets on the adrenergic neurotransmission. | (30 Marks) |
| | 2.2 | Describe the metabolism of noradrenaline with relevant chemical structures. | (50 Marks) |
| | 2.3 | Explain why the catechol system is not important to the activity of adrenergic antagonist. | (20 Marks) |
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| 3 | 3.1 | Draw the structure of two organophosphates. | (20 Marks) |
| | 3.2 | Draw the mechanism of action of an organophosphate. | (20 Marks) |
| | 3.3 | Explain the reason for parathion to be less harmful to mammals. | (20 Marks) |
| | 3.4 | Diagrammatically show the mechanism of action of acetylcholine esterase. | (40 Marks) |
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| 4 | 4.1 | Give two natural sources of cardiac glycosides. | (10 Marks) |
| | 4.2 | Describe the mechanism of action of cardiac glycosides. | (40 Marks) |
| | 4.3 | Draw the structure of a cardenolide glycoside and describe its structure activity relationship. | (50 Marks) |
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| 5 | 5.1 | Draw the structure of sulphonamide and describe its structure activity relationship. | (40 Marks) |
| | 5.2 | Describe the metabolism of sulphonamide with relevant chemical structures. | (30 Marks) |
| | 5.3 | Describe the mechanism of action of trimethoprim. | (30 Marks) |
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| 6 | 6.1 | Describe the mechanism of action of farnesyl transferase, using relevant chemical structures. | (50 Marks) |
| | 6.2 | Draw the lead compound of a peptide based farnesyl transferase inhibitor. | (20 Marks) |
| | 6.3 | Discuss three modifications that could be made for the above compound to increase its stability. | (30 Marks) |