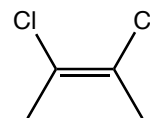
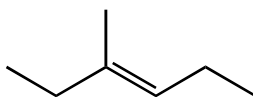
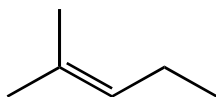


Note that this is not an all inclusive assignment. Anything that was covered in class is "fair game". For example, not a single question is asked about reaction coordinate diagrams, intermediates, or transition states. Not everything on this assignment will necessarily be on the your test.

This assignment is to give you a feeling for how the questions on your test will be asked.

1. Provide names for the following molecules (include *Z* or *E* designation where appropriate).



a. _____

b. _____

c. _____

2. Alkenes are nucleophilic, but alkanes are not. What is it about alkenes that makes them nucleophilic?

3. Which of the following molecules are nucleophilic?

a. OH^-

b. Cl^-

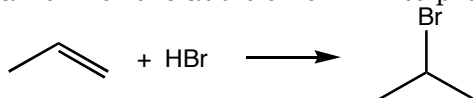
c. BF_3

d. CH_3OH

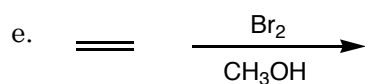
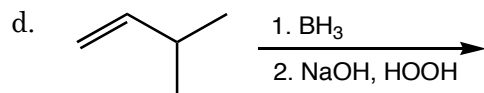
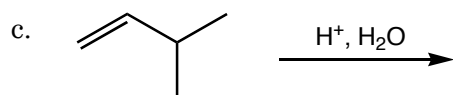
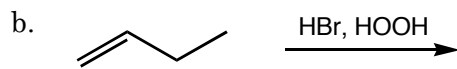
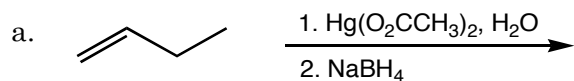
e. $\text{Hg}(\text{O}_2\text{CCH}_3)_2$

f. H^+

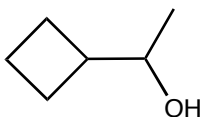
4. HBr reacts with alkenes to form bromoalkanes. In the first step of the two step reaction, a carbocation forms. Draw a mechanism for the addition of HBr to propene.



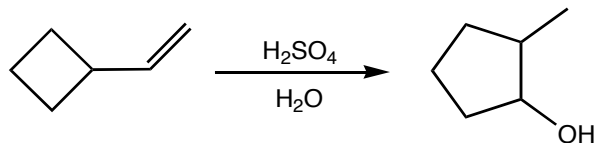
5. Predict the products of the following reactions.



6. A chemist wants to make the following molecule.



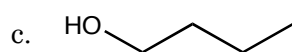
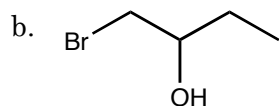
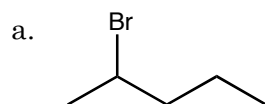
Knowing that the addition of aqueous H_2SO_4 to an alkene produces an alcohol, the chemist tried the reaction, but several unexpected reactions occurred. One of the reactions that occurred was the following reaction.



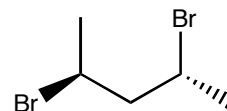
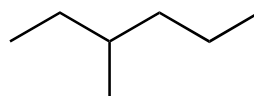
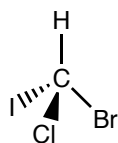
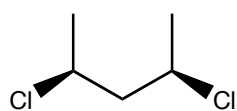
a. What went wrong (you can explain in words or by using a mechanism)?

b. How can the desired product be synthesized from the starting alkene?

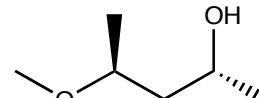
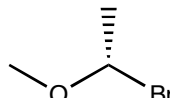
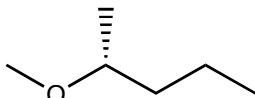
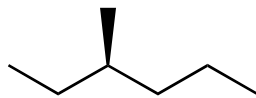
7. Describe how to make the following molecules.



8. Identify the chiral molecules.



9. Determine the configuration of the following chiral centers



10. Use perspective drawings to draw the following molecules

a. (*R*)-2-methoxybutane

b. (*S*)-2-methoxy-2-chlorobutane

c. (*R*)-2-chloro-2-bromo-1-propanol