

Name: _____

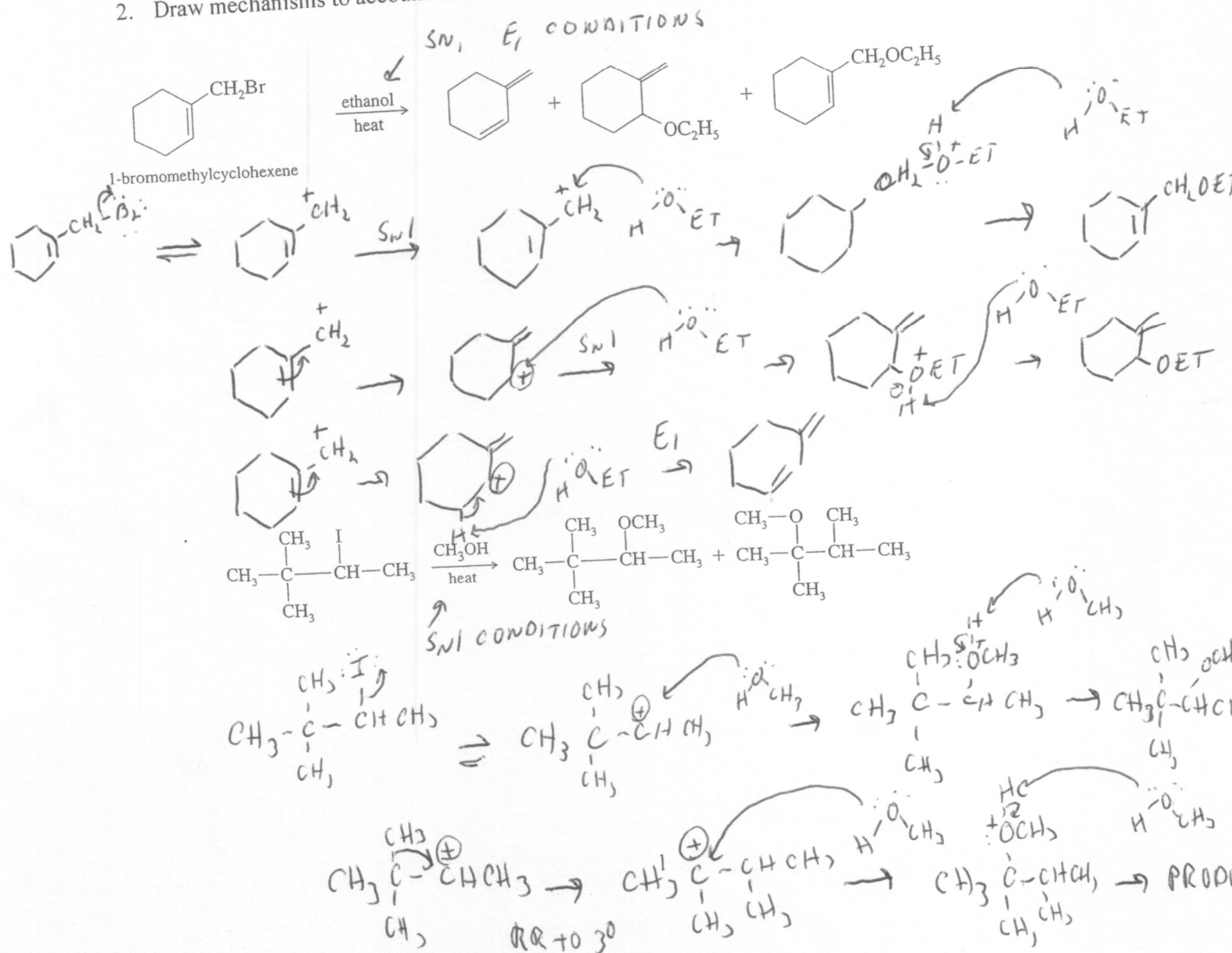
CHM 227 Exam 4 Fall 2016

Short Answer

1. Why does 3-bromo-1-butene react much faster than 2-bromobutane in SN1 and E1 reactions? Use structures to support your answer.

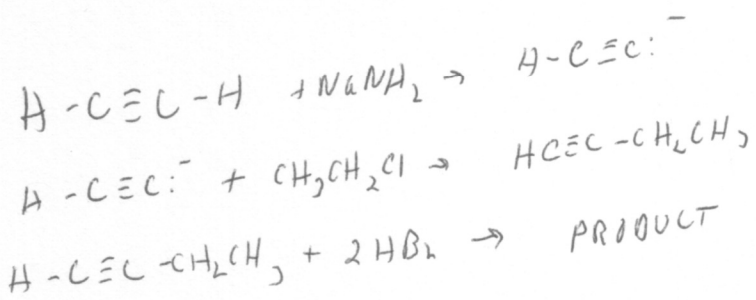
BOTH 2° HALIDES
 BUT THE ALKENE
 MAKES AN ALLYLIC CATION $\text{CH}_2 = \text{CH} - \overset{\oplus}{\text{C}}\text{H} - \text{CH}_3$

2. Draw mechanisms to account for the products of these reactions.

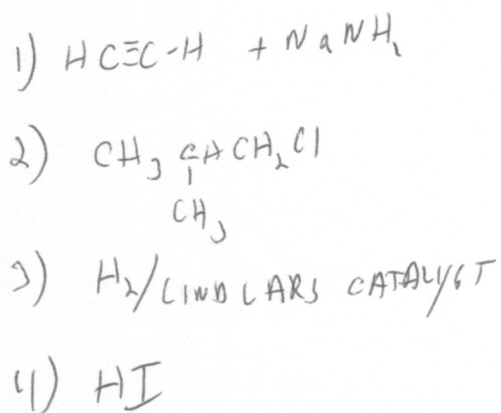


3. Devise a synthesis of these compounds using acetylene, any alkyl halide, and any needed reagents.

2,2-dibromobutane

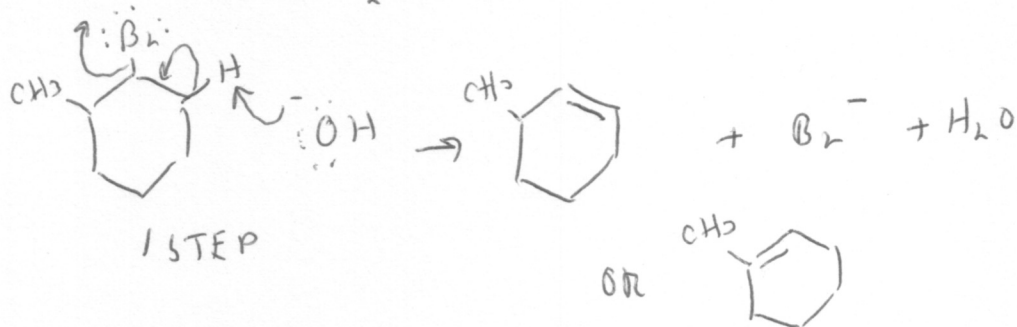


2-iodo-4-methylpentane

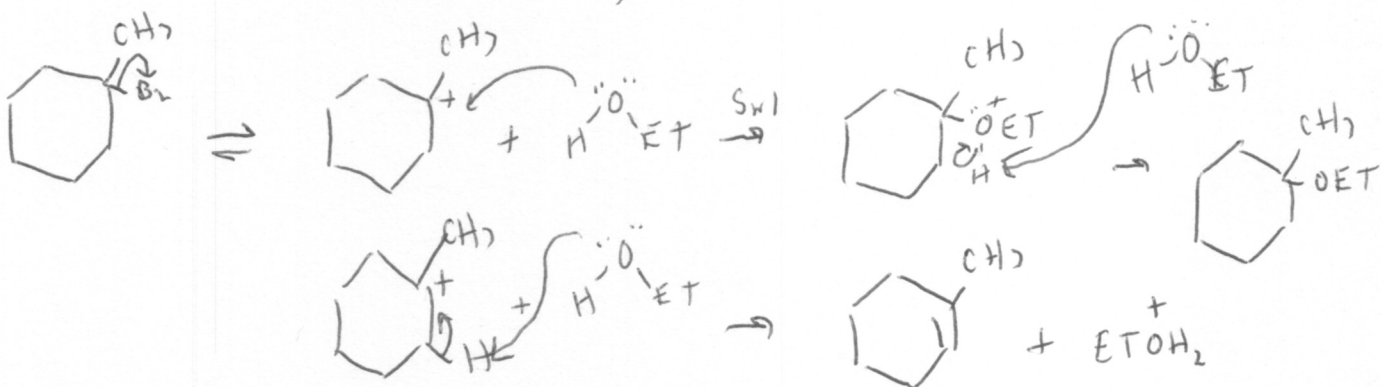


4. Draw a complete mechanism for these reactions. If there is more than one likely mechanism, draw each separately. Include structures of the product(s). Label the major product, if applicable.

1-bromo-1-methylcyclohexane + NaOH E_2 CONDITIONS NO S_N2 OR 3° HALIDE



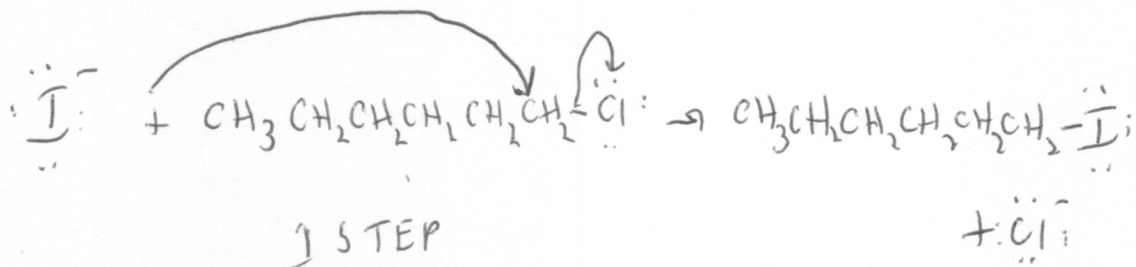
1-bromo-1-methylcyclohexane + EtOH S_N1, E CONDITIONS



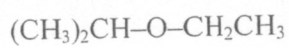
1-chlorohexane + NaI in acetone

10

S_N2 NO $E2$



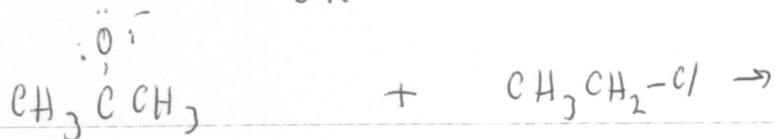
5. Show 2 different ways to make this compound by S_N2 reaction. Which one is better? Explain why.



ALKOXIDE + HALIDE → ETHER



OR



1°
SUBSTRATE
PREFERRED