



UNIVERSITY OF JAFFNA, SRI LANKA
FACULTY OF ALLIED HEALTH SCIENCES

FIRST YEAR SECOND SEMESTER EXAMINATION IN BPharmHons-2021
PHACH 1264 PHARMACEUTICAL CHEMISTRY II

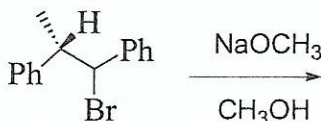
Date: 14.06.2023

Time: 3 Hours

ANSWER ALL THE SIX QUESTIONS

1. 1.1 Define 'Substitution Reaction' with an example. (20 Marks)
- 1.2 1.2.1 List the type of Nucleophilic Substitution Reaction. (15 Marks)
- 1.2.2 Compare each of the Nucleophilic Substitution Reaction with each other. (30 Marks)
- 1.3 Briefly discuss the Nucleophilic Aromatic Substitution reaction. (35 Marks)

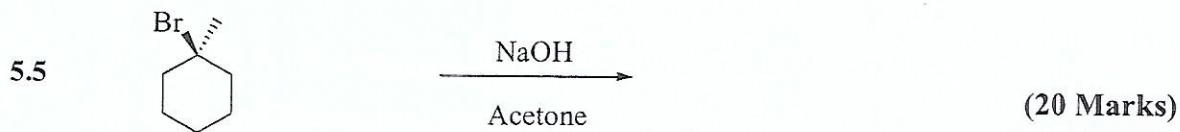
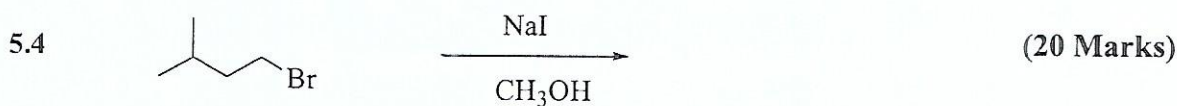
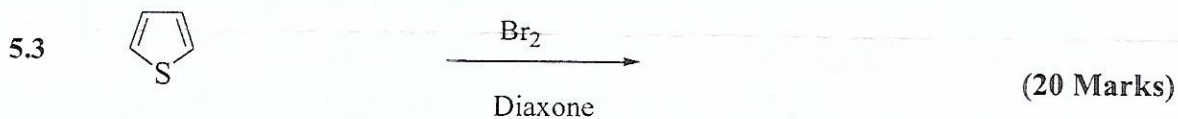
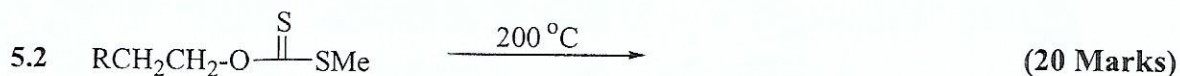
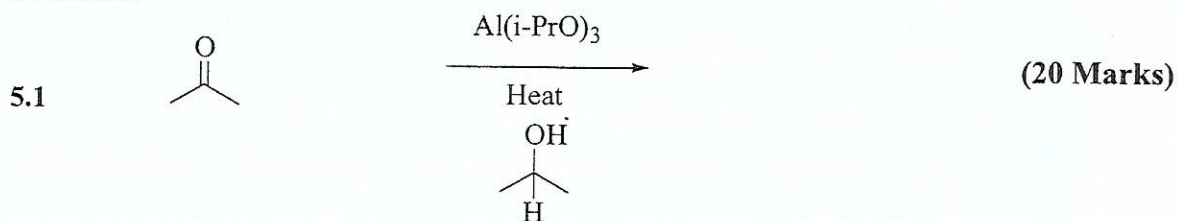
2. Considering the following substrate and reagents, answer the following questions.



- 2.1 Predict the type of reaction with justification. (20 Marks)
- 2.2 Define the reaction mentioned in 2.1.1. (10 Marks)
- 2.3 Give the reaction mechanism. (30 Marks)
- 2.4 Specify the stereochemistry of the product. (10 Marks)
- 2.5 Draw the energy level diagram and indicate the transition state. (30 Marks)
3. 3.1 Draw the structure of the following compounds. (20 Marks)
- 4.1.1 Ethyl ethanoate
- 4.1.2 Ethyl benzoate
- 3.2 Briefly explain why ester is less reactive than acid chloride. (30 Marks)
- 3.3 Give three (03) preparation methods of ester. (30 Marks)
- 3.4 List the applications of ester. (20 Marks)

4. 4.1 Give two examples for natural compounds which contain heterocyclic compounds. (20 Marks)
- 4.2 Answer the followings based on furan:
- 4.2.1 Describe the physical and chemical properties of furan. (30 Marks)
- 4.2.2 List two (02) reactions of furan. (20 Marks)
- 4.2.3 Explain why furan is less reactive than pyrrole. (30 Marks)

5. Give the final products, type of the reaction and mechanism of the following reactions.



6. 6.1 Write short notes on the following.

6.1.1 Ether (35 marks)

6.1.2 Thiophene (35 Marks)

6.2 List the therapeutic importance of the followings:

6.2.1 Indole (15 Marks)

6.2.2 Alkene (15 Marks)