Nucleophilic Substitution

1. What products would you expect from the S_N2 reaction of 1-bromopropane with each of the following?

a) NaI b) HC≡CLi c) KOH d) NaN_3 e) NH_3 f) NaSH

2. Consider the S_N2 reaction of 1-iodo-2-methylbutane with. What effects on would the following changes have on the rate of the reaction?

a) The CN^- concentration is doubled, the 1-iodo-2-methylbutane concentration is halved.

b) Both the CN^- concentration and the 1-iodo-2-methylbutane concentration are tripled.

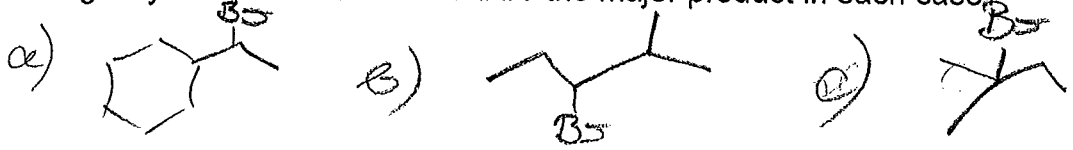
3. Consider the S_N1 reaction of 2-iodo-2-methylbutane with ethanol. What effects on would the following changes have on the rate of the reaction?

a) The concentration of the halide is tripled?

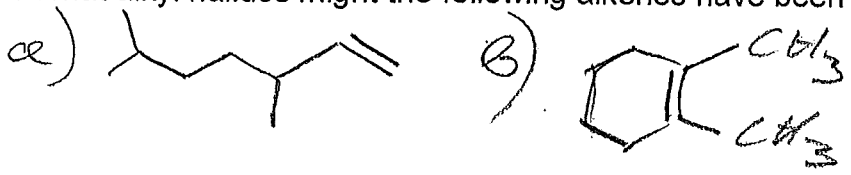
b) The concentration of the halide is halved by adding an inert solvent such as diethyl ether.

Elimination

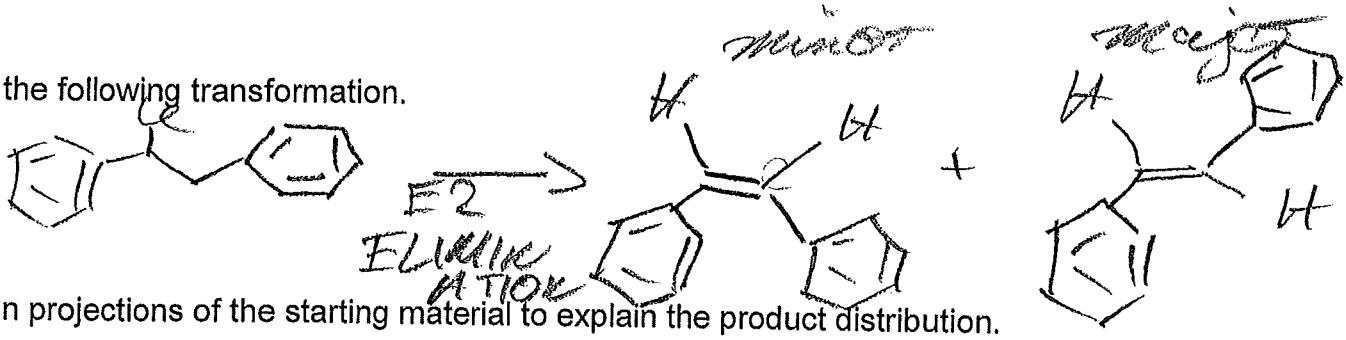
4. Ignoring the double bond geometry what products would you expect from elimination reactions of the following alkyl halides? Which would be the major product in each case?



5. What alkyl halides might the following alkenes have been made of?



6. Consider the following transformation.



Use Newman projections of the starting material to explain the product distribution.