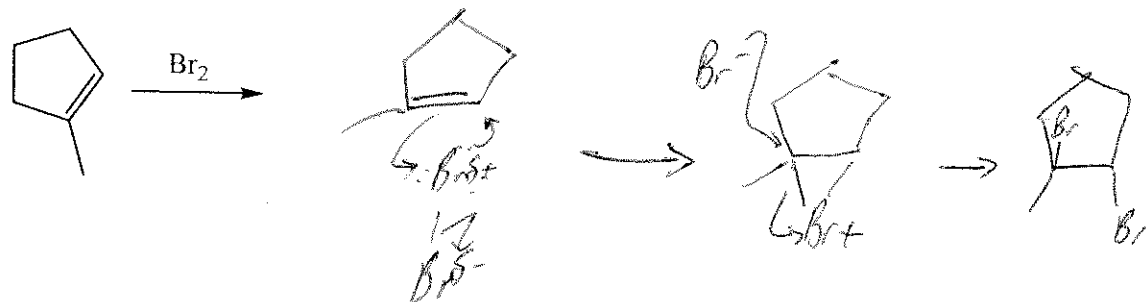


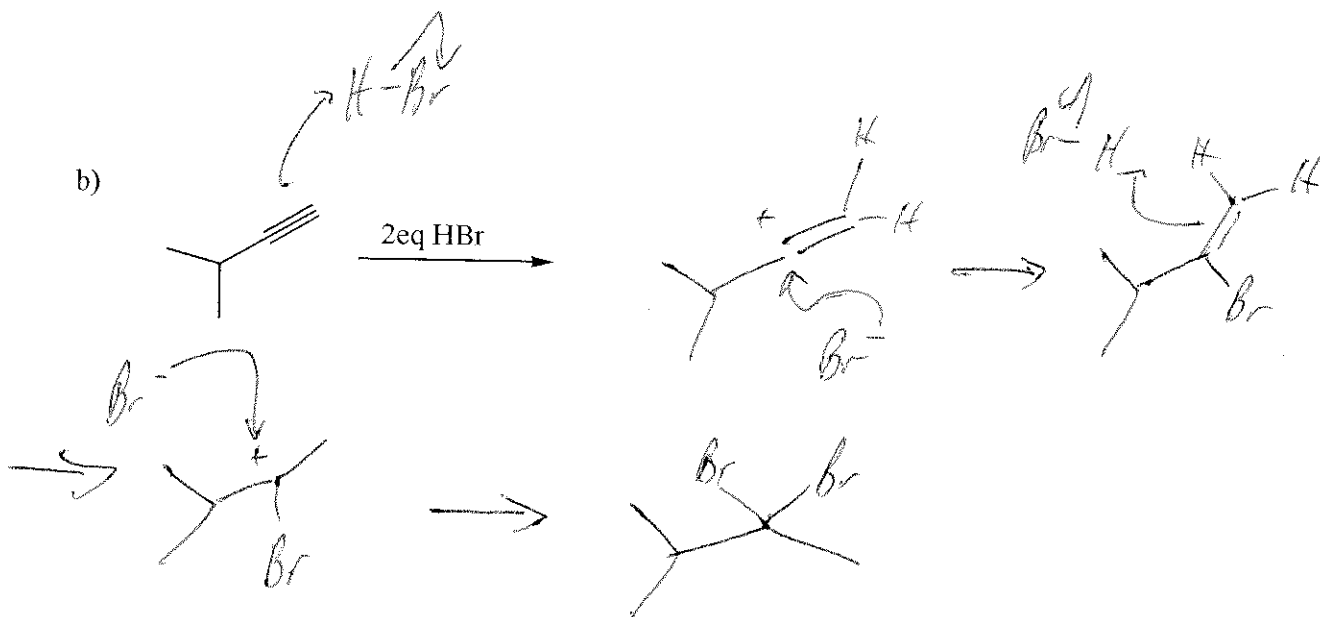
Chem 141
 Problem-Set
 Wednesday 29th November 2006.

1) Predict the outcome of the following reactions and show a FULL MECHANISM for each reaction.

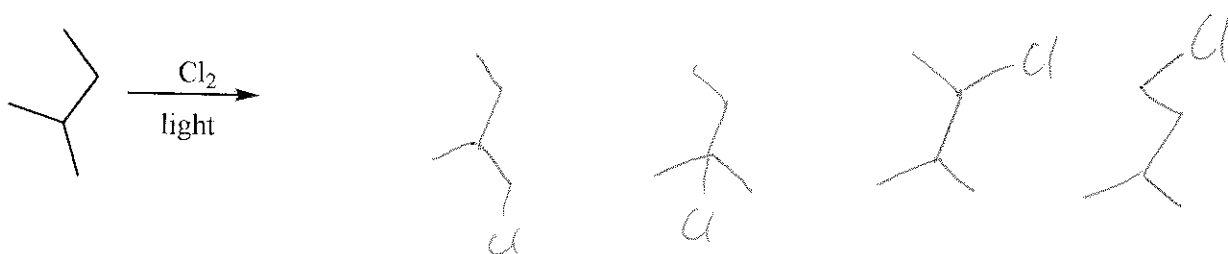
a)



b)

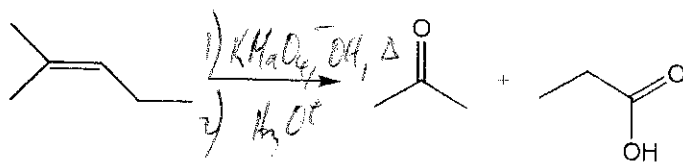


2) What are the four possible monochlorination products of the following radical reaction?

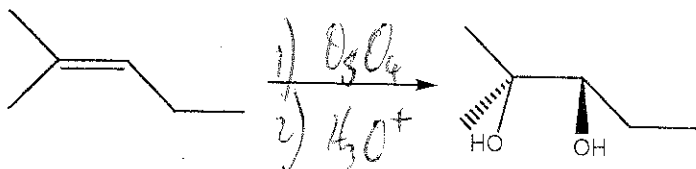


3) Add reactant, reagents or products to complete the following reactions.

a)

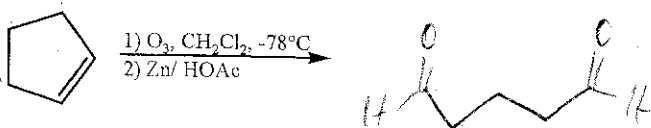


b)



or
 $1) \text{KMnO}_4, \text{OH}^-, \text{Cell}$
 $2) \text{H}_3\text{O}^+$

c)

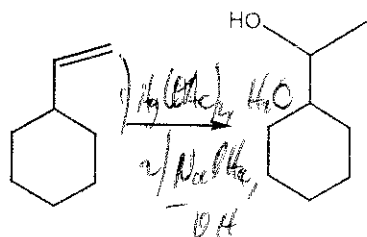


d)



Anti Markovnikov.

e)



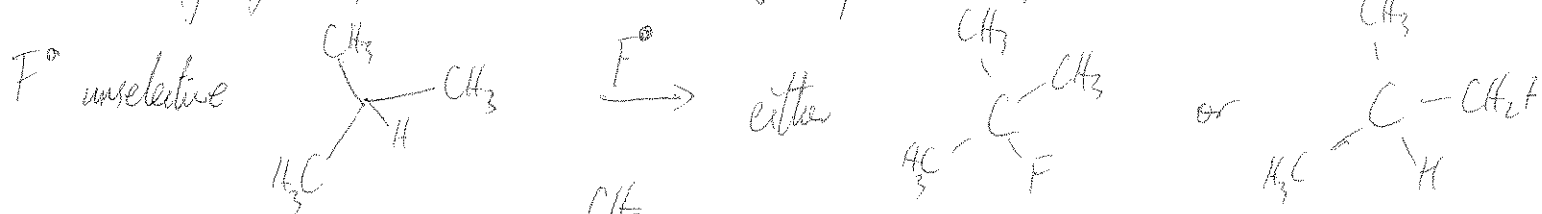
Markovnikov with 1,2 rearrangement.

4) What is the order of stability for halogen radicals and how does it affect the reactivity with branched alkanes? Provide illustrations.

stable $\text{I}^\bullet > \text{Br}^\bullet > \text{Cl}^\bullet > \text{F}^\bullet$ unstable

unreactive selective unselective reactive (unselective)

Fluoride is so reactive that it will abstract (remove) any hydrogen from an alkane (irrespective of substitution)



Br^\bullet selective for stable allyl radical

