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UNIVERSITY OF RUHUNA – FACULTY OF ALLIED HEALTH SCIENCES

DEPARTMENT OF PHARMACY

FOURTH BPHARM PART I EXAMINATION – DECEMBER 2017

PH 4112 ADVANCED MEDICINAL CHEMISTRY I (SEQ)

TIME: TWO HOURS

INSTRUCTIONS

- There are **four (04)** questions in the SEQ paper.
- Answer **each** question in a separate booklet provided.
- No paper should be removed from the examination hall.
- Do not use any correction fluid.
- Use illustrations where necessary.

1. Answer **all** parts.

   1.1 State **three** categories of adrenergic agonists based on their chemical structure, giving **one** example for each category. (***30 marks***)

   1.2 Briefly describe the structure activity relationship of R_1, substitution on the amino nitrogen of β-phenylethanolamine adrenergic agonists. (***40 marks***)

   1.3

   1.3.1. Identify the pharmacodynamic "pharmacopore" given in the **Figure A** below. (***10 marks***)

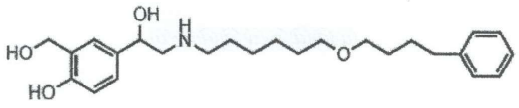

Figure A

   1.3.2. State the therapeutic use of compounds belonging to the pharmacopore mentioned in 1.3.1. (***20 marks***)

2. Answer **all** parts.

   2.1 Describe the structure activity relationship of cholinergic agonists. (***40 marks***)

   2.2. Describe essential requirements at H_1 receptor agonistic activity. (***30 marks***)

   2.3. Explain characteristic chemical features of H_1 and H_2 antagonists. (***30 marks***)

3. Answer **all** parts.

   3.1 Briefly explain the following (your answer should include appropriate chemical structures).

   3.1.1. Phenanthrene group of compounds used as analgesics. (***25 marks***)

   3.1.2. Tricyclic antidepressants. (***25 marks***)

3.2.

3.2.1. What is the principle of a bioassay technique? (***10 marks***)

3.2.2. List **five** limitations of a bioassay technique. (***10 marks***)

3.2.3. Name **five** bench-top and primary bioassay screening methods and **three** High-throughput screening methods. (***10 marks***)

3.2.4. Briefly explain Brine-Shrimp Lethality Assay. (***20 marks***)

4. Answer **all** parts.

4.1. Describe the structure activity relationship of ester local anesthetics. (***50 marks***)

4.2. Draw the synthesis pathway of vitamin A via symmetrical cleavage of β-carotene. (***10 marks***)

4.3.

4.3.1. Draw the structures of vitamin K1. (***05 marks***)

4.3.2. State the function of vitamin K in the human body. (***10 marks***)

4.4. State the **three** main steps in eicosanoid biosynthesis and draw the eicosanoid pathway. (***15 marks***)

4.5. Specify the applications of Ferrous fumarate and Silver nitrate in the medical field. (***10 marks***)

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