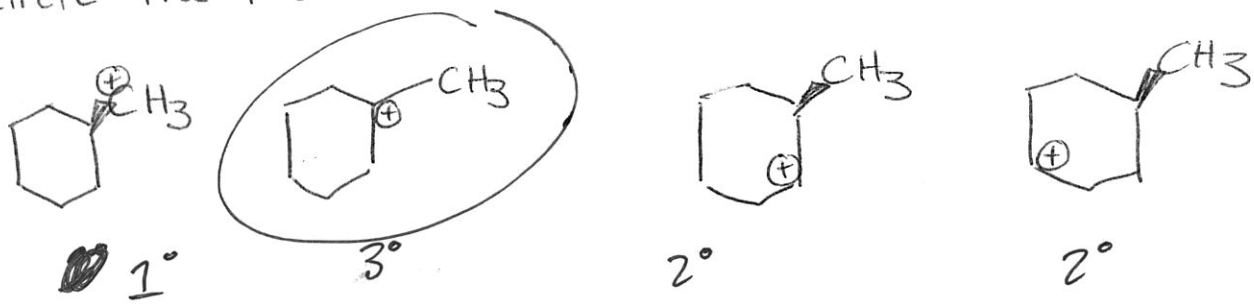
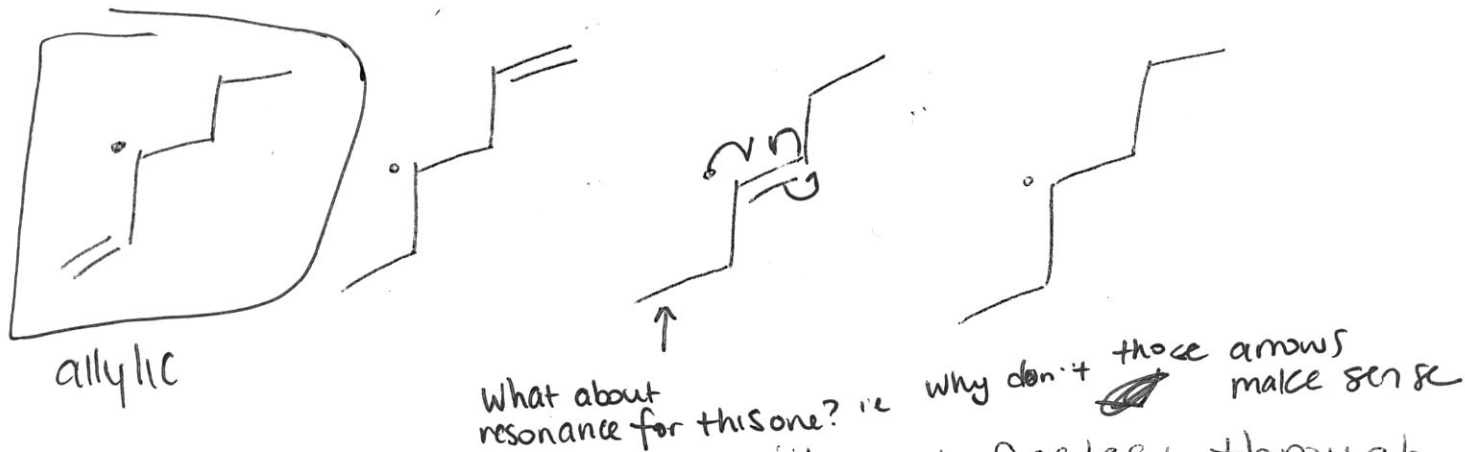


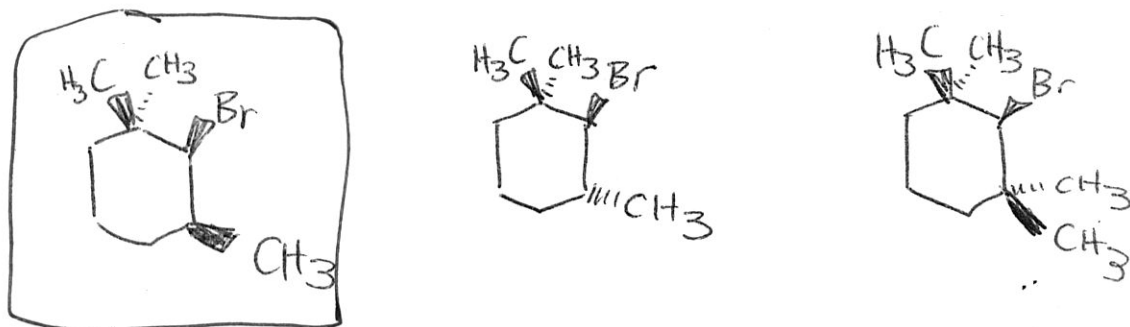
* Circle the most stable cation



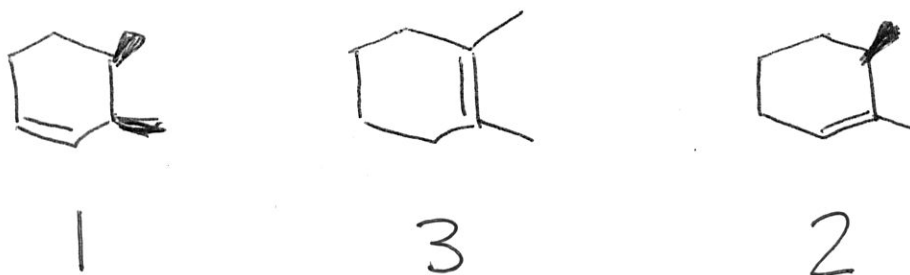
* Circle the most stable radical



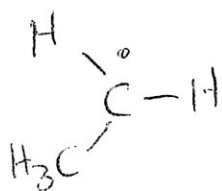
* Circle the molecule that will react fastest through E2 mechanism w/ a strong base



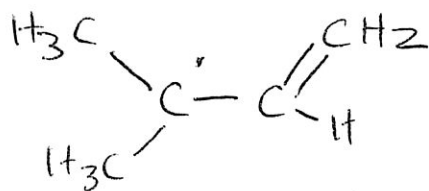
* Rank below 1-3 w/ 1 = least stable, 3 under most stable



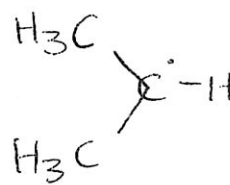
1: most stable radical ; 4, least stable



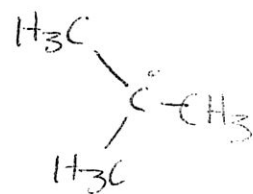
4



1



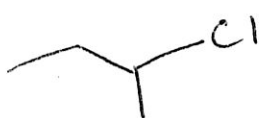
3



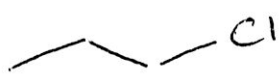
2

Reaction with nucleophile in S_N2 reaction

1: most reactive ; 4: least reactive



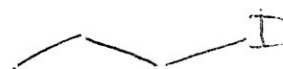
3



2



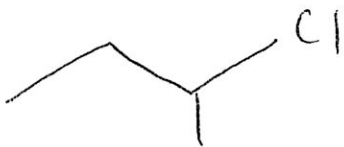
4



1

1: most reactive in S_N1/E_1

4: least reactive in S_N1/E_1



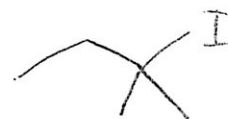
3



4



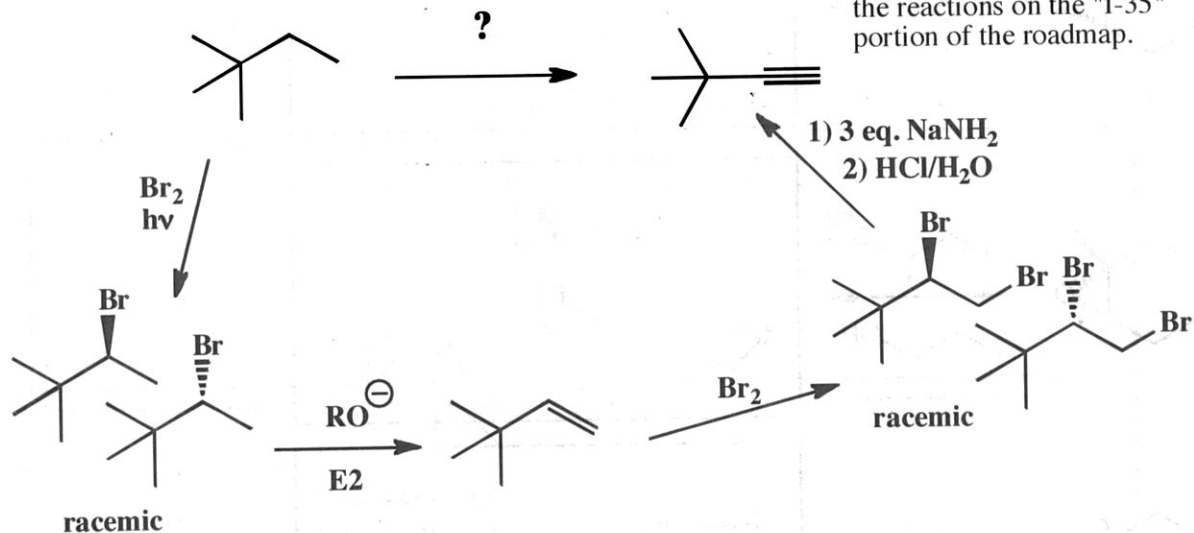
2



1

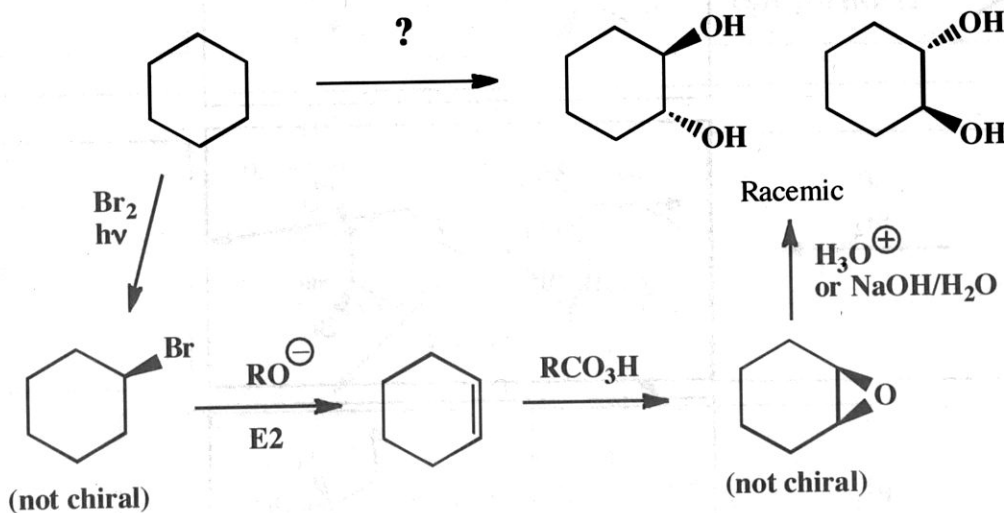
19. These are synthesis questions. You need to show how the starting material can be converted into the product(s) shown. You may use any reactions we have learned provided that the product(s) you draw for each step is/are the predominant one(s). Show all the reagents you need. Show each molecule synthesized along the way and be sure to pay attention to the regiochemistry and stereochemistry preferences for each reaction. You must draw all stereoisomers formed, and use wedges and dashes to indicate chirality at each chiral center. Write racemic when appropriate.

A) (10 pts)

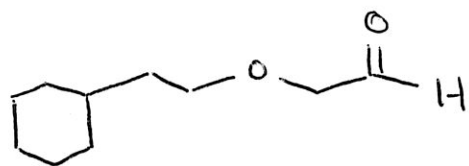
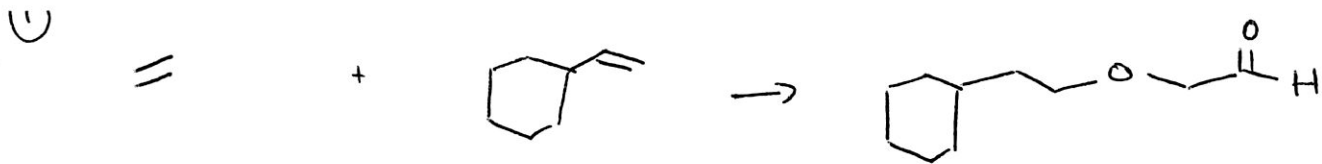


Recognize that the product alkyne can be made from the starting alkane by carrying out the reactions on the "I-35" portion of the roadmap.

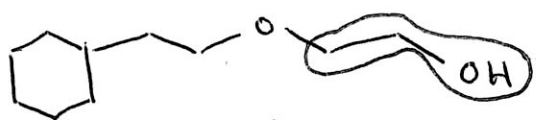
B) (10 pts)



Recognize the product as a trans vicinal diol, that can be made by reacting an epoxide in either acid or base. The epoxide can be made from cyclohexene by reaction with a peracid. The cyclohexene can be derived from the standard halogenation/E2 sequence of the "I-35" portion of the roadmap.

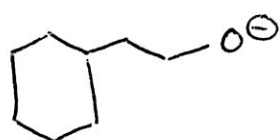


↑ PCC



• how do we know how to make aldehyde?

what does this sort of functionality tell us?

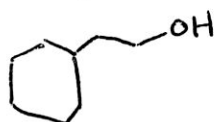


~~why~~ did it have to be this mixture of alkoxide + epoxide (ie, not C1CCCCC1[O-] + CC[O-])

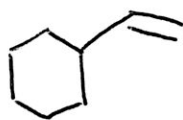
↑ Na⁺

↑ RCO₂H (MCPBA)

Other strong bases?

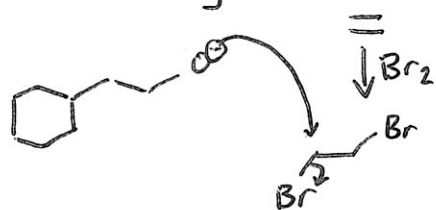


↑ 1) BH₃
2) H₂O₂, NaOH



Is there another way? Yes!

get to



NaOH/H₂O



Why might this have lower yield than the solution above? What side product could form?