UNIVERSITY OF JAFFNA, SRI LANKA
FACULTY OF ALLIED HEALTH SCIENCES

FIRST YEAR SECOND SEMESTER EXAMINATION IN BPharmHons-2020
PHACH 1264 PHARMACEUTICAL CHEMISTRY II

Date: 17.08.2022 **Time: 3 Hours**

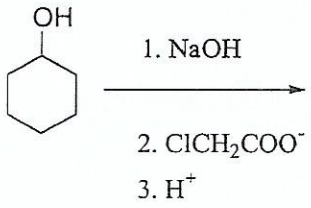
ANSWER ALL THE SIX QUESTIONS

1. **1.1** Define "1,2 (β) Elimination reaction". **(10 Marks)**

   1.2 Write a suitable example for the reaction mentioned in **1.1**. **(20 Marks)**

   1.3 Discuss the factors that determine the rate of the reaction mentioned in **1.1**. **(70 Marks)**

2. **2.1** Considering the following substrate and reagents, answer the following questions.



   2.1.1 Predict the type of the reaction and define it. **(30 Marks)**

   2.1.2 Give the reaction mechanism. **(30 Marks)**

   2.1.3 Specify the stereochemistry of the product. **(10 Marks)**

   2.1.4 Draw the energy level diagram and indicate the transition state. **(30 Marks)**

3. **3.1** Describe the physical and chemical properties of pyrrole. **(30 Marks)**

   3.2 Give the preparation method of pyrrole. **(40 Marks)**

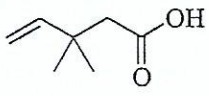
   3.3 Explain why electrophilic substitution in pyrrole takes place at position C-2. **(30 Marks)**

4. **4.1** Give two examples for natural compounds which contains ketone as functional group. **(20 Marks)**

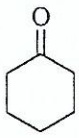
4.2 Briefly explain why ketones have high boiling point compared to alkanes. **(30 Marks)**

4.3 Write the different types of reactions that occur in ketone **(50 Marks)**

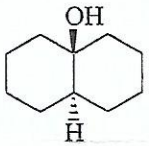
5. **5.1** Give the final products and mechanism of the following reactions.

1. 

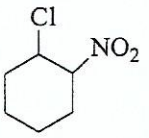
$\xrightarrow[NaHCO_3]{I_2}$

2. 

$\xrightarrow{Ph_3P=CH\text{-}C_2H_5}$

3. 

$\xrightarrow{H^+}$

4. 

$\xrightarrow{NaOH}$

5. 

$\xrightarrow{NaOH}$ **(100 Marks)**

6. **6.1** Write short notes on the followings.

6.1.1 Amines **(35 marks)**

6.1.2 Alcohols **(35 Marks)**

6.2 List the pharmaceutical applications of the followings:

6.2.1 Thiophene **(15 Marks)**

6.2.2 Carboxylic acids **(15 Marks)**