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UNIVERSITY OF RUHUNA – FACULTY OF MEDICINE

ALLIED HEALTH SCIENCES DEGREE PROGRAMME

FOURTH BPHARM PART I EXAMINATION – DECEMBER 2015

PH 4112: ADVANCED MEDICINAL CHEMISTRY I (SEQ)

TIME: TWO HOURS

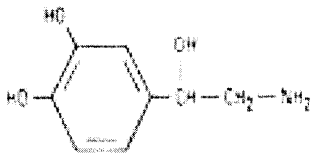
INSTRUCTIONS

- Answer **all** questions.
- Do not use correction fluid.
- Answer questions in the given answer book.
- Marks will be deducted for illegible hand writing.

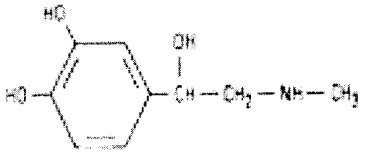
1.

1.1. Give the generic names for the following structures of catecholamine which act as neurotransmitters.

(15 marks)



(A)



(B)

1.1.1. (A).....

1.1.2. (B).....

1.1.3. State in which region on autonomic nervous system is coordinated by above neurotransmitters.

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1.2. Illustrate the bio synthetic pathway of above neurotransmitters. *(20 marks)*

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1.3. Terbutaline is a β_2- adrenergic receptor agonist. Justify this statement considering its structure. *(25 marks)*

1.4. Describe the structure activity relationship of the following drugs. *(40 marks)*

1.4.1. Bethanechol.

1.4.2. Carbachol.

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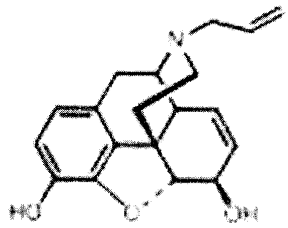
2.

2.1. Structure of Nalorphine is given below.



Nalorphine

2.1.1. Compare the structure of Nalophine with Morphine and state whether it is an agonist or antagonist. ***(20 marks)***

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2.1.2. State the reagents/steps involved in the conversion of Morphine to Nalorphine. ***(25 marks)***

2.2.1. Name five chemical mediators involved in the inflammation & immune reactions. (***15 marks***)

2.2.2. Outline the biosynthetic route of inflammatory mediators. (***20 marks***)

2.3. Both Paracetamol and Mefenamic acid have potent analgesic effects. However, mefenamic acid is considered as a NSAID. Explain.

(20 marks)

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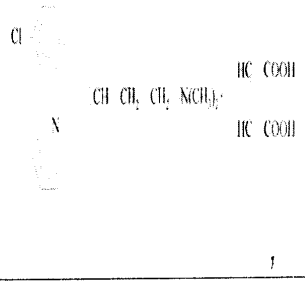
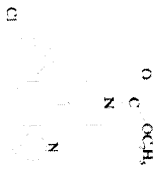
3. Name the structures of the following anti-histamines. ***(10 marks)***

3.1.1..... 	3.1.2..... 

3.2 Which of the above drugs give a non-sedative effect? Give reasons. ***(15 marks)***

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3.3. Give <u>one</u> example and <u>one</u> pharmacological use of the following elements. ***(25 marks)***

3.3.1. Ag -.....

3.3.2. I-.....

3.3.3. Li-.....

3.3.4. Bi-.....

3.3.5. Al-.....

3.4 Name the four fat soluble vitamins and list the diseases caused due to deficiency of each of the above vitamins.

(***08 marks***)

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3.5. Name three components which are joined together to produce folic acid. (***15 marks***)

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3.6. Write down the pathway for the synthesis of *folic acid.* (***17 marks***)

3.7.Define the term 'Bioassay technique'. ***(10 marks)***

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4. Answer **all** questions.

4.1 Briefly explain the meaning of the term "General anaesthetics". (***05 marks***)

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4.2 Group the following general anaesthetics according to the method of administration.

a) Halothane
b) Etomidate
c) Methoxyflurane
d) Thiopental
e) Ketomine (***05 marks***)

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4.3 With the help of a general structure give a summary of the structure activity relationship (SAR) of benzodiazepine and related compounds. (***30 marks***)

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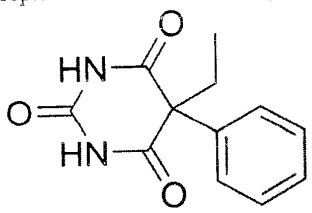
4.4 Draw the structure of halothane and explain how the presence of carbon- halogen bonds affects the anaesthetic activity of halothane. ***(20 marks)***

4.5 Give the generic name, chemical name and structure of the anticonvulsant obtained due to the replacement 'O' at C-2 of phenobarbital with 2H atoms.



Phenobarbital

(20 marks)

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4.6 State the meaning of the term "Antipsychotics". Classify them by giving **two** examples for **one** potent compound from each category.

(20 marks)

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