

Sultan Qaboos University
College of Science, Department of Chemistry

Chem3322
Organic Chemistry I

Fall 2009

Test 2

Tuesday, 22 December, 2009

Test Duration: 90 minutes

Name: _____ ID: _____

Question	Earned Mark	Maximum Mark
1		10
2		40
3		10
4		20
5		20
Total		100

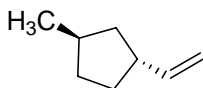
Dr. H. Al Mamari, Fall 2009

Question 1

(10 marks)

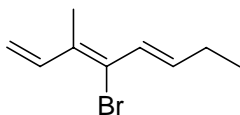
Name the following compounds according to IUPAC rules.

a.



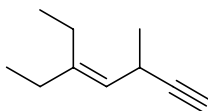
Name: _____

b.



Name: _____

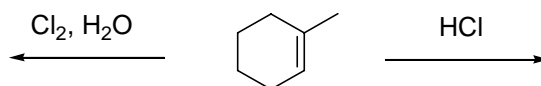
c.



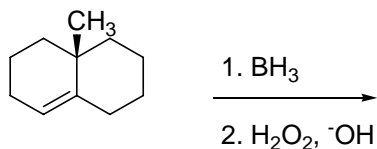
Name: _____

(40 marks)

i.



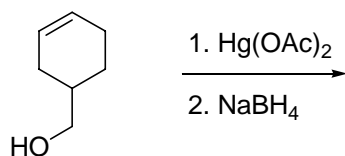
ii.



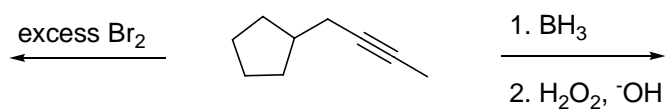
iii.



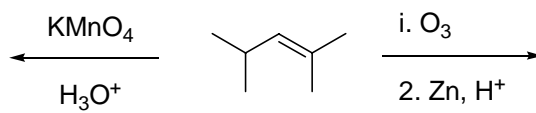
iv.



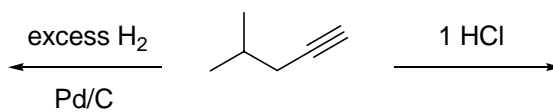
V.



vi.

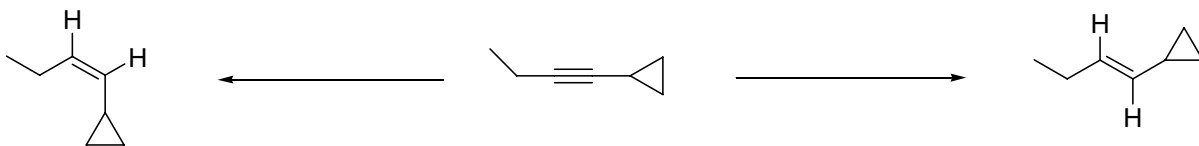


vii.

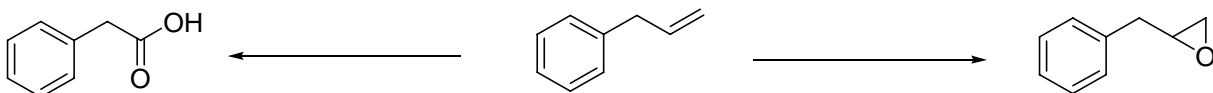


b. Complete the following reactions by writing missing reagents.

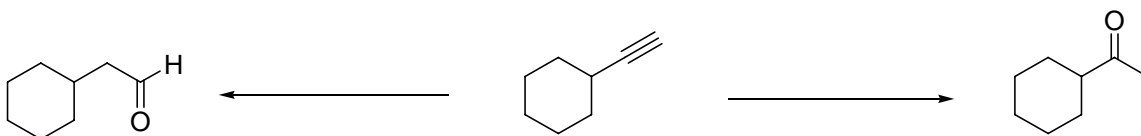
i.



ii.



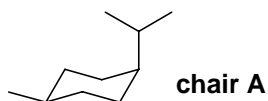
iii.



Question 3

(10 marks)

Consider chair conformation A shown below;



a. Name the structure according to IUPAC rules

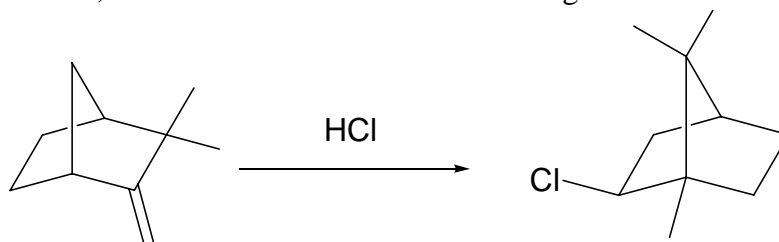
b. Draw another chair conformation of the above structure

c. Which chair is more stable, chair A shown above or the one you have drawn in b? Explain why?

Question 4

(20 marks)

- a. Using curved arrows, write a mechanism for the following reaction.



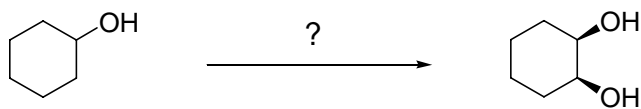
- b. Hydrocarbon A has a formula of $C_{10}H_{12}$ and reacts with 3 molar equivalents of H_2 in the presence of Pd/C as a catalyst to give compound B of the formula $C_{10}H_{18}$. Upon treatment with $KMnO_4$ in acidic conditions, hydrocarbon A gives a symmetrical dicarboxylic acid ketone C of the formula $C_5H_6O_5$ as the *only* product. Propose structures for hydrocarbon A and compounds B and C.

Question 5

(20 marks)

Show how you would carry out the following transformations. More than one step is required in each case. Clearly outline all steps with reactants, reagents and intermediate products.

a.



b.

