

Index No.

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Name:-.....

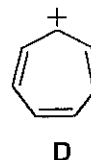
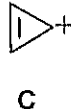
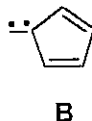
THE OPEN UNIVERSITY OF SRI LANKA
B.Sc Degree Programme and
Stand Alone Courses in Science - 2009/2010
CHU 2221/CHE 4221 - Organic Chemistry
ASSIGNMENT TEST III

Ques No	Max	Marks
1-2	16	
3-6	29	
7-9	32	
10-12	23	
Total	100	

Date: Saturday, 20th March 2010

Time: 1.00 – 2.30 p. m.

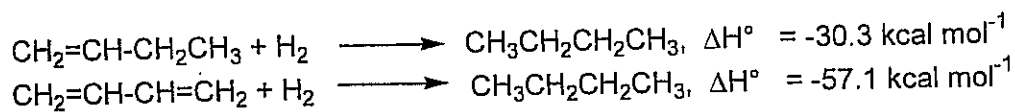
1. Giving reasons state whether each of the following compounds/ions are aromatic or not.



	Whether aromatic or not	Reason
A		
B		
C		
D		

(12 Marks)

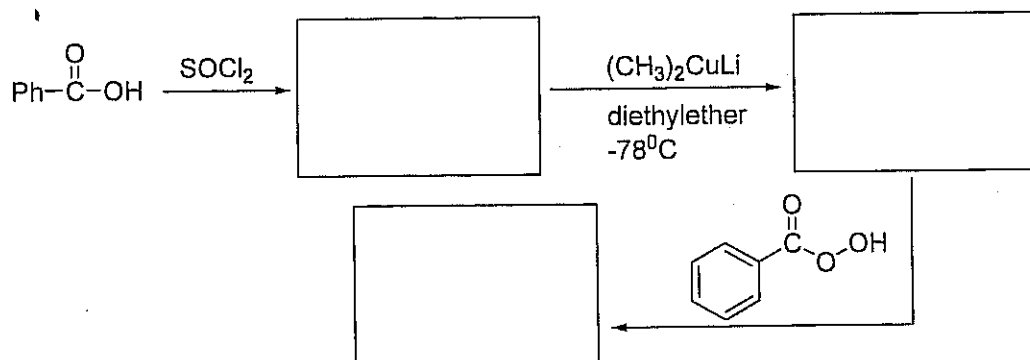
2. Heats of hydrogenation (ΔH°) of 1-butene and 1,3-butadiene are given below.



Calculate the extra stability in 1,3-butadiene due to conjugation.

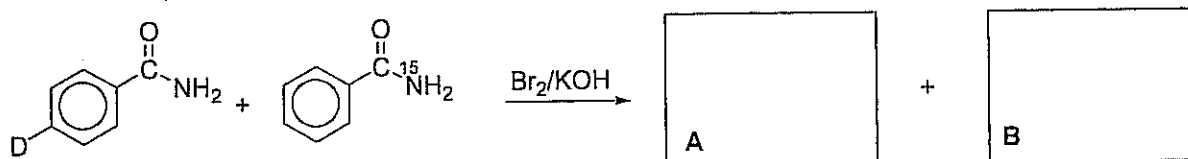
(4 Marks)

3. Complete following reaction scheme.



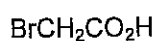
(12 Marks)

4. Predict the structures of the products A and B in the following reaction.

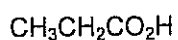


(8 Marks)

5. Arrange the following acids in the order of increasing acidity.



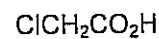
A



B



C

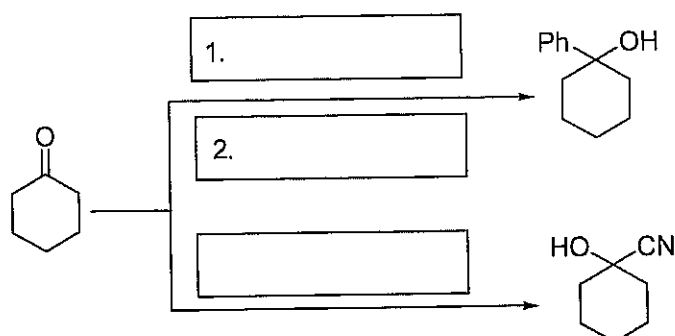


D

..... < < <

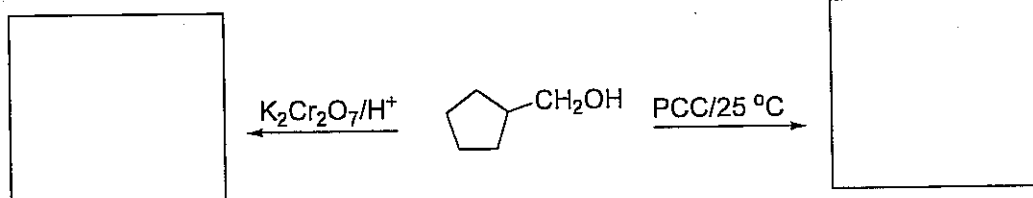
(3 Marks)

6. Suggest suitable reagents for the following conversions.

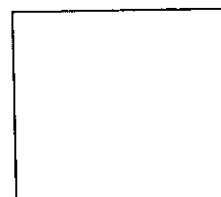
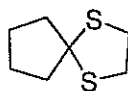
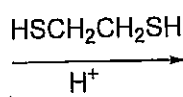
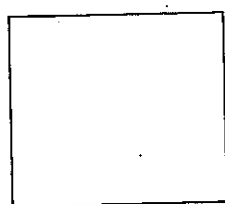
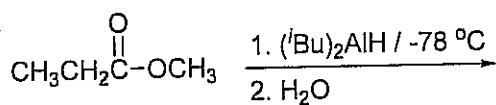
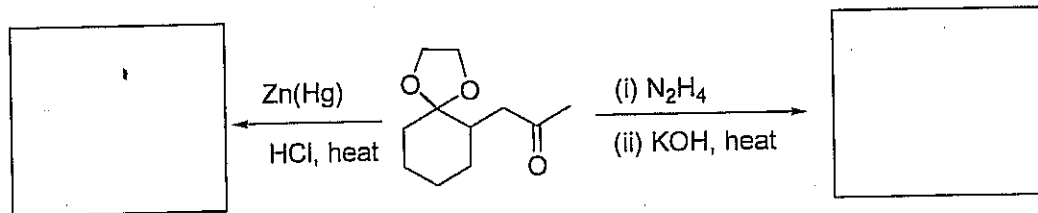


(6 Marks)

7. Give the structures of the products of following reactions.

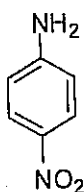


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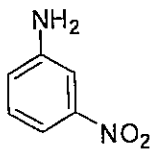


(21 Marks)

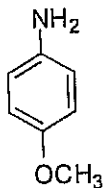
8. Arrange the following amines in the order of increasing basicity.



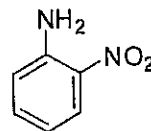
A



B



C

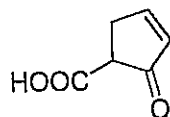


D

..... < < <

(3 Marks)

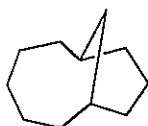
9. (a) Give the IUPAC name of the following compound?



(4 Marks)

.....

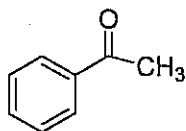
(b) Give the IUPAC name of the following bicyclic compound.



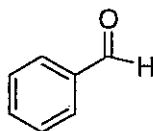
(4 Marks)

.....

10. Giving observations, describe a chemical test to distinguish between the following two compounds.



A



B

(3 Marks)

.....

.....

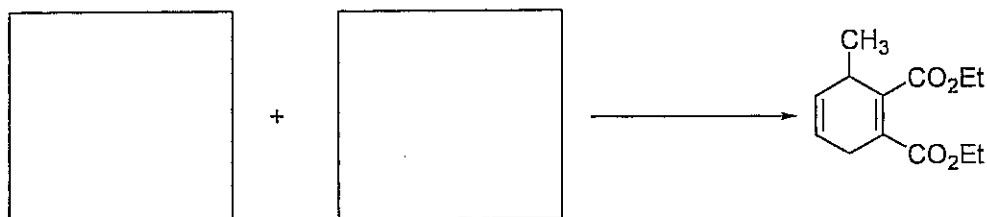
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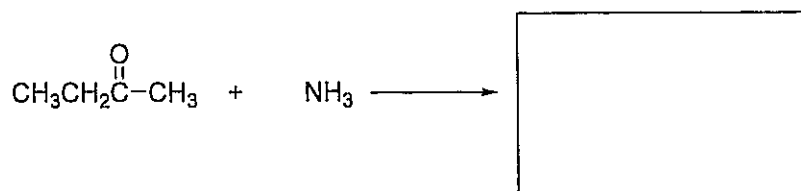
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11. Give the diene and the dienophile that would react to give the following Diels – Alder adduct.



(6 Marks)

13. Predict the product of the following reaction.



(4 Marks)

Suggest a mechanism for the formation of the above product.

(10 marks)

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CHU 2221/CHE 4221 - Organic Chemistry Assignment Test III - Answer Guide

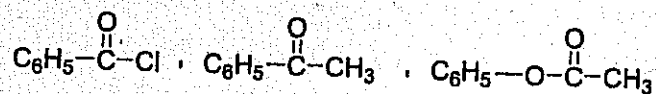


1.

	Whether aromatic or not	Reason
A	Non aromatic	Non conjugated
B	Aromatic	Monocyclic; has 6π electrons which is a Hukel number $(4n+2)$ where $n=1$; planar
C	Aromatic	Monocyclic; has 2π electrons which is a Hukel number $(4n+2)$ where $n=0$; planar, electrons are delocalized in the ring as there is a vacant p orbital at ^+CH
D	Aromatic	Monocyclic; has 6π electrons which is a Hukel number $(4n+2)$ where $n=1$; planar, electrons are delocalized in the ring as there is a vacant p orbital at ^+CH

2. Refer page 12 of CHU 2221 unit IV

3.

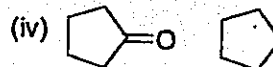
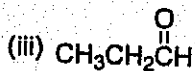
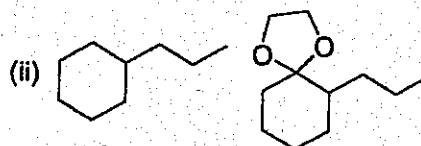
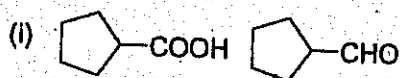


4. Refer page 31 of CHU 2221 unit V

5. $\text{C} < \text{B} < \text{A} < \text{D}$

6. 1. PhMgX 2. H^+ HCN

7.



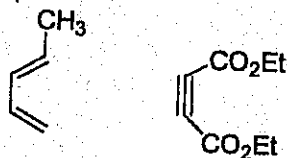
8. $\text{D} > \text{A} > \text{B} > \text{C}$

9. (a) 2-oxo-3-cyclopentenecarboxylic acid

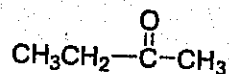
(b) Bicyclo[5,3,1]undecane

10. Refer pages 15, 18 and 19 of CHU 2221 Practical Guide

11.



12.



Refer page 93 of CHU2221 unit IV for the mechanism