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UNIVERSITY OF RUHUNA – FACULTY OF ALLIED HEALTH SCIENCES

DEPARTMENT OF PHARMACY

FOURTH B.PHARM PART I EXAMINATION – JUNE 2018

PH 4112 ADVANCED MEDICINAL CHEMISTRY I (SEQ)

TIME: TWO HOURS

INSTRUCTIONS

- Answer **all four (04)** questions.
- No paper should be removed from the examination hall.
- Do not use any correction fluid.
- Use illustrations where necessary.
- Marks will be deducted for illegible hand writing.

01.

1.1 Briefly explain the structural features of Phenylethanolamine group of compounds on α and β adrenoceptor selective activity. ***(30 marks)***

1.2 State the name and a clinical use of a drug derived from each of the following.

1.2.1. 2-arylimidazolines

1.2.2. Phenylpropanolamines

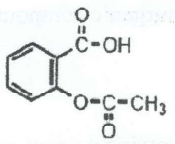
1.2.3. Phenoxybenzamines

1.2.4. Immidazolidines ***(40 marks)***

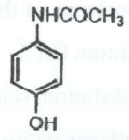
1.3. Briefly explain characteristic structural features of carvedilol necessary for its specific therapeutic activity. ***(30 marks)***

02.

2.1 Identify structure **A** and **B**. ***(20 marks)***



Structure A



Structure B

2.2 State the chemical classes of the parent molecules of compounds belonging to structures **A** and **B**. ***(20 marks)***

2.3 Briefly explain characteristic pharmacodynamic differences of structures **A** and **B**. ***(30 marks)***

2.4 State the structural features responsible for the adverse effects of structures **A** and **B**. ***(30 marks)***

03.

3.1 Briefly explain the essential characteristics of a drug for binding to Histamine$_1$-receptors for their activity. (***20 marks***)

3.2 State the general structure of first-generation antihistamines representing important key pharmacophores responsible for their activity. (***15 marks***)

3.3 Classify first-generation antihistamines based on their chemical nature giving **one** example for each. (***15 marks***)

3.4. Discuss the structure activity relationship (SAR) of local anesthetics. (***40 marks***)

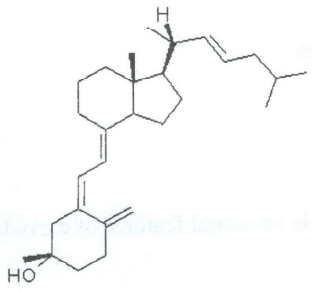
3.5. Draw the chemical structure of Lignocaine/ Lidocaine. (***10 marks***)

04.

4.1.

4.1.1. Identify the drug **A** given below. (***05 marks***)

4.1.2. State **two** uses of the drug A identified above. (***10 marks***)



Drug **A**

4.2. Compare the biological assay with chemical assays. (***10 marks***)

4.3. Mention **three** major types of bioassays. (***15 marks***)

4.4. State the importance of the following inorganic compounds as medicine. (***10 marks***)

4.4.1. Lithium (Li^+)

4.4.2. Gadolinium (Gd^{3+})

4.5. Write the synthesis pathways of the following antacid compounds. (***40 marks***)

4.5.1. Sodium Bicarbonate

4.5.2. Aluminium Hydroxide

4.5.3. Calcium Carbonate

4.5.4. Magnesium Trisilicate

4.5.5. Magnesium Oxide

4.6 List **two** compounds used as saline cathartics. (***10 marks***)

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