



UNIVERSITY OF JAFFNA, SRI LANKA
FACULTY OF ALLIED HEALTH SCIENCES
FIRST YEAR SECOND SEMESTER EXAMINATION IN BPharmHons-2023
PHACH 1264 PHARMACEUTICAL CHEMISTRY II

Date: 24.06.2025

Time: 3 Hours

ANSWER ALL THE SIX QUESTIONS

1. 1.1 Define 'Elimination Reaction' and give an example. (10 Marks)
- 1.2 List the types of 1,2 (β) Elimination reaction with an example. (20 Marks)
- 1.3 Briefly discuss the factors that determine the rate of the reaction mentioned in question 1.2. (40 Marks)
- 1.4 Briefly discuss the following.
 - 1.4.1 Electrophilic substitution in indole. (20 Marks)
 - 1.4.2 Rearrangement reaction. (10 Marks)

2. Considering the following substrate and reagents, answer the following questions.



- 2.1 Predict the type of reaction and justify the prediction. (20 Marks)
 - 2.2 Define the reaction mentioned in question 2.1. (10 Marks)
 - 2.3 Give the mechanism of the reaction mentioned in question 2.1. (30 Marks)
 - 2.4 Specify the stereochemistry of the product/s. (10 Marks)
 - 2.5 Draw the energy level diagram and indicate the transition state/s. (30 Marks)
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3. 3.1 Draw the structure of the following compounds.
 - 3.1.1 2-Bromobutanamide
 - 3.1.2 3-Chlorobenzamide (20 Marks)
 - 3.2 Briefly explain why the boiling point of amide and alcohol with similar molecular mass show variable. (30 Marks)
 - 3.3 Give three (03) preparation methods of amide. (30 Marks)
 - 3.4 List the pharmaceutical applications of amide. (20 Marks)

4. 4.1 Give two examples for the natural compounds which contain heterocyclic structure. (10 Marks)
- 4.2 List the substitutions' reactions in pyridine and briefly explain them. (50 Marks)
- 4.3 Mention two (02) method to synthesis the pyridine. (20 Marks)
- 4.4 Briefly describe the therapeutic importance of pyridine. (20 Marks)

5. With regard to the following, give final product/s and type of the reaction and diagrammatically show the mechanism of the reactions.



6. 6.1 Write short notes on the following.

6.1.1 Pyrrole (40 marks)

6.1.2 Carboxylic acid (40 Marks)

6.2 Compare the properties of the followings:

6.2.1 Furan and Indole (10 Marks)

6.2.2 Alkene and Alkyne (10 Marks)