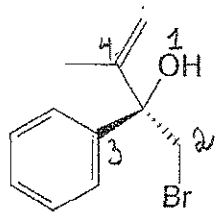
Spring 2011 Midterm I

1. (12 points, 6 minutes)

1a. Determine the R or S configuration of the molecule shown below. Clearly number the priority of each group.

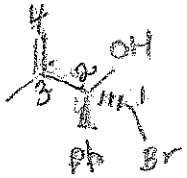
Ch. 3



R

1b. Give the IUPAC name of this molecule.

Ch. 2/3



(2R)-1-bromo-3-methyl-2-phenyl but-3-ene-2-ol

2. The following acid base reaction is known to go the right. (6 points, 3 minutes)
Label all acids and bases in the reaction and circle the stronger base.

Ch. 4

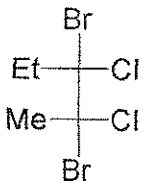
$CH_3C{\equiv}CH$ + NH_2^- ⟶ $CH_3C{\equiv}C^-$ + NH_3

acid base base acid

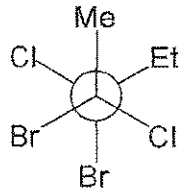
3. (16 points, 8 minutes)

a. Indicate whether or not each of the following molecules is chiral.

Ch. 2/3



chiral



chiral

b. What is the relationship between these two molecules (identical, constitutional isomers, enantiomers or diasteriomers)? *You are not required to determine R or S.*

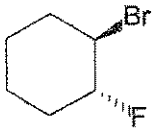
Ch. 3

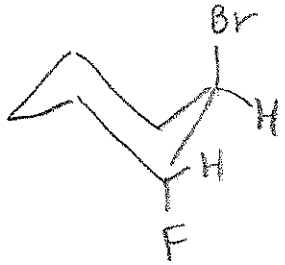
diasteriomers

4. (20 pts, 10 minutes)

4a. Draw the *least* stable chair conformation of the following molecule.

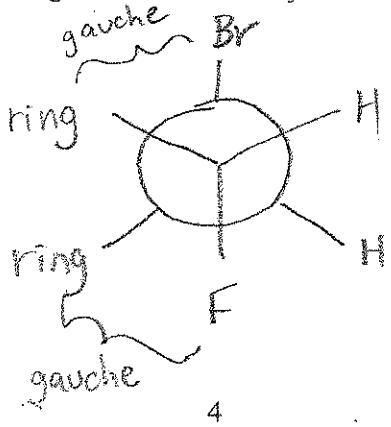
Ch. 2





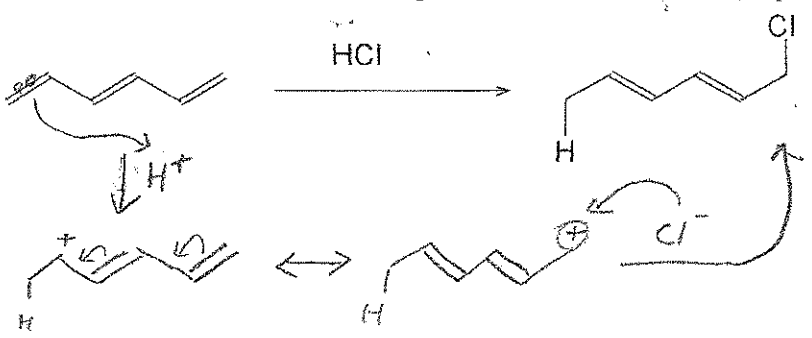
4b. Draw a Newman projection along the C1-C2 bond of your chair conformation and label all gauche interactions.

Ch. 2



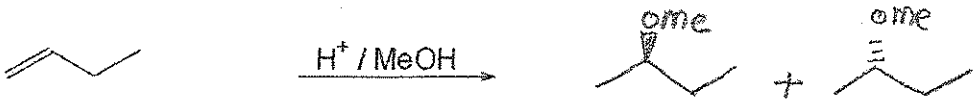
5. Give the mechanism for the following reaction. (16 points, 10 minutes)

Ch. 6



6. Give the product or products of each of the following reactions. (6 pts each, 6 min each)
Be sure to include stereochemistry and to show all products that form.

Ch. 6

a. 

b. 

c. 

d. 

e.