Sultan Qaboos University
College of Science, Department of Chemistry

Chem3322
Organic Chemistry I

Fall 2009

Test 2

Monday, 21 December, 2009

Test Duration: 90 minutes

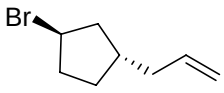
Name: _____ ID: _____

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

Question 1 (10 marks)

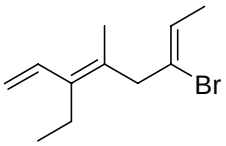
Name the following compounds according to IUPAC rules.

a.



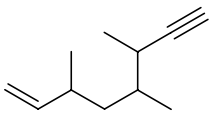
Name: _____

b.



Name: _____

c.

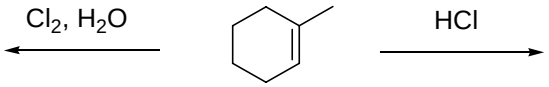


Name: _____

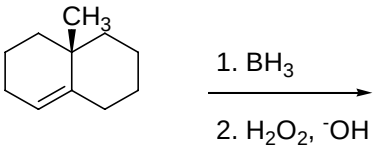
Question 2 (40 marks)

a. Complete the following reactions by writing all possible product(s).

i.

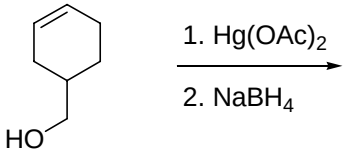


ii.

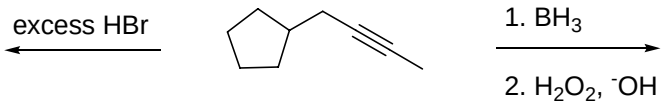


iii.

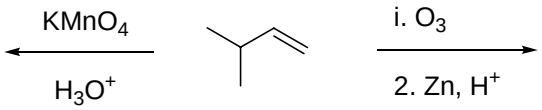
iv.



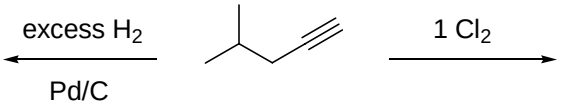
v.



vi.

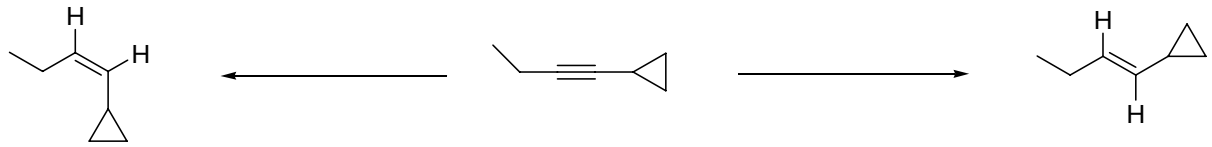


vii.

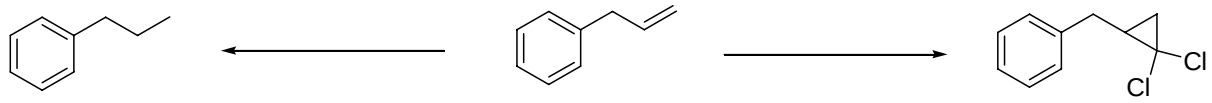


b. Complete the following reactions by writing missing reagents.

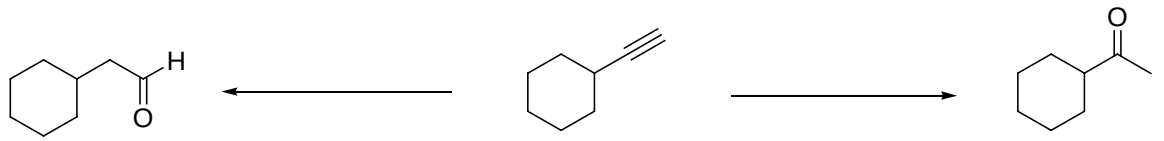
i.



ii.

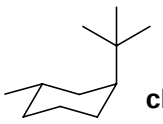


iii.



Question 3 (10 marks)

Consider the chair conformation shown below.



chair A

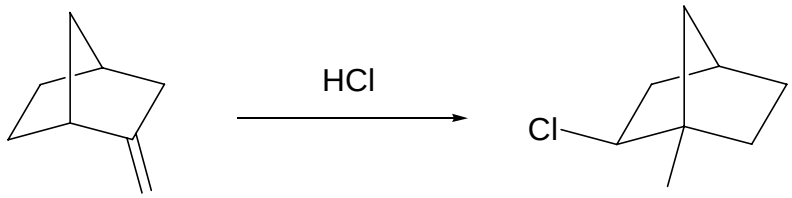
a. Name the structure according to IUPAC rules

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.

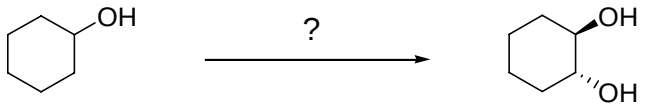


b. Hydrocarbon A has a formula of $C_{14}H_{20}$ and reacts with 3 molar equivalents of H_2 in the presence of Pd/C as a catalyst, to give compound B of the formula $C_{14}H_{26}$. Upon ozonolysis with O_3 followed by Zn, H^+ treatment, hydrocarbon A gives a symmetrical triketone C of the formula $C_7H_{10}O_3$ as the *only* product. Propose structures for the hydrocarbon A and compounds B and C.

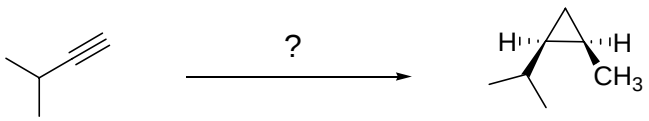
Question 5 (20 marks)

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.



End of Test 2