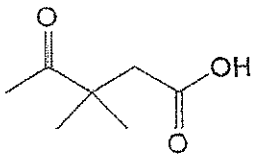
Fall 2010
Final Exam

key

1. What is the IUPAC name of the molecule shown below? (6 points, 7 minutes)

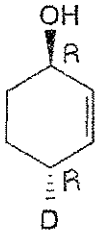
Ch. 2



3,3-dimethyl-4-oxo pentanoic acid

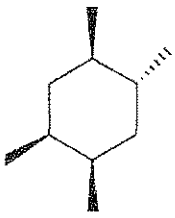
2a. How many chiral centers are present in the molecule shown below? 2 (8 points, 10 minutes)
2b. Label each chiral center as R or S.
2c. Is the overall molecule chiral? yes

Ch. 3



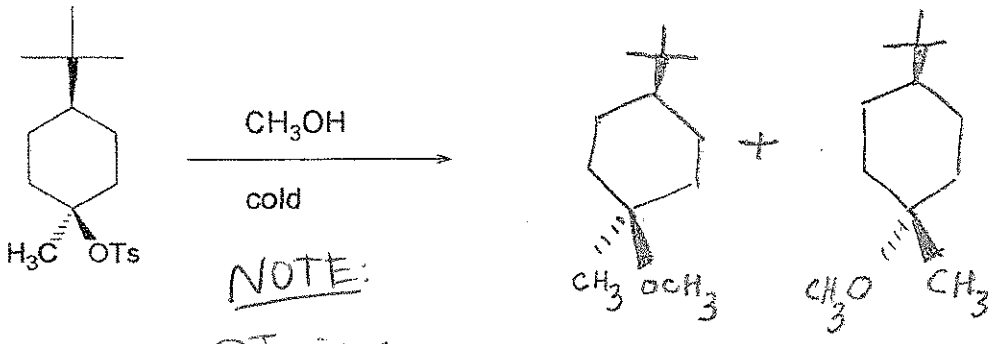
3. Draw the most stable chair conformation of the molecule shown below. (8 points, 10 minutes)

Ch. 2



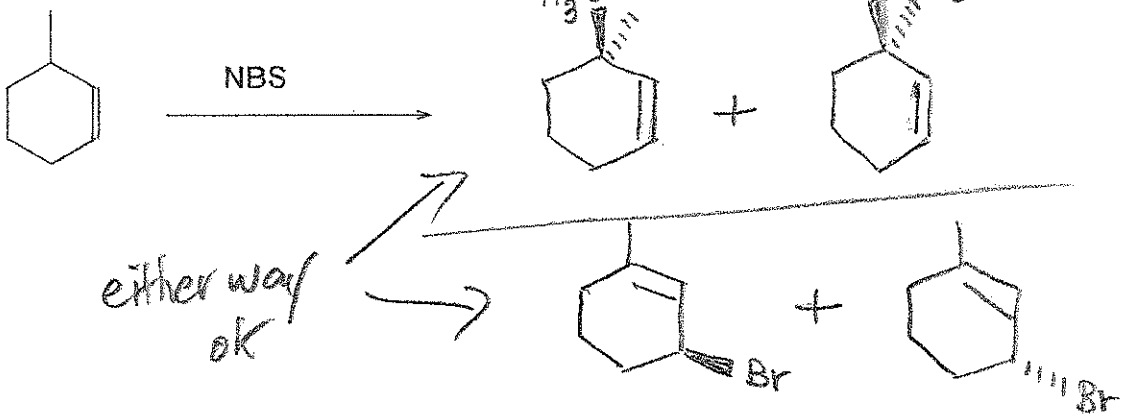
4. Show the **major** product or products of each of the following reactions. Do not show **minor** products. Be sure to show proper stereochemistry. (5 points each, 6 minutes each)

Ch.9 a.

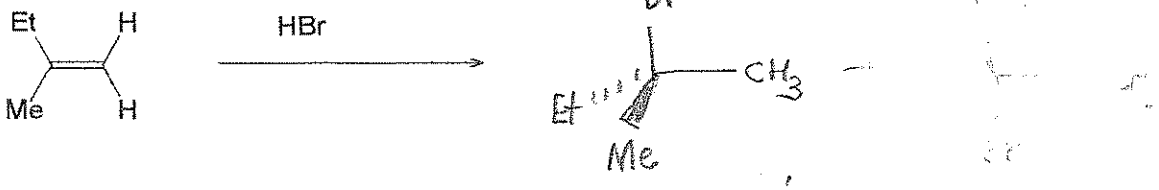


NOTE:
-OTs is a good leaving group

Ch.8 b.



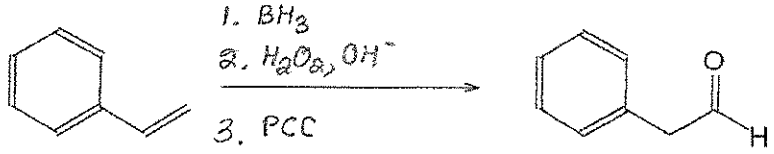
Ch.6 c.



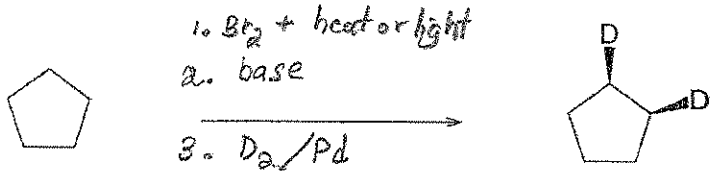
actual

5. Give the reagent or reagents necessary to accomplish each of the following transformations. Number each step so it is clear when reagents must be added **together** or **separately**. Do **not** show **intermediates.** (6 points each, 7 minutes each)

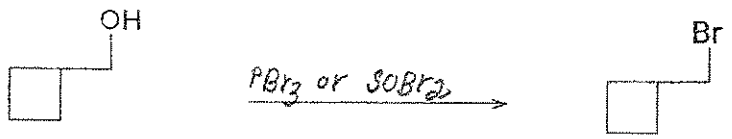
OMIT Ch. 10

a. 

Ch. 6 & 8

b. 

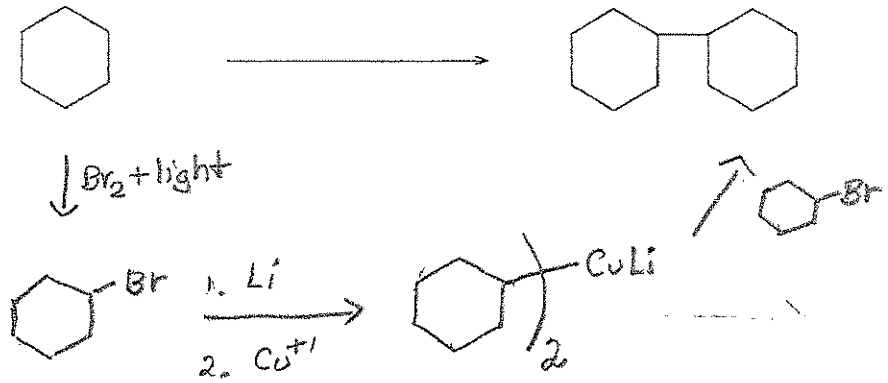
OMIT Ch. 10

c. 

6. Give the reagent or reagents necessary to accomplish each of the following synthetic transformations. Any needed carbon based reagents are allowed. **Show all intermediates**. (7 points each, 8 minutes each)

a.

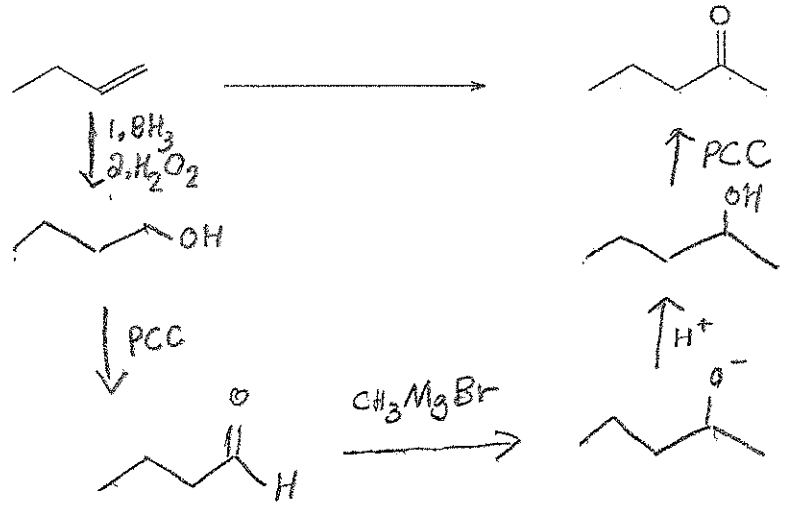
Ch. 8/15



OMIT

Ch. 10/16

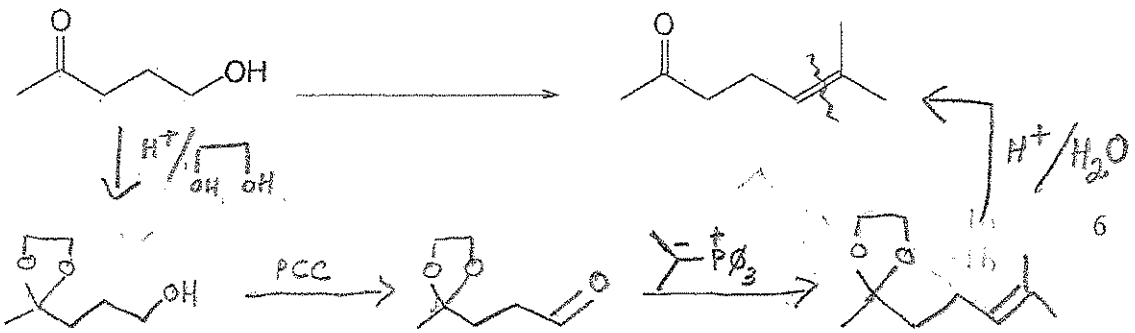
b.



OMIT

Ch. 10/16

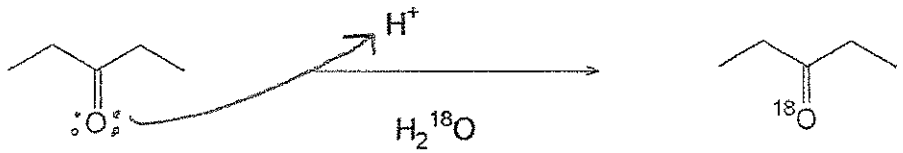
c.

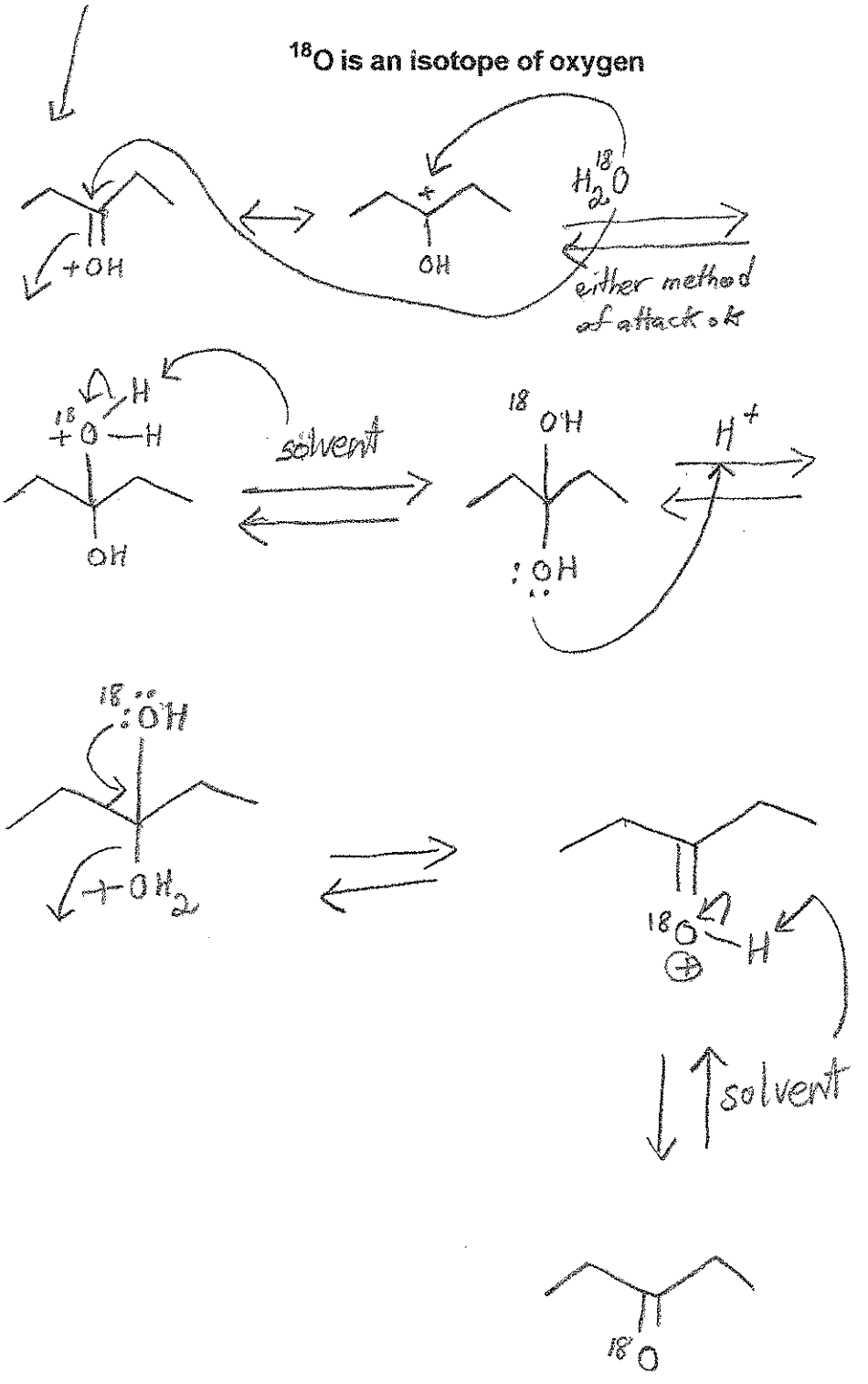


OMIT

Ch. 16

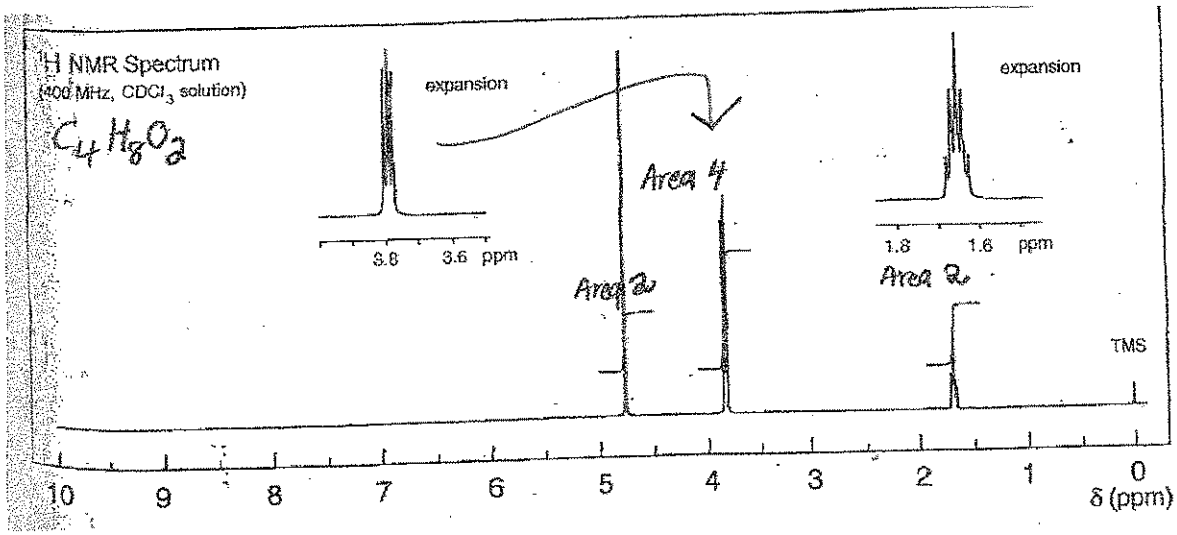
7. Show the mechanism for the following reaction. (8 points, 10 minutes)

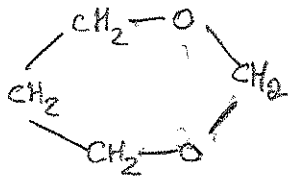




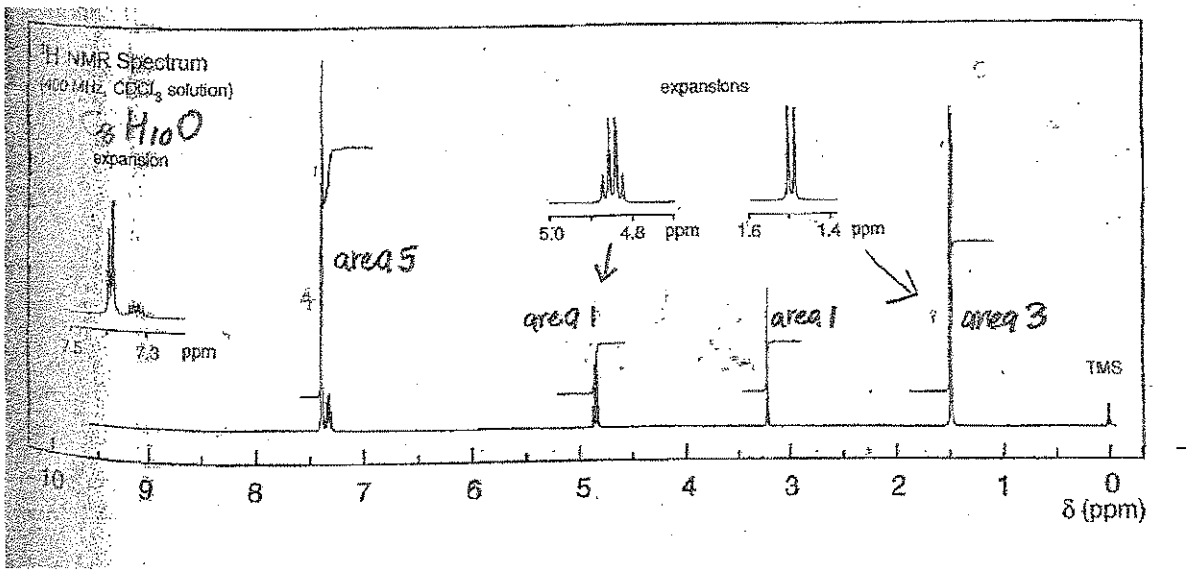
Ch. 13

8. Determine the structure of the compound whose ^{1}H NMR spectrum is shown below. You must show your work in order to receive credit for your answer. (8 points, 10 minutes)





9. Determine the structure of the compound whose ^{1}H NMR spectrum is shown below. You must show your work in order to receive credit for your answer. (8 points, 10 minutes)



Ch. 13