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UNIVERSITY OF RUHUNA – FACULTY OF ALLIED HEALTH SCIENCES

DEPARTMENT OF PHARMACY

FOURTH BPHARM PART II EXAMINATION – DECEMBER 2018

PH 4213 ADVANCED MEDICINAL CHEMISTRY II (SEQ)

TIME: TWO HOURS

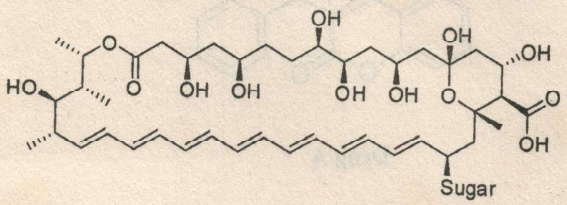
INSTRUCTIONS

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

PART A

1.

1.1 Structure of amphotericin B which is an antifungal drug is given below.



1.1.1 Name the cellular target of this drug. (***05 marks***)

1.1.2 Indicate the region(s) of this molecule responsible for a proper binding with the target. (***05 marks***)

1.1.3 Using an appropriate diagram, briefly explain how amphotericin B acts as an antifungal drug. (***25 marks***)

1.1.4 List **two** drugs belong to the same drug group. (***05 marks***)

1.2 Ketoconazole acts as an antifungal agent by inhibiting 14α-demethylase enzyme.

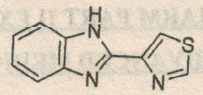
1.2.1 Name the heterocyclic nucleus present in this molecule which is responsible for this activity. (***05 marks***)

1.2.2 State the inhibitory activity of the heterocyclic nucleus named in 1.2.1 inhibits the enzyme 14α-demethylase? (***15 marks***)

1.2.3 Ketoconazole is not co-administered with amphotericin B. Briefly explain. (***15 marks***)

1.3

1.3.1 Identify the following drug molecule. *(05 marks)*



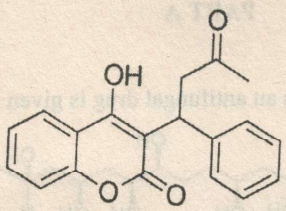
1.3.2 Which class of organic compounds does this drug belong to? *(05 marks)*

1.3.3 State the clinical application of this drug and briefly explain how these drugs show respective activity. *(15 marks)*

PART B

2.

2.1. The structure of drug A is given below.



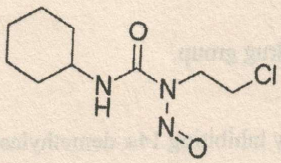
Drug A

2.1.1. Write the generic name of the drug A. *(10 marks)*

2.1.2. Draw the main pharmacophore for the drug A. *(20 marks)*

2.1.3. Discuss the structure activity relationship of the pharmacophore given in 2.1.2. *(30 marks)*

2.2. The structure of drug B is given below.



Drug B

2.2.1. Write the generic name of the drug B. *(10 marks)*

2.2.2. Show by means of a chemical equation the synthesis pathway of the drug mentioned in 2.2.1. *(30 marks)*

3.

3.1. Give **two** examples of calcium channel blockers. ***(10 marks)***

3.2. Mention **two** examples of ACE inhibitors. ***(10 marks)***

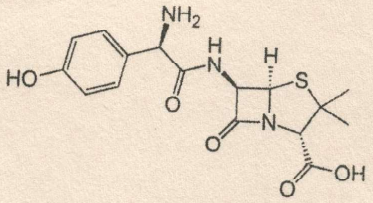
3.3. Discuss the structure activity relationship of the beta blockers. ***(40 marks)***

3.4. Show by means of a chemical equation the synthesis pathway of the propranolol hydrochloride. ***(40 marks)***

4.

4.1. Discuss the structure activity relationship of cimetidine. Your answer should illustrate the structural features. ***(40 marks)***

4.2. The structure of drug C is given below.

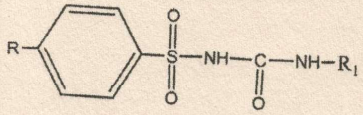


Drug C

4.2.1. Write the generic name of the drug C. ***(10 marks)***

4.2.2. Draw the main pharmacophore for the drug C. ***(20 marks)***

4.3. Explain the structure activity relationship of the pharmacophore given below. ***(30 marks)***



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