THE OPEN UNIVERSITY OF SRI LANKA
FACULTY OF HEALTH SCIENCES
DEPARTMENT OF PHARMACY
ACADEMIC YEAR 2024/ 2025 – SEMSETER I

BACHELOR OF PHARMACY HONOURS
FMU6505 – MEDICINAL CHEMISTRY- LEVEL 6
FINAL EXAMINATION
DURATION: THREE (03) HOURS

DATE: 30TH APRIL 2025 TIME: 1.30 P.M. – 4.30 P.M.

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Part B – Short Answer Questions (20 Marks)

1. Herbs used by humans since ancient times can provide starting points for medicines.

1.1 Define "lead compound". (03 marks)

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1.2 List five (05) sources that can be used for drug discovery. (05 marks)

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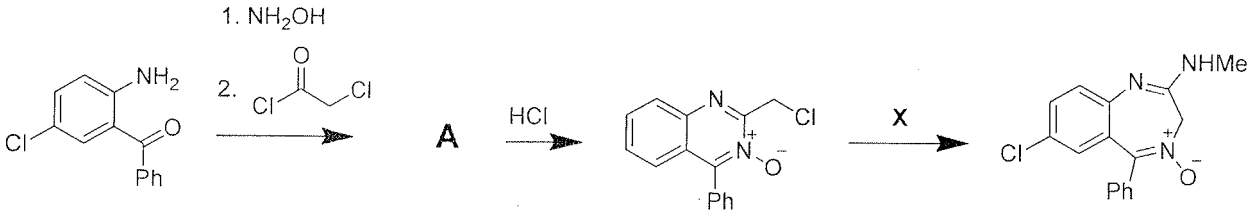
1.3 Give the name of two (02) classes of alkaloids that are currently in pharmaceutical use. (02 marks)

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2. Draw the structures of **X**, **Y**, **A**, **B** and **C**.

2.1



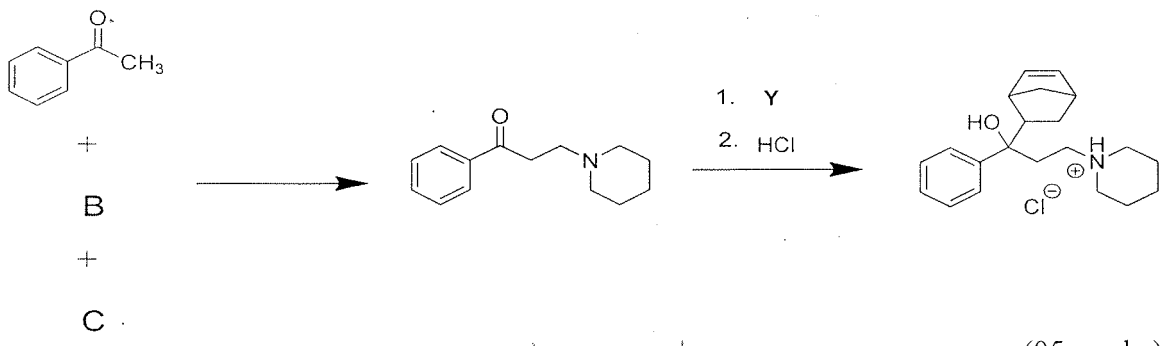
(05 marks)

A - .....

X - .....

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2.2



(05 marks)

B - .....

C - .....

Y - .....

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Part C – 04 Structured Essay Questions (60 Marks)

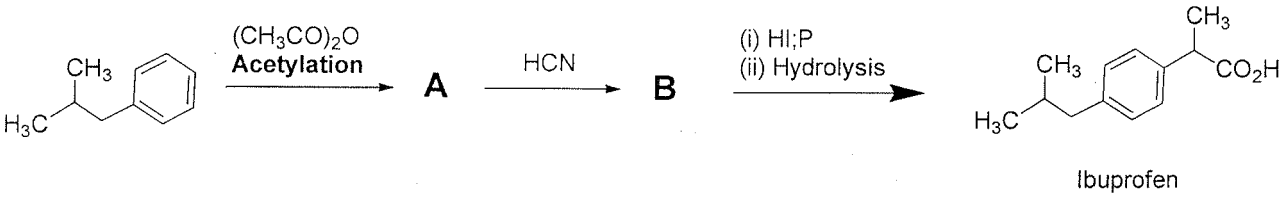
1.

1.1 What is an inflammatory response? (02 marks)

1.2 Give three (03) examples of the drug of choice in inflammatory responses.

(03 marks)

1.3 Give the structures of missing products (A and B) of the following synthesis of ibuprofen.



Ibuprofen

(06 marks)

1.4 Give the structure for suitable starting material for the following synthesis based on the synthesis plan given.



(04 marks)

2.

2.1 State the four (04) main categories of antiviral drugs based on their specific mode of action. (04 marks)

2.2 What is the most important feature of an effective antimalarial compound? (02 marks)

2.3 Give the missing products of the following synthesis of antimycobacterial agent isoniazid.



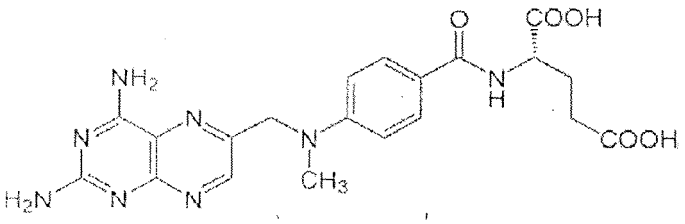
(09 marks)

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3.

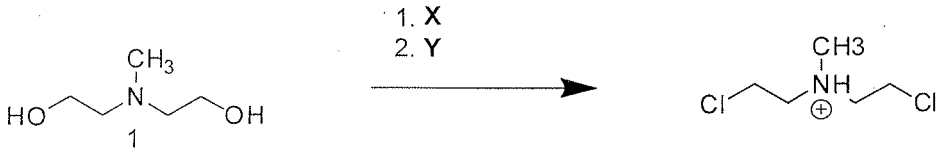
3.1 Define Chemotherapy. (03 marks)

3.2 What is the most probable amino acid used in the synthesis of the following drug?



methotrexate (03 marks)

3.3 Write chemical formula of two (02) reagents (**X** and **Y**) needed for the following synthesis of mustard drug.



(06 marks)

3.4 Draw the structure of the reactive intermediate of this drug.

(03 marks)

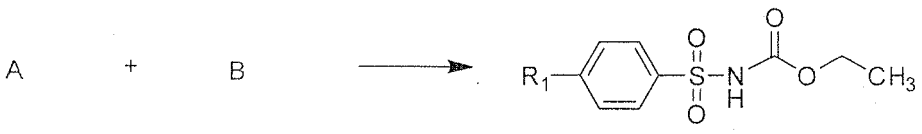
4.

4.1 List three (03) main structural features of insulin. (03 marks)

4.2 Justify the following statement

"Developing orally active or oral hypoglycemic agents for insulin treatment has gained significant attention." (06 marks)

4.3 Give two (02) reagents (X and Y) needed for the following synthesis of oral hypoglycemic agent, sulfonylureas.



(06 marks)