THE OPEN UNIVERSITY OF SRI LANKA
B.Sc DEGREE PROGRAMME / STAND ALONE COURSE 2011 /2012
LEVEL 5-FINAL EXAMINATION
CMU 3120 / CME 5120 –ORGANIC CHEMISTRY
DURATION: 2-HOURS

Friday 16th December 2011 **1.30 p.m. – 3.30 p.m.**

Answer all FOUR (04) questions.

1) Answer any **four (4)** parts.

(a) Pyridine undergoes electrophilic substitution very slowly while nucleophilic substitution occurs readily. Explain.

(25 marks)

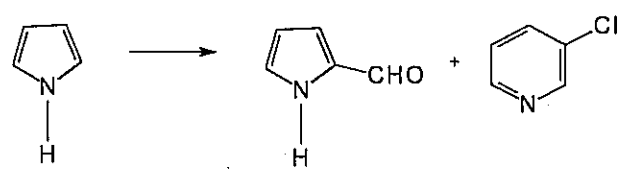
(b) Pyrrole is more reactive than benzene towards electrophilic substitution reactions. Explain

(25 marks)

(c) Pyridine N-oxide undergoes electrophilic substitution more readily than pyridine. Explain.

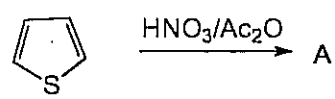
(25 marks)

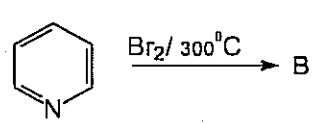
(d) Give the essential conditions and reagents necessary to carry out the following conversion. Give the mechanism for the formation of products.



(25 marks)

(e) Predict the products of the following reactions.

(i) 

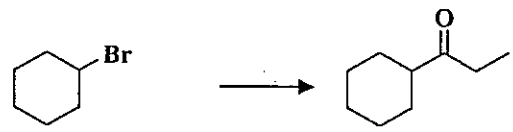
(ii) 

(25 marks)

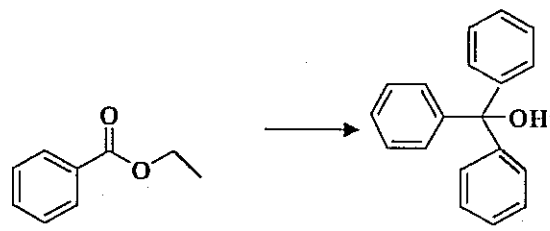
2. (a) Propose suitable synthetic pathways for **any three (03)** of the following transformations.

(i)

(ii)



(iii)

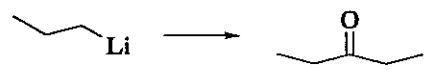


(iv)

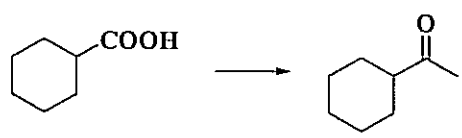
(45 Marks)

(b) How would you effect **any two (02)** of the following conversions. Give the mechanism for the reactions.

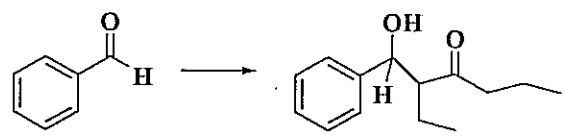
(i)



(ii)



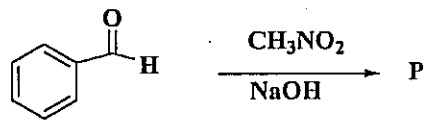
(iii)



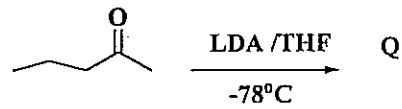
(30 Marks)

(c) Give the structures of the product **P-U** for **any five (05)** of the following reactions.

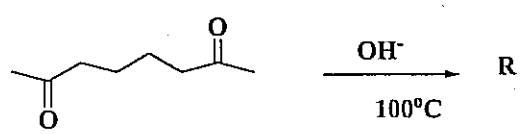
(i)



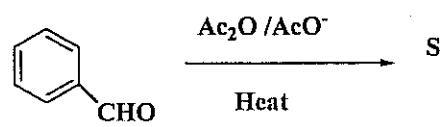
(ii)



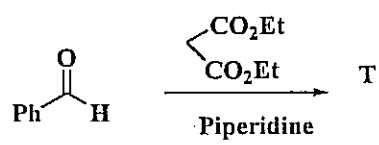
(iii)



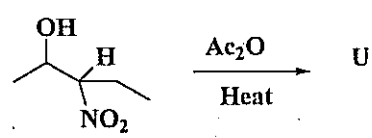
(iv)



(v)

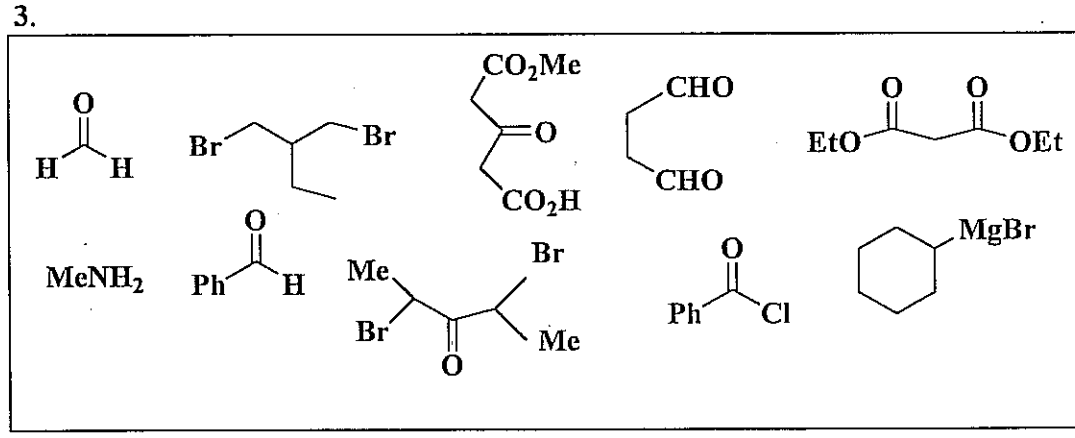


(vi)



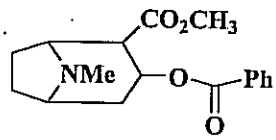
(25 Marks)

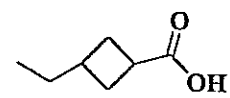
3.

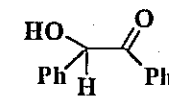


(a) Selecting the correct starting **material/s** out of the compounds shown in the box above. Suggest how you would synthesis of **any two (02)** of the following compounds.

(i) (ii) (iii)



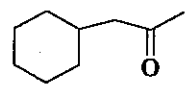


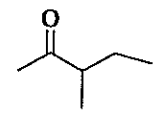


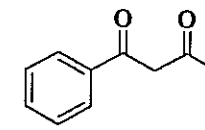
(40 Marks)

(b) Show how you would synthesis **any two (02)** of the following compounds using acetoacetic ester

(i) (ii) (iii)







(40 Marks)

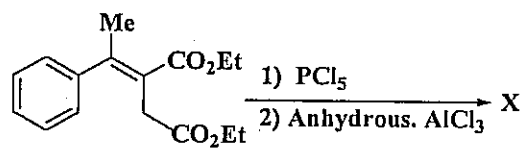
(c) Explain of the following statements.

(i) Diethyl oxalate and ethyl formate act as more reactive carbonyl components than ethyl Acetate.

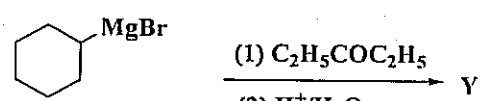
(10 Marks)

(d) Give the products of **any two (02)** of the following

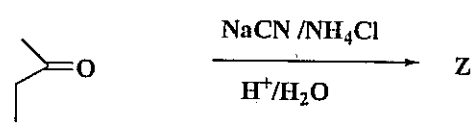
(i)



(ii)

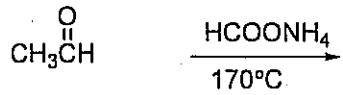


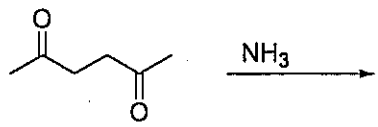
(iii)

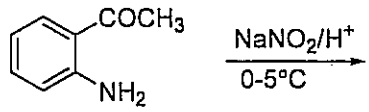


(10 Marks)

4. (a) Identify the final product in **any two (02)** of the following reactions. Give the mechanisms of the reactions.

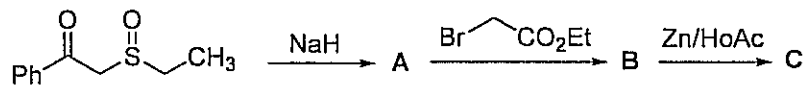
(i) 

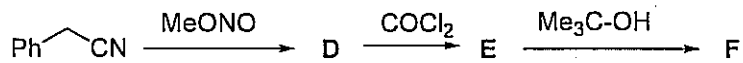
(ii) 

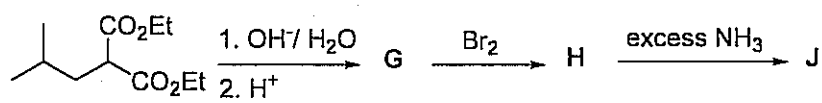
(iii) 

(40 marks)

(b) Identify the compounds **A - J** in **any two (02)** of the following reactions.

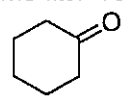
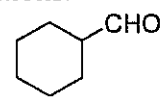
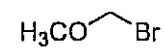
(i) 

(ii) 

(iii) 

(30 marks)

(c) Show how **any one (01)** of the following conversions can be carried out giving the necessary reagents and conditions.

(i) Conversion of  to  using  (via Wittig reaction)

(ii) Conversion of Me_3C-OH to Me_3C-NH_3 using CH_3-C≡N and H_2SO_4 (via Ritter reaction)

(30 marks)