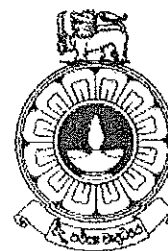


The Open University of Sri Lanka
Faculty of Natural Sciences
B.Sc. Degree Programme



Department	: Chemistry
Level	: 5
Name of the Examination	: Final Examination
Course Code and Title	: CMU3120 Organic Chemistry II
Academic Year	: 2019/2020
Date	: 19 th December 2019
Time	: 1.30 pm to 3.30 pm
Duration	: 2 hours
Index number	:

General Instructions

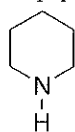
1. Read all instructions carefully before answering the questions.
 2. This question paper consists of **four** questions in **five** pages.
 3. **Answer All four questions. All questions carry equal marks.**
 4. Answer for each question should commence from a new page.
 5. Draw fully labelled diagrams where necessary
 5. Relevant log tables are provided where necessary.
 6. Having any unauthorized documents/ mobile phones in your possession is a punishable offense
 7. Use blue or black ink to answer the questions.
 8. Circle the number of the questions you answered in the front cover of your answer script.
 9. Clearly state your index number in your answer script.
-

1) Answer any **FOUR (04)** parts from (a) – (e).

a) Giving reasons compare the reactivities of pyridine and piperidine with HCl.



pyridine



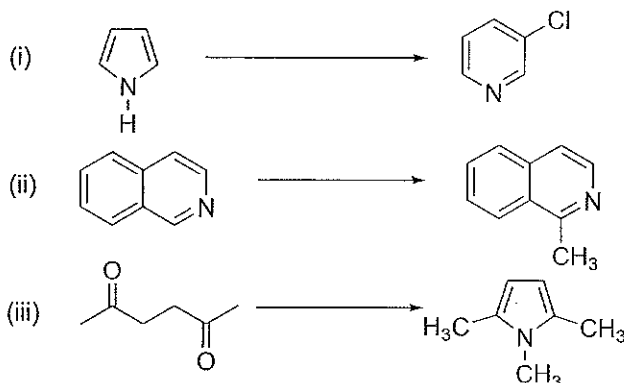
piperidine

b) Explain why nitration of thiophene results in substitution at C-2 position predominantly.



thiophene

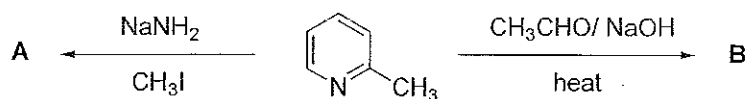
c) Give the suitable reagents and reaction conditions for the following conversions.



d) Using resonance theory show how pyridine oxide can be reactive towards both electrophilic and nucleophilic reagents.

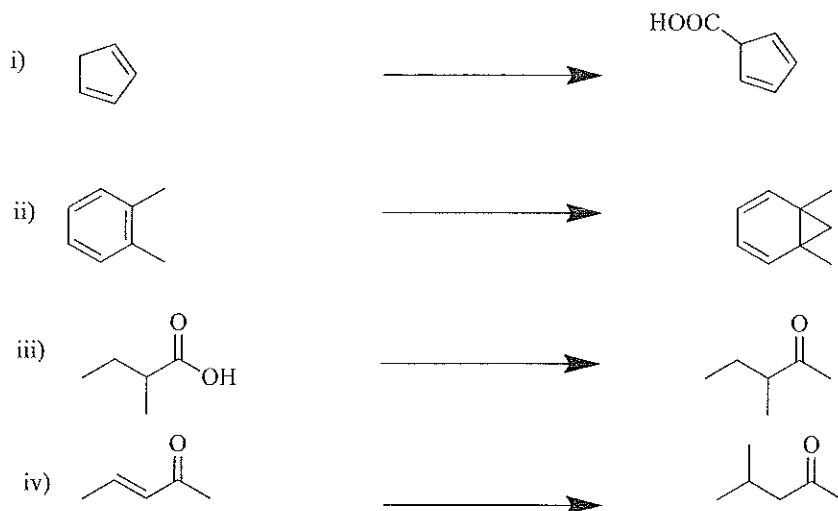
e) Give the possible structures of the products **A** and **B**.

Write the mechanism for the formation of **B**.



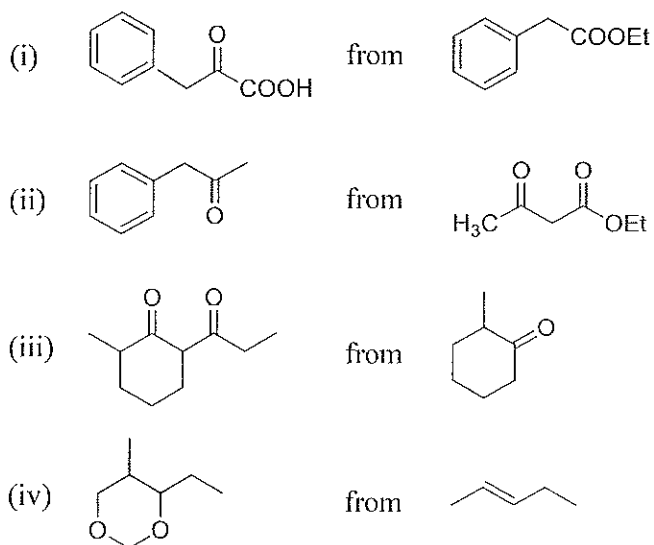
(25 x 4 = 100 Marks)

- 2) (a) Show how would you carry out the following syntheses using **organometallic reagents**.



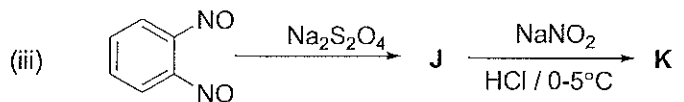
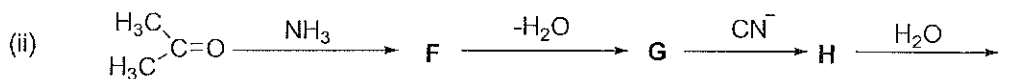
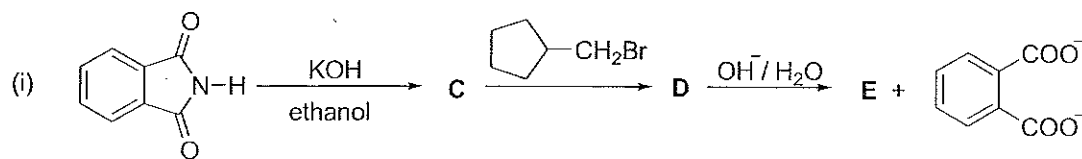
(40 Marks)

- (b) Giving necessary reagents and conditions show how you would carry out any **three (03)** of the following syntheses.



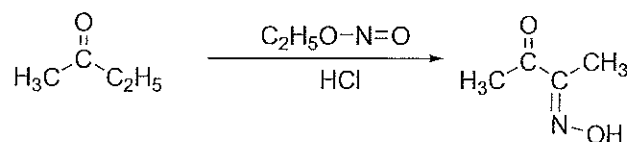
(60 Marks)

3) (a) Give the structures of the compounds C – K in the following reaction schemes.



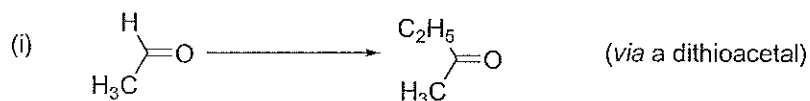
(45 Marks)

(b) Write down the mechanism for the nitrosation reaction given below.



(15 Marks)

(c) Give necessary reagents and conditions to carry out the following multistep transformations.



(40 Marks)

4) (a) Indicate how you would carry out the following synthesis using only the reagents given below. Give the mechanism for the reactions involved.



Reagents:



(40 marks)

(b) Explain the following.

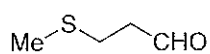
i) Strong acidic condition is unsatisfactory for diazo coupling .

ii) 'Peptide synthesis will encounter many difficulties. Therefore, one should overcome these difficulties before synthesizing the peptide'.

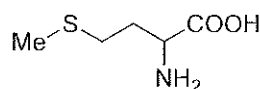
Explain the problems associated with the peptide synthesis in the laboratory.

(40 marks)

(c) How would you prepare methionine using Strecker synthesis using 3-methylthiopropional as starting material?



3-methylthiopropional



methionine

(20 marks)

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