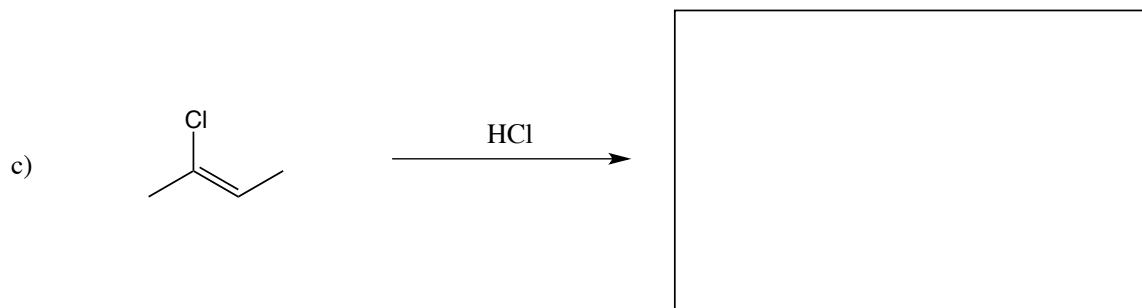
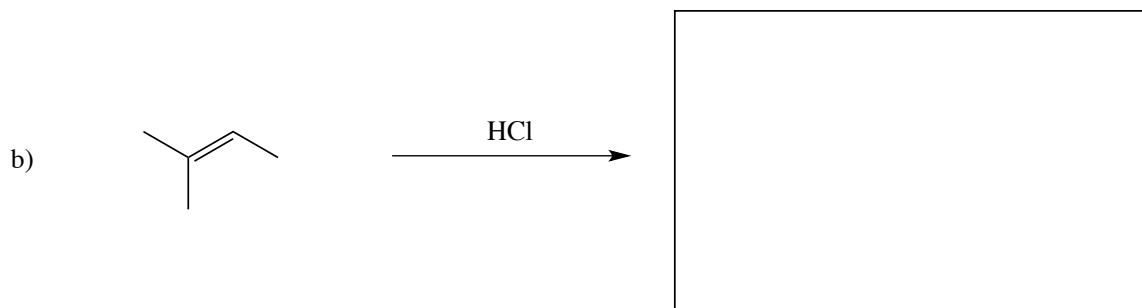
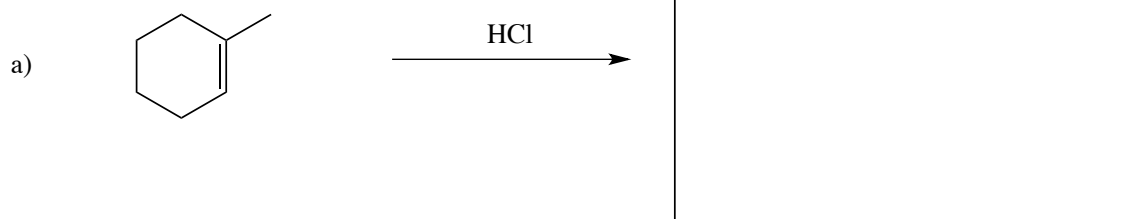
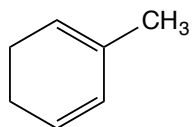


Problem Set 10

Question 1. Identify the major product of each of the following reactions

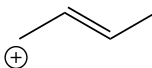
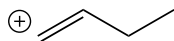
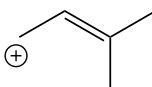
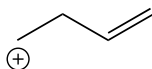
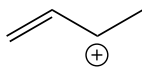


Question 2. a) Provide the major product of the reaction shown below. *Assume that only one molecule of HCl adds to the cyclohexadiene.*

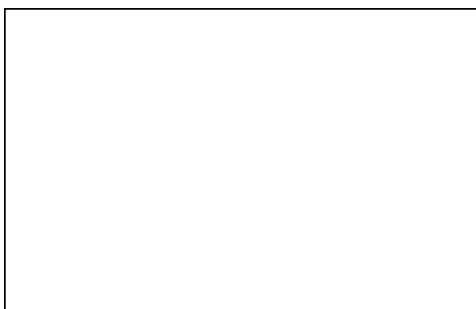
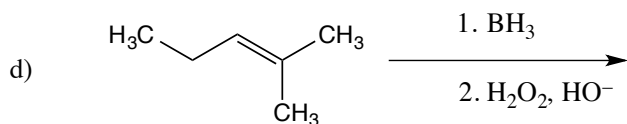
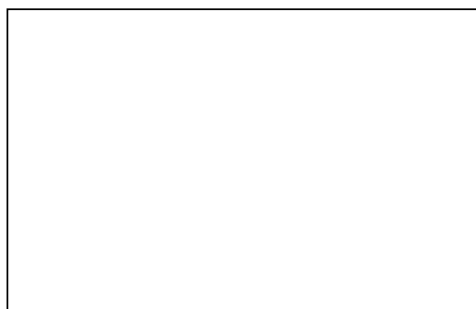
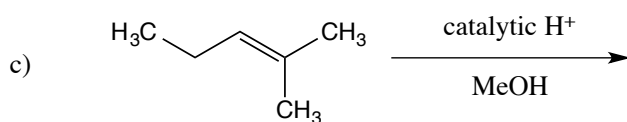
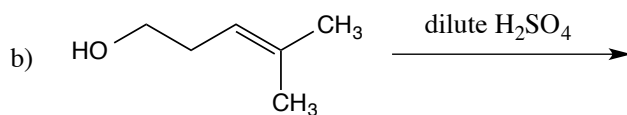
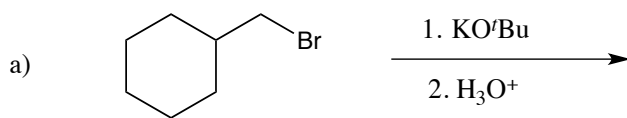


b) Draw all the *possible* cationic intermediates for the reaction (protonation at each of the four possible positions). Which of these are resonance forms? Which structure is most stable? Least stable?

Question 3. Rank the following carbocations from most to least stable.



Question 4. Provide the products to complete the following reactions.



Question 5. Provide a mechanism for the following transformation. *Hint: work both forwards from the starting material and backwards from the product.*

