Reg. No: | | | | | | | | | |

Q	Marks	
	Max	Awarded
1	30	
2	30	
3	25	
4	20	
Total		

The Open University of Sri Lanka
B. Sc Degree / Stand Alone Programme 2010/2011
Organic Chemistry - CHU 3126 / CHE 5136
Level 5 - Assignment I – Test
Duration 1½ hours

Wednesday 16th February 2011 Time: 4.00 – 5.30 p.m.

Answer all questions.

Maximum marks allocated to this paper are 105. However a candidate who scores 100 marks or above will be awarded 100% and those scoring less will be awarded the score they make.

1. (a) Draw resonance structures for furan.

(05 marks)

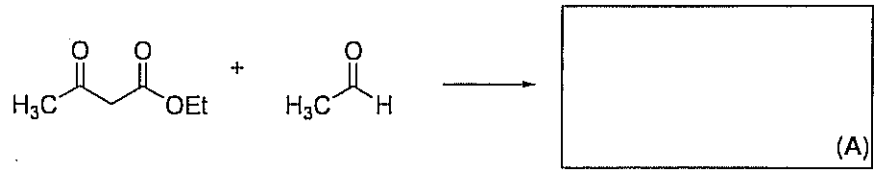
(b) Explain why furan undergoes Diels – Alder reaction with various dienophiles while pyrrole does not.

(10 marks)

(c) Hantzsch pyridine synthesis involves condensation of a β-ketoester with an aldehyde and ammonia. It is believed that the following reactions occur during this synthesis.

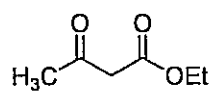
Give the structure of the compound formed in each of these reactions.

(i)



Reg. No: | | | | | | | | | |

(ii)



+ NH_3 ⟶ (B)

(iii)

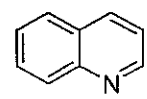
(A) + (B) ⟶ (C)

(15 marks)

2. (a) Identify the structures of the products **D** – **F** formed in the reaction given below.

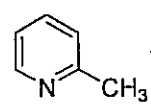
(i)  N-bromosccinimide ⟶ (D)

(ii)  Ac_2O / BF_3 ⟶ (E)

(iii)  1. *n*-BuLi / Δ; 2. H_2O ⟶ (F)

(15 Marks)

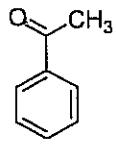
(b) Give the mechanism and the product of the following reaction.

 + CH_3CHO $\xrightarrow[\Delta]{NaOH}$

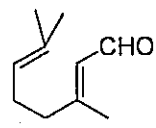
(15 Marks)

Reg. No: | | | | | | | | | |

3. Give the structures of products **A**, **B**, **C**, **D** and **E** of the following reactions.

(i)  1. BrMg−C≡C−OEt; 2. H^+/ H_2O(hydrolysis) → A; H^+/ H_2O → B

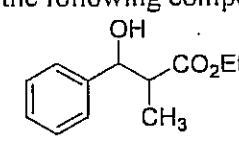
(ii)  + C_2H_5MgBr → C

(iii).  + $CH_3\overset{O}{\overset{\|}{C}}CH_3$ $\xrightarrow[-5\ ^oC]{C_2H_5ONa\ /\ EtOH}$ D

(iv).  + CH_2I_2 $\xrightarrow{Zn(Cu)}$ E

(25 Marks)

4. Propose a method to synthesize the following compound using Reformatsky reaction.



(20 Marks)

The Open University of Sri Lanka
B. Sc Degree / Stand Alone Programme 2010/2011
Organic Chemistry - CHU 3126 / CHE 5136
Level 5 - Assignment II – Test
Duration $1^1/_2$ hours

Q	Marks	
	Max	Awarded
1	30	
2	30	
3	10	
4	40	
Total		

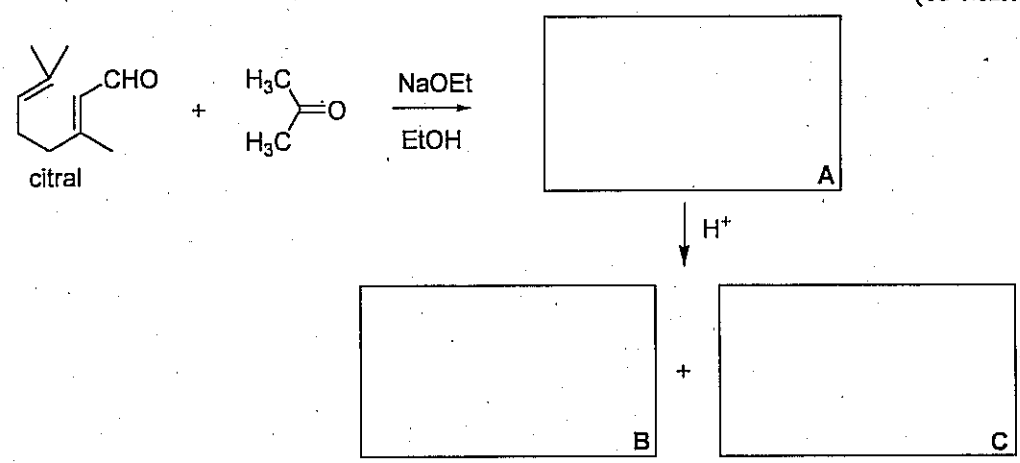
Thursday, 10th 2011 March 4.00 – 5.30 p.m.

Answer all questions.

Maximum marks allocated to this paper are 110. However a candidate who scores 100 marks or above will be awarded 100% and those scoring less will be awarded the score they make.

1. (a) Give the structures of the products of the following reaction scheme.

(15 Marks)



(b) Give the mechanism of formation of **A** from citral.

(06 Marks)

(c) Give the mechanism of formation of **B** and **C** from **A**.

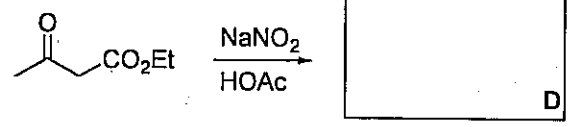
(09 Marks)

Reg. No: | | | | | | | | |

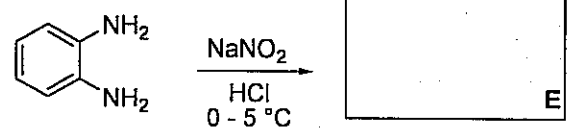
2. Give the structures of compounds (D – I) of the following reaction schemes

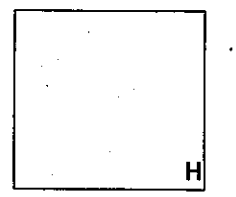
(30 Marks)

(i)

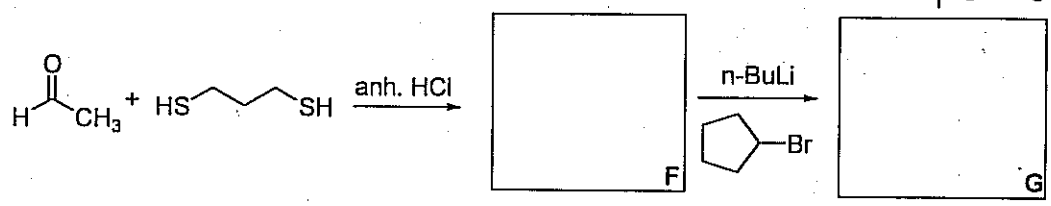


(ii)

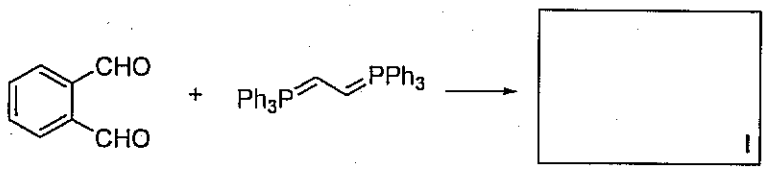




(iii)

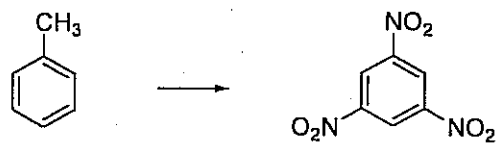


(iv)



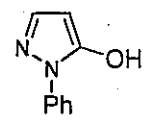
3. Show how you would carryout the following synthesis

(10 Marks)

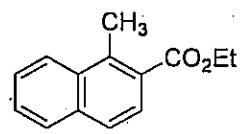


Reg. No: | | | | | | | | |

4. Using appropriate starting materials and giving necessary intermediate compounds show how you would carryout the following syntheses.
   - *One of the starting materials is shown in each case.*

(a)  from $PhNHNH_2$

(20 Marks)

(b)  from CH_2CO_2Et / CH_2CO_2Et

(20 Marks)

B.sc Degree/Stand alone programme 2010/2011
Organic Chemistry II CHU 3126/CHE 5126
Level 5 – Assignment test I- Answer guide

1. (a) Refer page 07,Unit I
   (b) Both compounds are aromatic, but Oxygen is more electro negative than Nitrogen. Therefore lone pair of electrons on oxygen is less available for making aromatic ring(less aromatic) furan is less stable than pyrrole.therefore furan undergoes Diels-Alder reactions.
   (c) Refer pages 19-20, Unit 1

2. (a) Refer (i) page 28, Unit I (ii) page 27,Unit I (iii) page 41, Unit I
   (b) Refer page 17, Unit I
3. Refer (i) pages 10-11, Unit II (ii) page 05, Unit II (iii) page 42, unit II (iv) page 34, Unit II
4. Refer page 32, Unit II

B.sc Degree/Stand alone programme 2010/2011
Organic Chemistry II CHU 3126/CHE 5126
Level 5 – Assignment test II- Answer guide

1 (a) Refer page 42, Unit II
   (b) Refer page 118, Unit II
   (c) Refer pages 96, Unit II

2. (a) Refer (i) page 20, Unit III (ii) page 30,Unit III (iii) page 63, Unit III
   (iv)Refer page 56, Unit II
3. Refer page 27, Unit III
4 (a) Refer page 13, Unit III
   (b) Refer page 51, Unit II