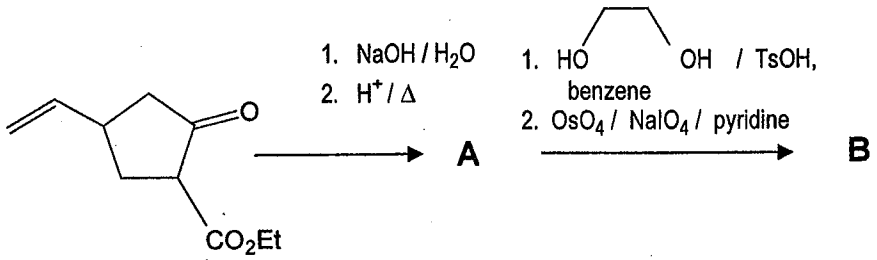
Uva Wellassa University, Sri Lanka
B.Tech. Degree Programme - 2006/07
End Semester Examination- Semester 1
December -2008

CHE 363-2 Organic Synthesis and Reterosynthetic Analysis

Answer four (04) questions only **Time: Two (02) hours**

1. Give the structural formula of the major organic product produced in each of the following reaction. Clearly indicate the stereochemical features, if any.

a.



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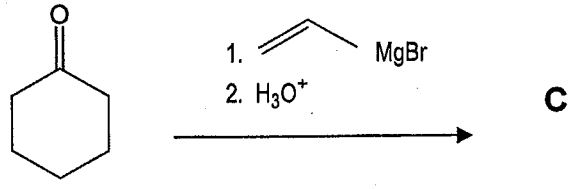

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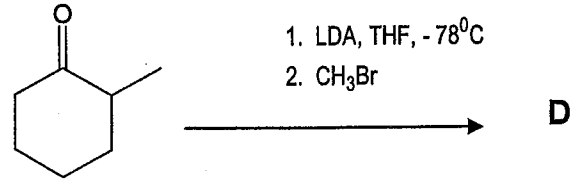

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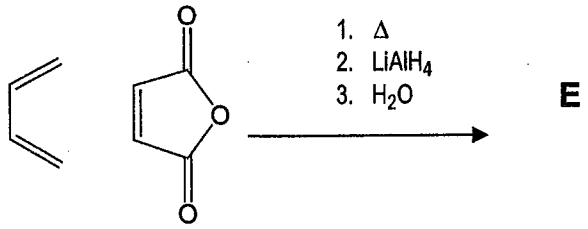
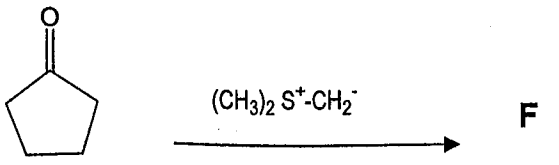


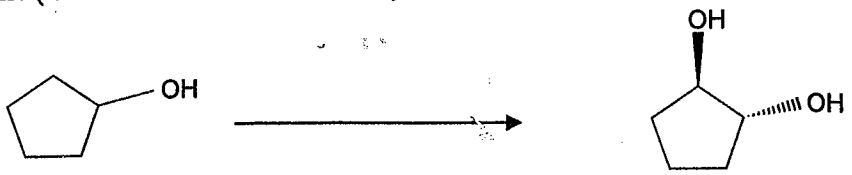
e.



(25 marks)

2. Give the experimental conditions necessary to carry out <u>five</u> of the following transformations. (some transformations may involve more than one step)

a.



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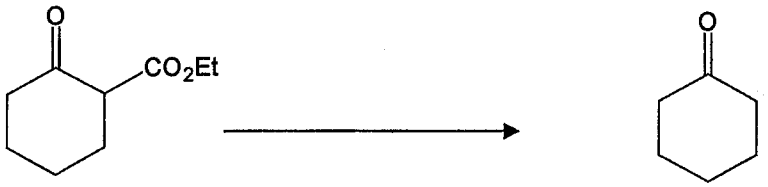

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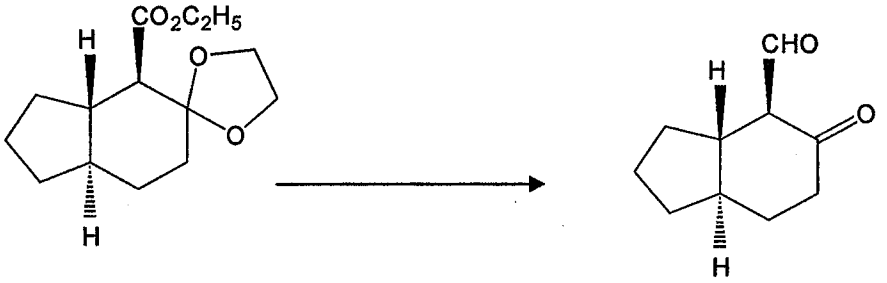

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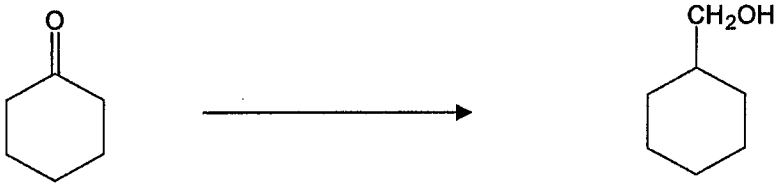

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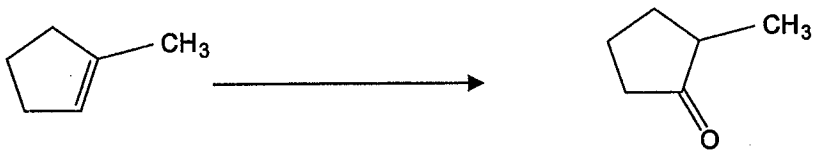
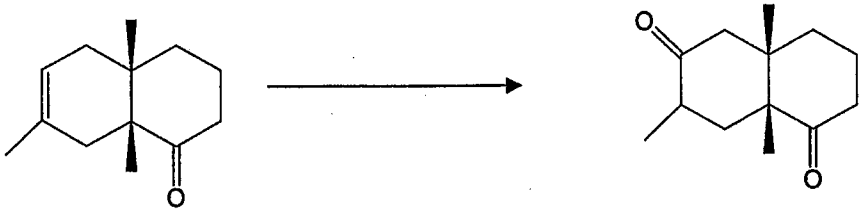
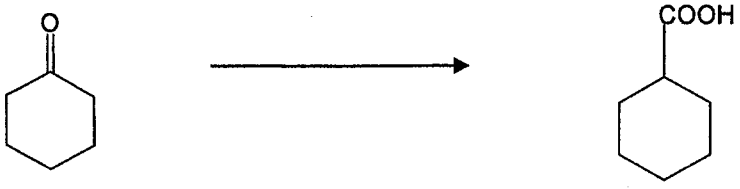


f.



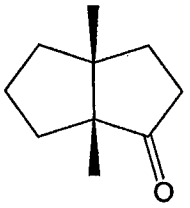
g.



(25 marks)

3. By giving the intermediate structures obtained in each step, give the structures of the products (A-E) formed in any of <u>four</u> transformations.

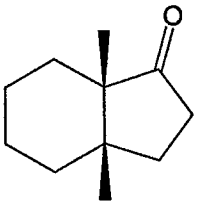
a.

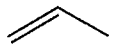
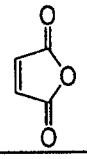


1. LDA/ THF
2. CH_3I
3. CH_3MgBr / ether
4. H_2O

→ **A**

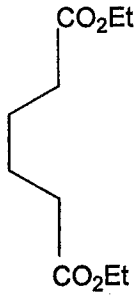
b.



1.  MgBr
2. H_2O
3. H^+ / Δ
4.  , Δ

→ **B**

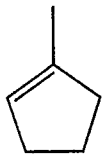
c.



1. NaOEt / EtOH
2. ^-OEt / CH_3I
3. NaOH / H_2O
4. H^+ / Δ

→ **C**

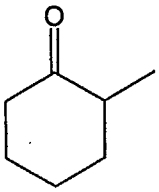
d.



1. BH_3 ; H_2O_2 / NaOH
2. PCC / CH_2Cl_2
3. CH_3MgBr / ether
4. H_2O

→ **D**

e.



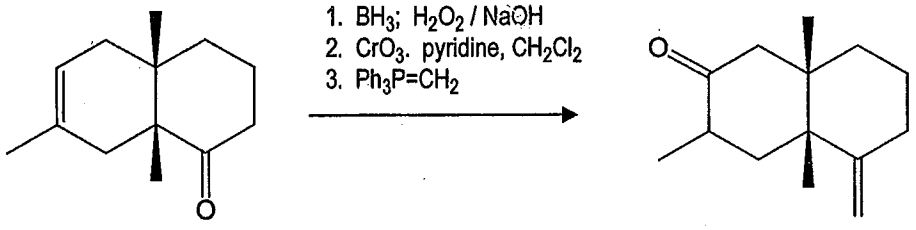
1. Et_3N
2. TMSCl / Δ
3. CH_3Li
4. CH_3I

→ **E**

(25 marks)

4. (i) In the following transformations, given reagents are appropriate for the reaction. But the reaction <u>will not</u> take place as expected. What are the modifications required to obtain the given product.

a.



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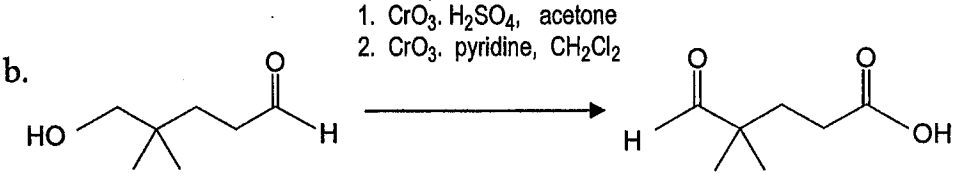

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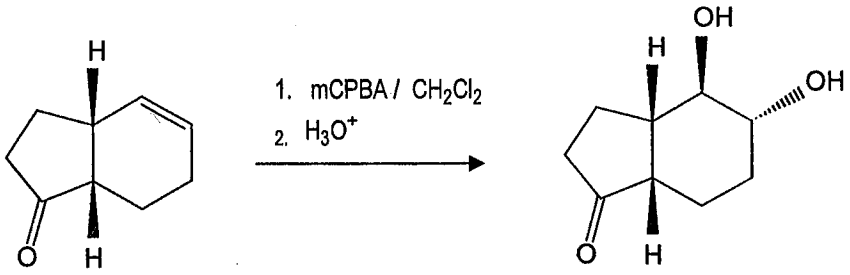
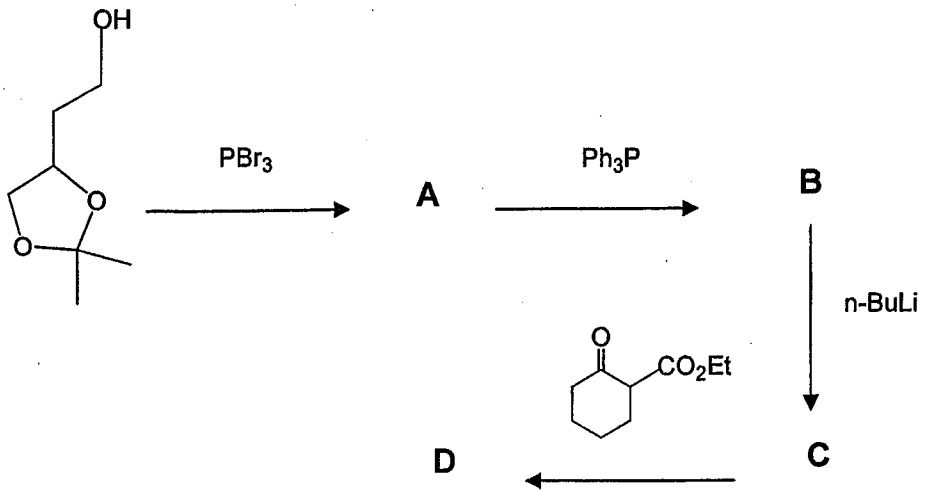
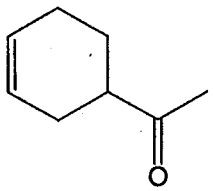


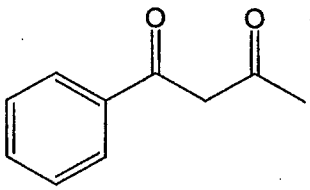
(ii) In the following sequence of reactions, complete the missing structures A, B, C and D.

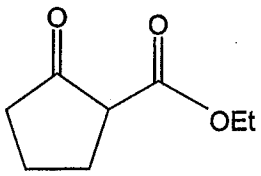


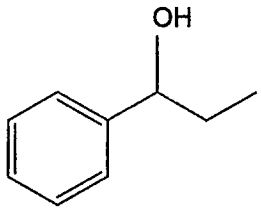
(25 marks)

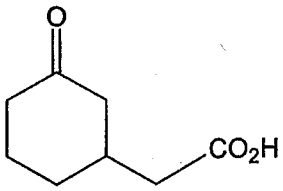
5. By applying reterosynthetic analysis, give a reasonable synthetic route for <u>four</u> of following molecules.

a. 

b. 

c. 

d. 

e. 

(25 marks)