



DEPARTMENT OF CHEMISTRY
SECOND SEMESTER EXAMINATION 2018/2019
SESSION

COURSE CODE: CHM 525

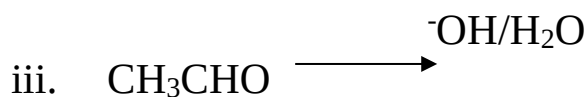
UNITS: 2

TIME 2 HOURS

COURSE TITLE: ORGANIC REACTIONS AND SYNTHESIS

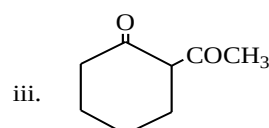
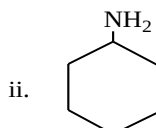
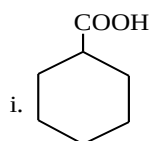
INSTRUCTIONS: Answer Question 1 and Any Two Others

1(a) Give the main product of each of the following reactions:



(6marks)

1(b). Starting from cyclohexanol, how would you carry out the synthesis of:



(6marks)

1(c). Give the mechanism of each of the following named reactions:

i. Claisen reaction

ii. Knoevenagel reaction

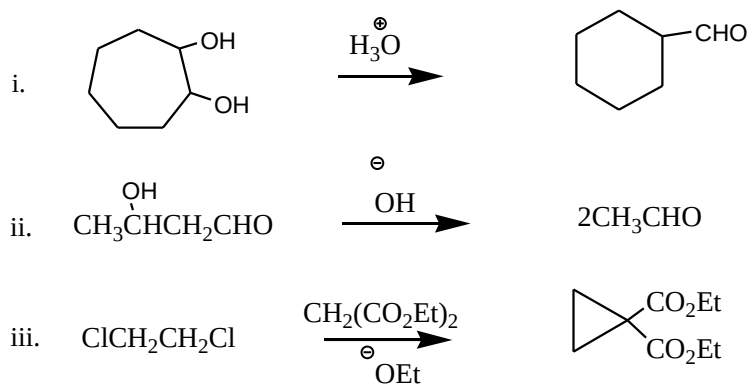
iii. Acetoacetic ester synthesis

iv. Malonic ester synthesis

v. Diels-Alder reaction

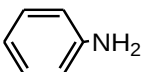
(10 marks)

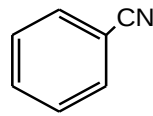
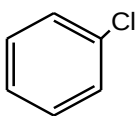
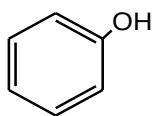
1(d). Show the detailed mechanisms of each of the following transformations:



(6

marks)

2. a. How you can you synthesise the following from 



(6 marks)

2.(contd.) b. Illustrate the following reactions:

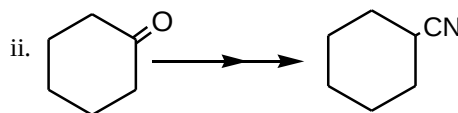
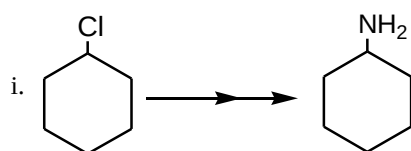
i. Perkins

ii. Robinson

(4 marks)

c. How would you carry out the following synthetic transformations?

:

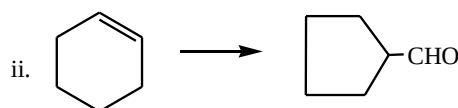
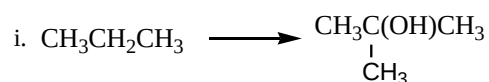


(6marks)

3. a. Suggest the steps involved in the following synthetic transformations

(NB-in each case, more

than one step is required):



(8marks)

b. Give an example of the following reactions:

(6 marks)

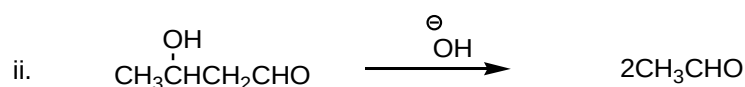
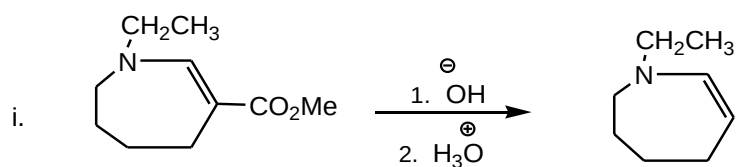
i. Aldol

ii. Dieckmann

c. Discuss the utility of enamines

(2marks)

4. a. Give the mechanisms of the following reactions:



(6

marks)

b. Illustrate the following reactions:

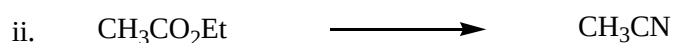
i. Michael

ii. Wolff-Kischner

(6

marks)

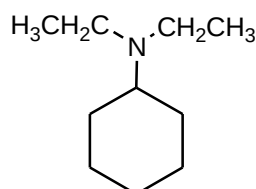
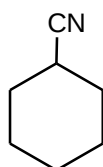
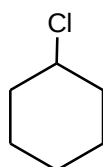
c. Devise reasonable synthetic routes for the following transformations:



(4

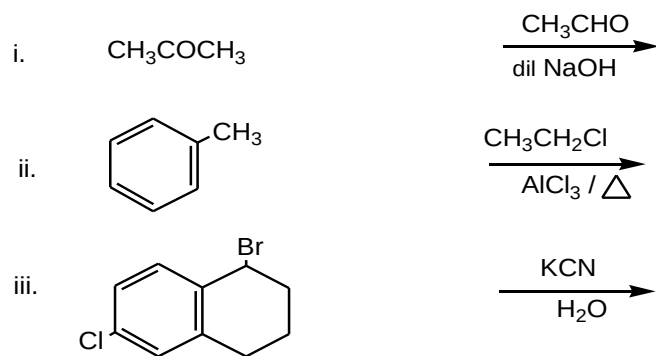
marks)

5. Starting from cyclohexylamine, how would you carry out the synthesis of:



(6marks)

b. Give the main product of the following reactions:



(6

marks)

•

c. Give examples of the following reactions

i, Haloform ii. Wittig

(4

marks)