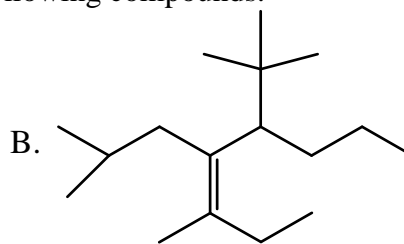


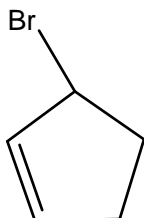
Chem 233: Problem Set #10 (on Chapter 10)

1. Name or draw structural or line formula for the following compounds.

A. 3-ethyl-5,6-dimethyl-3-heptene



C.

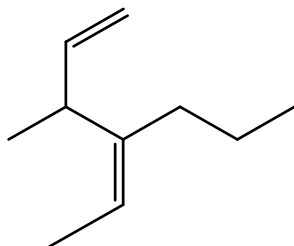


D. ethylene

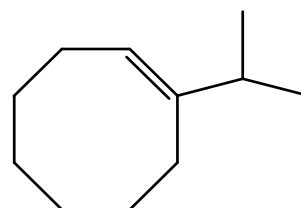
E. vinyl bromide

F. 4-allylcyclopentene

G.

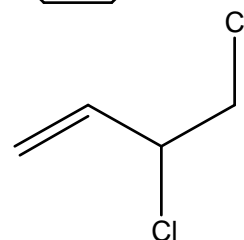


H.



I. chloroethene

J.

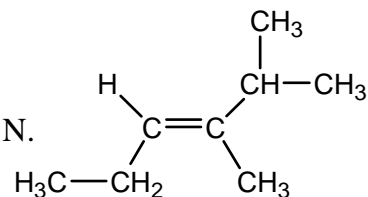


K. *cis*-2-pentene

L. *trans*-5-methyl-2-hexene

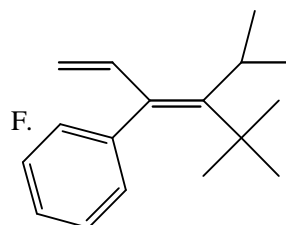
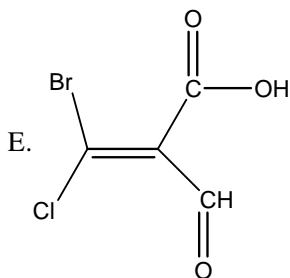
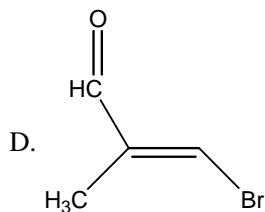
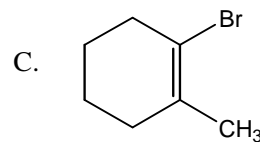
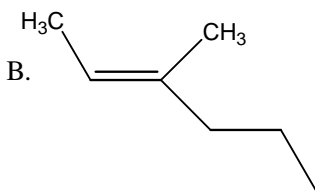
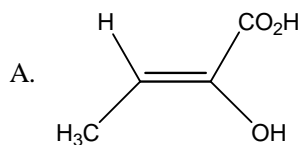
M. (Z)-1-chloro-2-methyl-1-butene

N.



O. (2E,4Z)-2-bromo-5-chloro-2,4-hexadiene

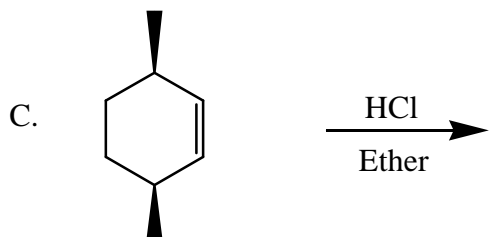
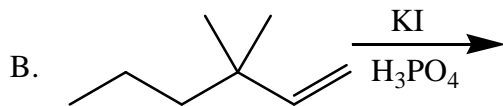
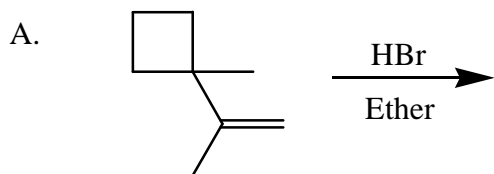
2. Determine whether the following compounds are E or Z isomers.



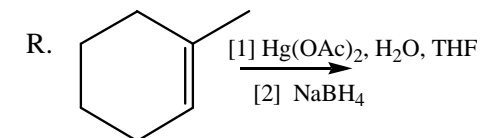
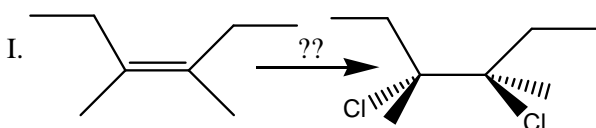
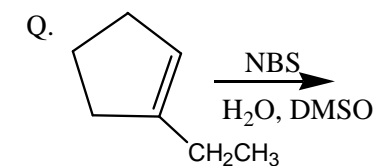
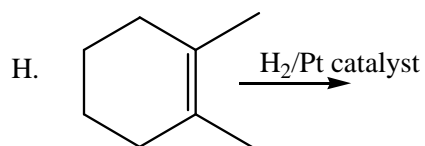
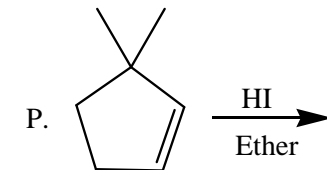
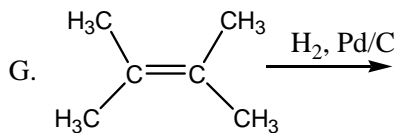
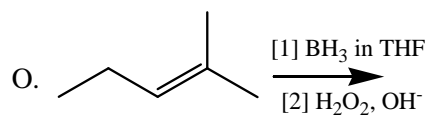
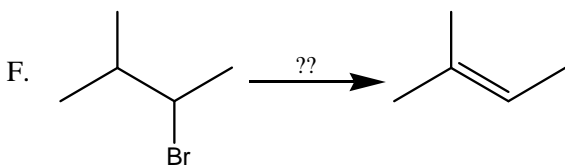
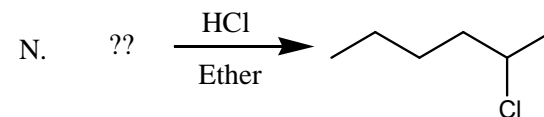
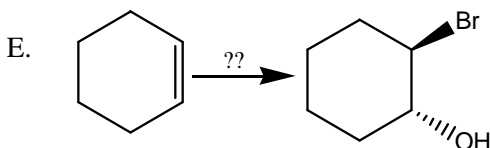
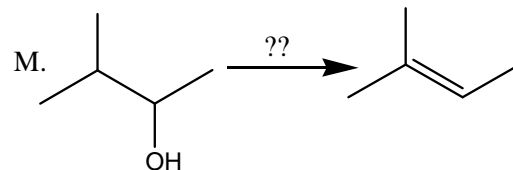
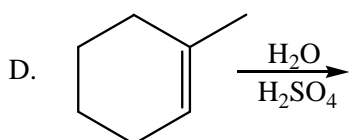
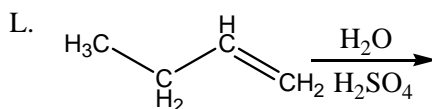
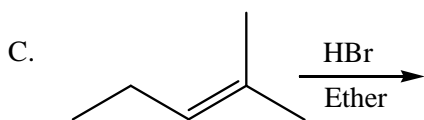
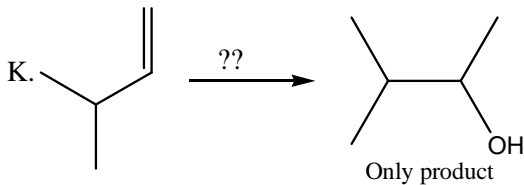
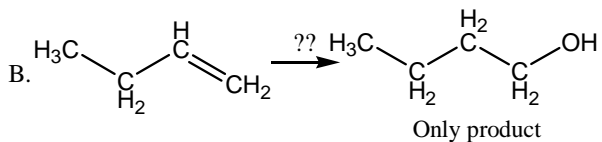
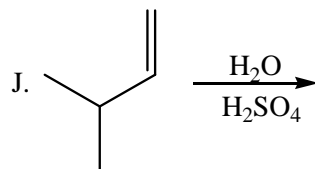
3. Determine the degree of unsaturation for the following substances.



4. Give the product(s) and mechanisms for the following reactions. Where pertinent, be sure to show stereochemistry of products.



5. Give the reagents needed or the major organic product(s) for the following reactions.



6. Write step-by-step mechanisms for the reactions given in question 5A, 5E, 5J, 5K, and 5O. Discuss the stereochemistry of the product(s).

7. Consider reaction of the reagents shown below with cyclopentene.

I. BH_3 in THF
 $\text{H}_2\text{O}_2, \text{OH}^-$

II. $\text{H}_2, \text{Pd/C}$

III. Br_2 in CH_2Cl_2

IV. HCl in ether

V. $\text{Hg}(\text{OAc})_2, \text{H}_2\text{O/THF}$
 NaBH_4

VII. $\text{Br}_2, \text{H}_2\text{O}$

VIII. $\text{H}_2\text{O}, \text{H}_2\text{SO}_4$

A. Which react with syn-stereochemistry?

B. Which react with anti-stereochemistry?

C. Which react with both syn- and anti-stereochemistry?