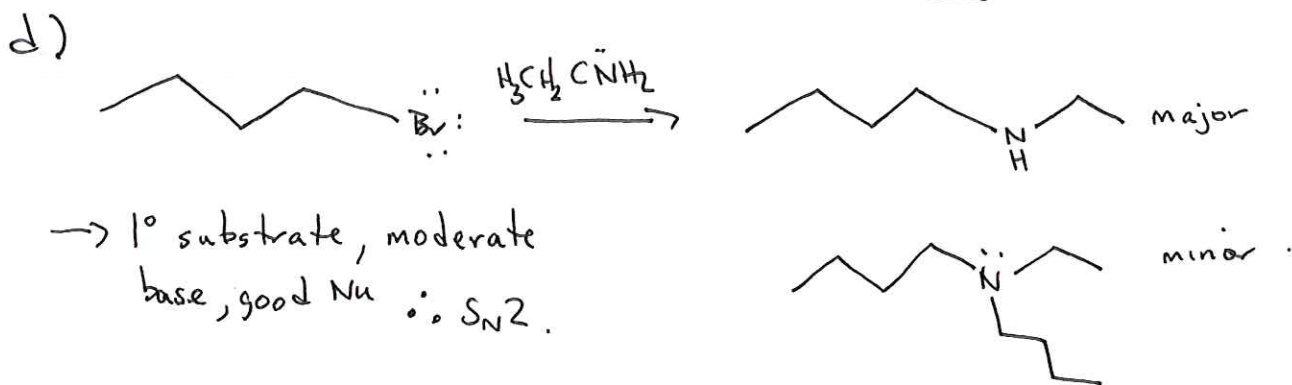
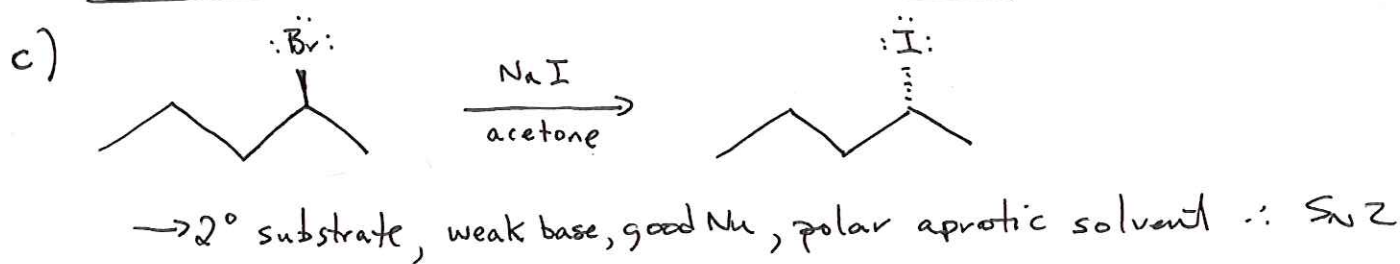
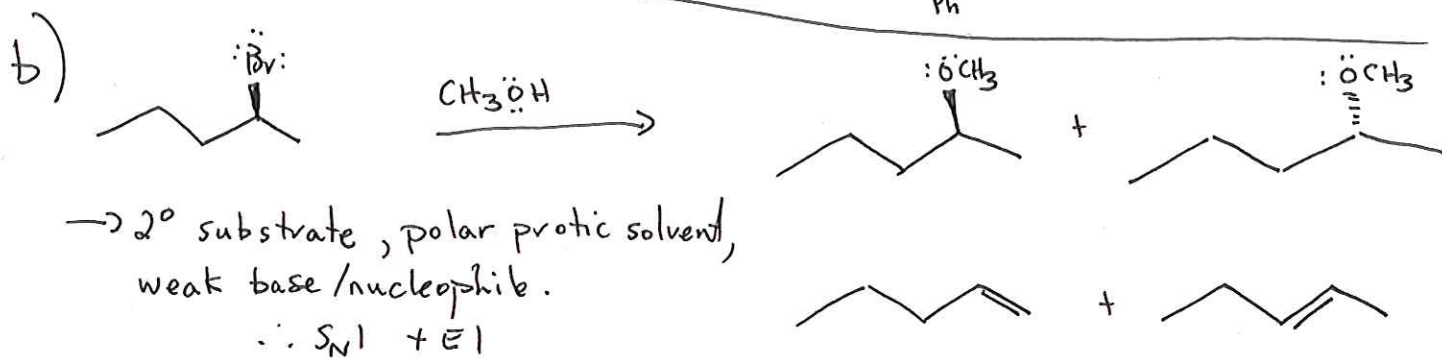
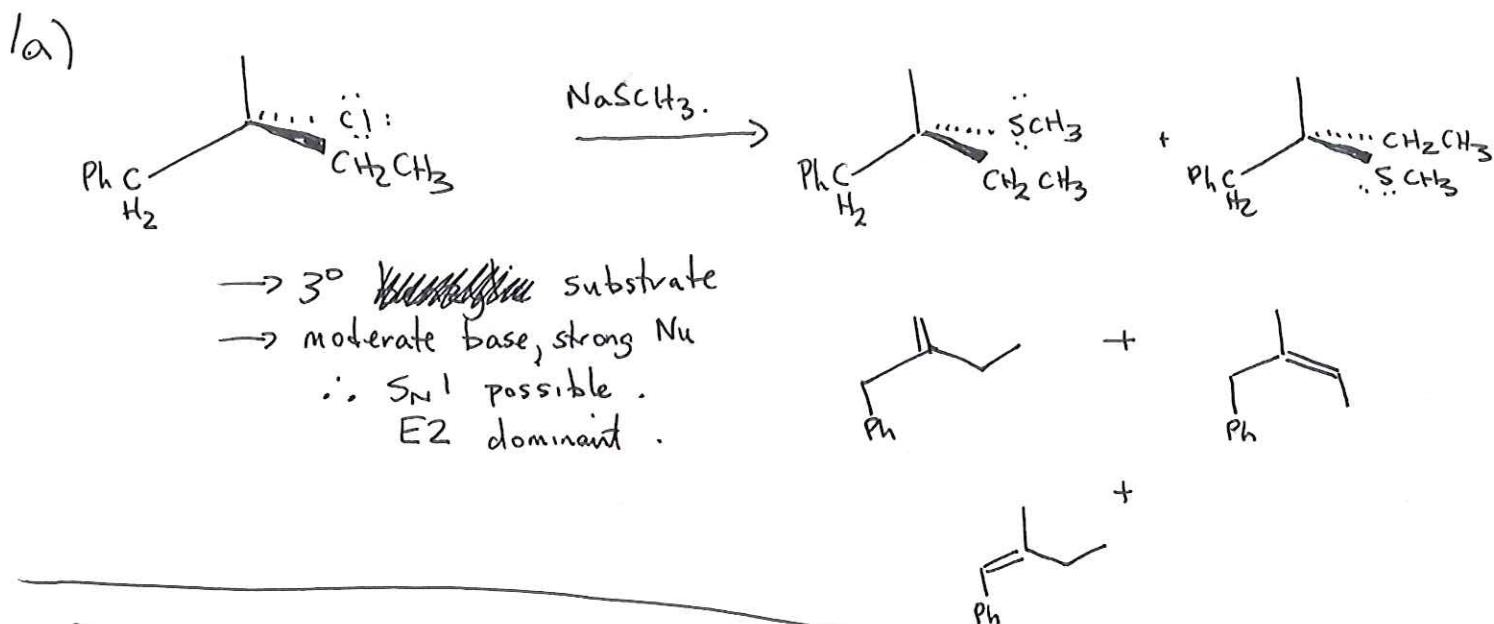


Chem 2500  
Assignment #17 - Synthesis - Answer Key.

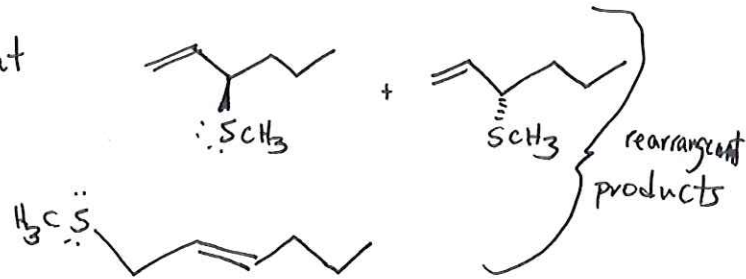


Chem 2500  
Assignment #17 - Synthesis - Answer Key

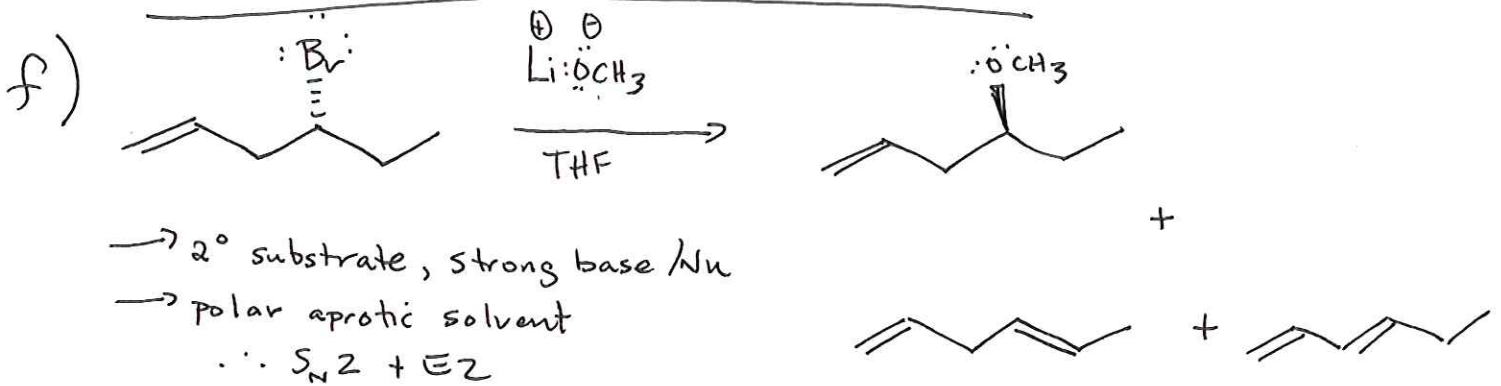
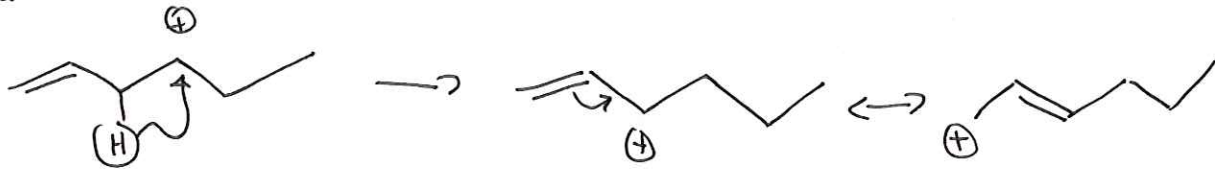


→ S<sub>N</sub>1 conditions

2° substrate, weak base good Nu, but polar protic solvent.



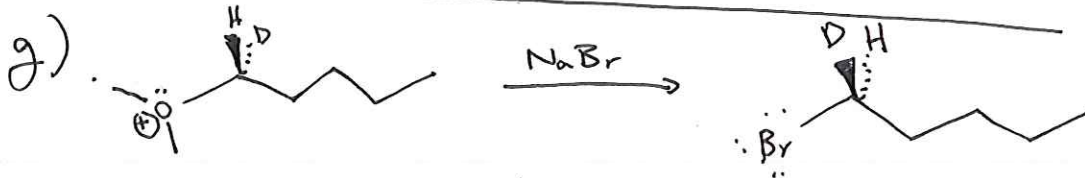
→ resonance stabilized rearrangement products possible.



→ 2° substrate, strong base/Nu

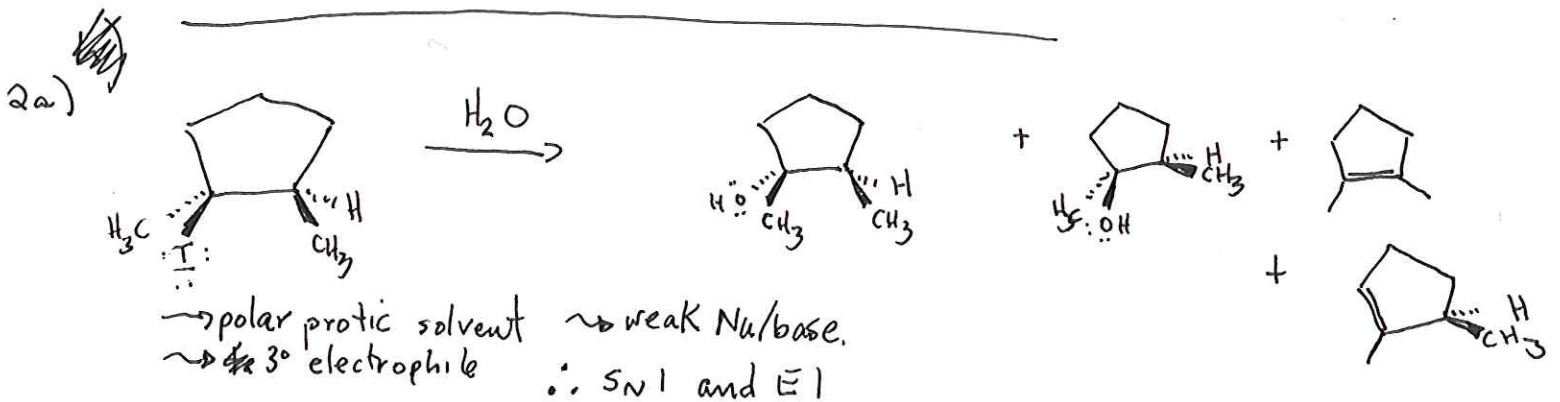
→ polar aprotic solvent

∴ S<sub>N</sub>2 + E2



→ weak base, good Nu

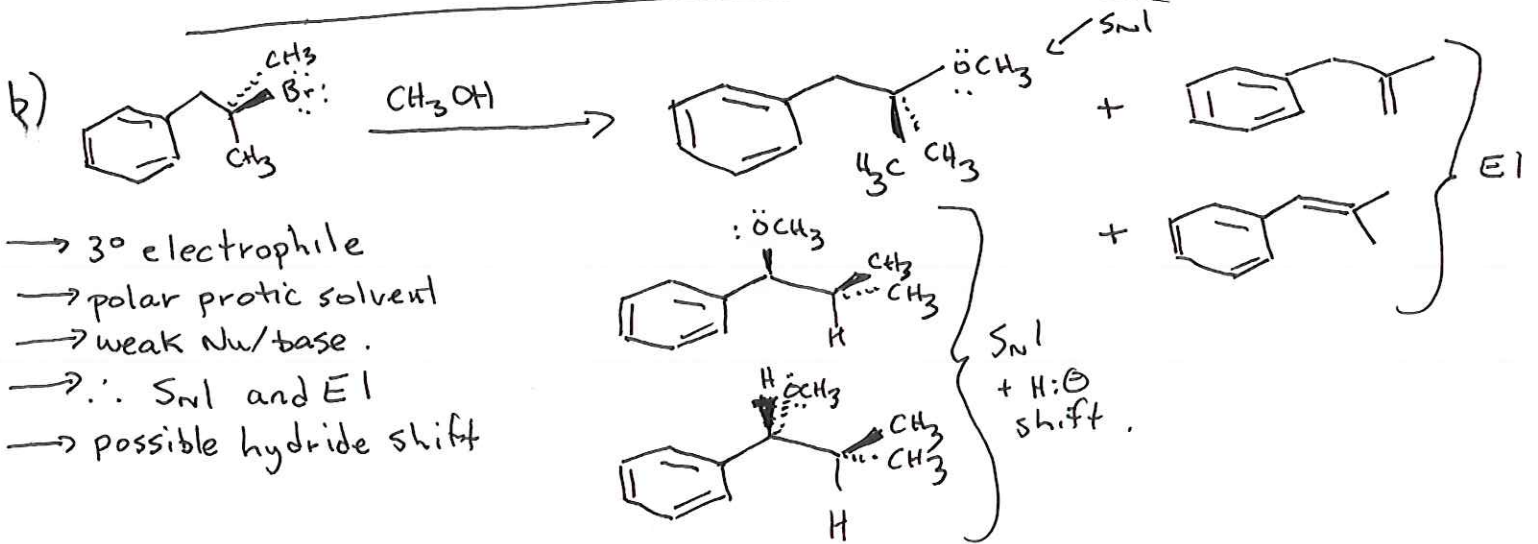
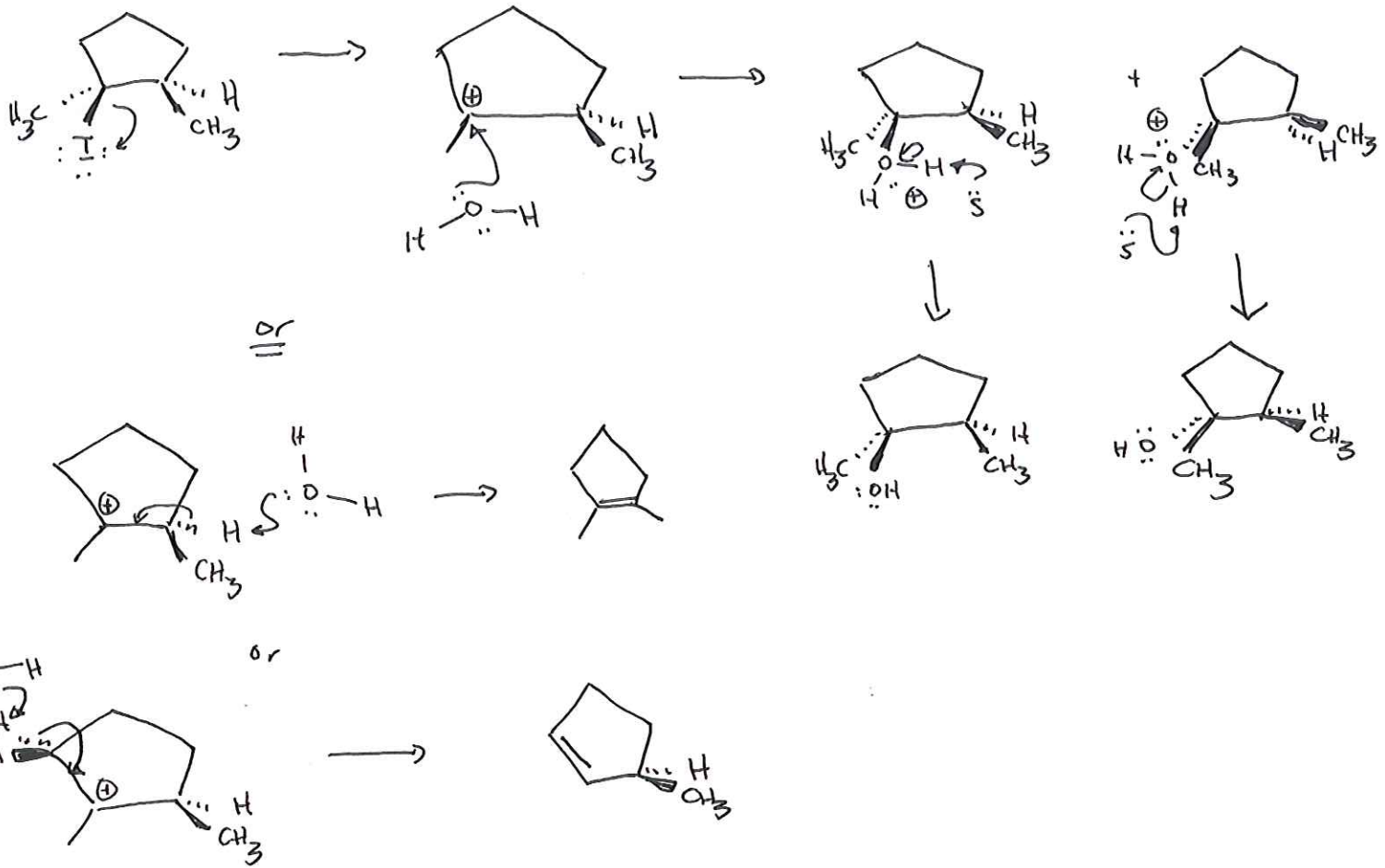
→ 1° substrate ∴ S<sub>N</sub>2



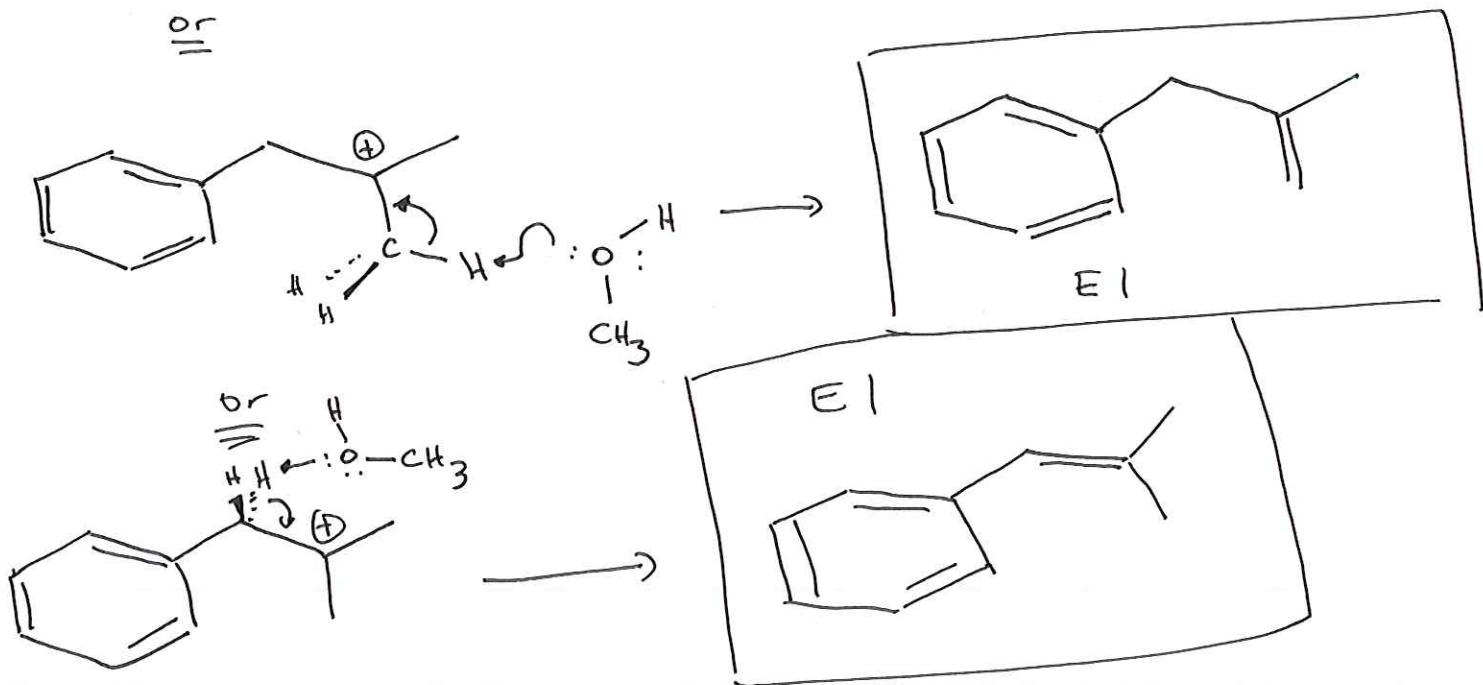
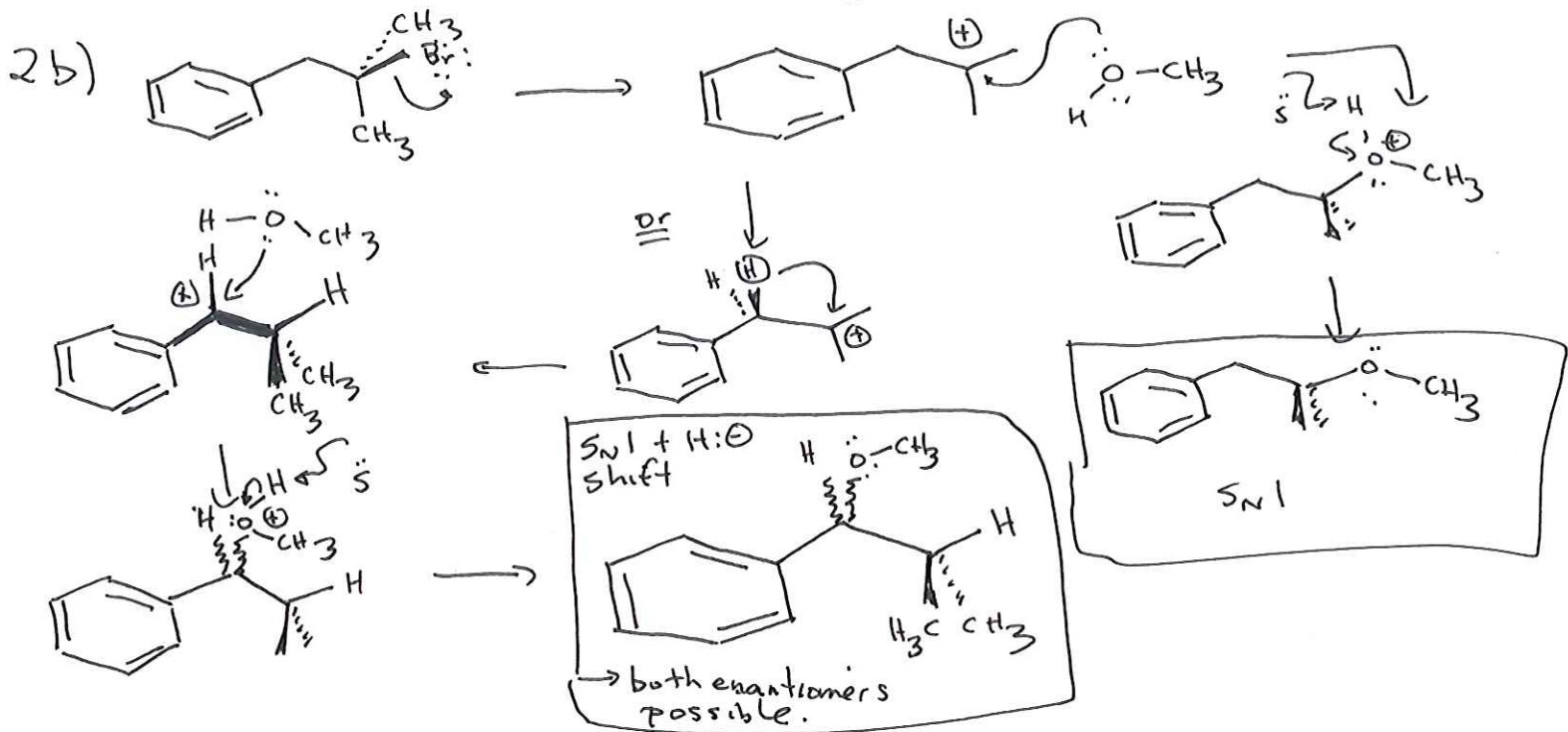
→ polar protic solvent → weak Nu/base.  
→ 3° electrophile ∴ S<sub>N</sub>1 and E1

Chem 2500  
Assignment #17 - Synthesis  
Answer Key

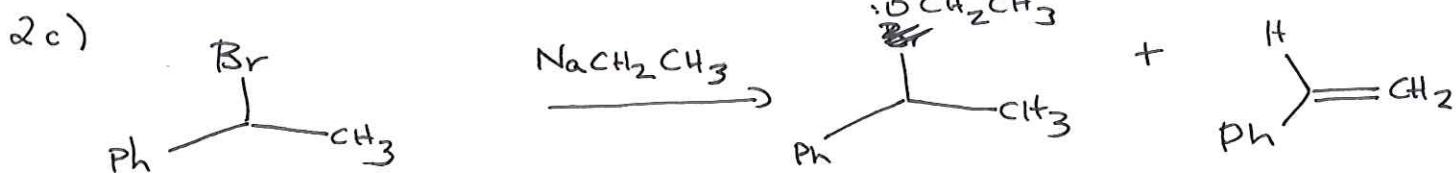
2a) Mechanisms:



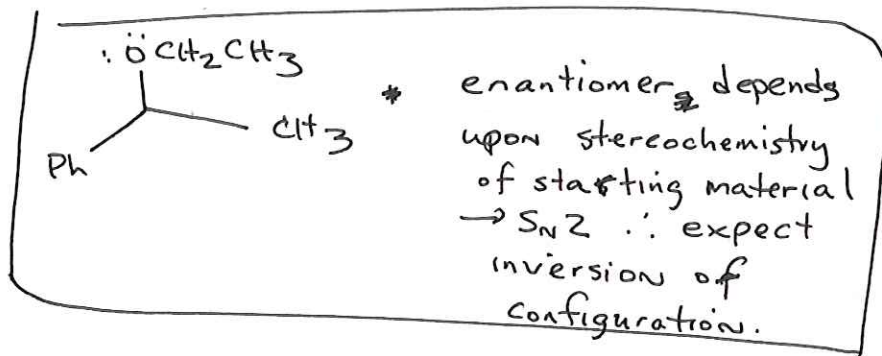
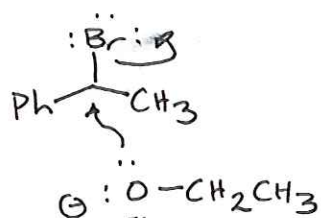
Chem 2500  
Assignment #17 - Synthesis  
Answer Key.



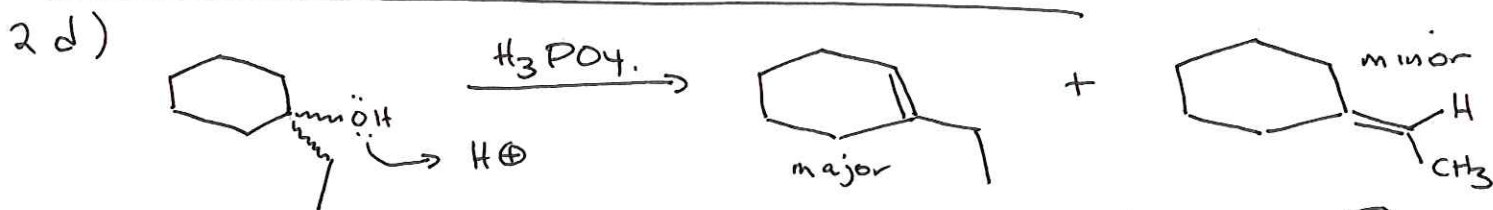
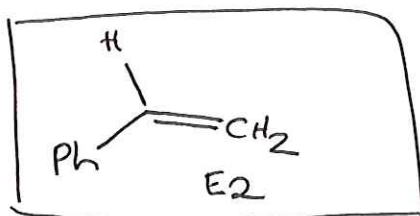
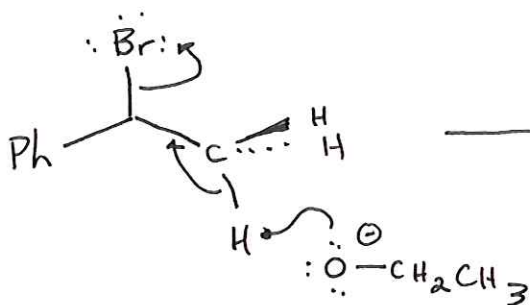
Chem 2500  
Assignment # 17 - Synthesis  
Answer Key



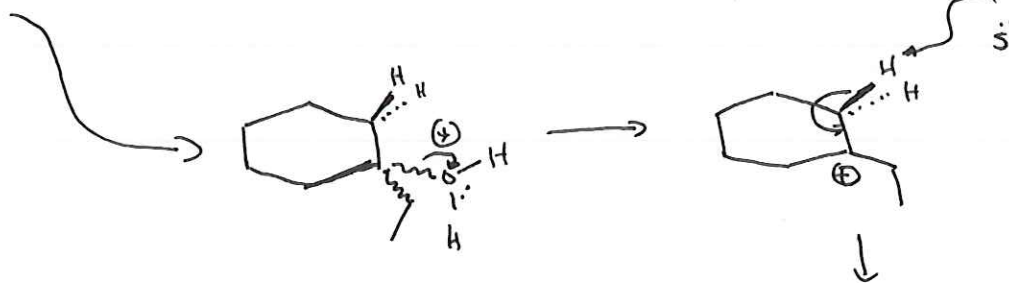
- 2° benzylic centre
- strong base/nucleophile.
- expect  $S_N2$  and E2.



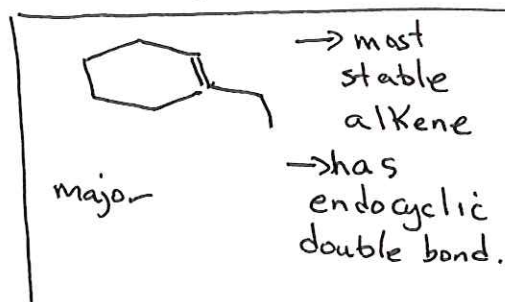
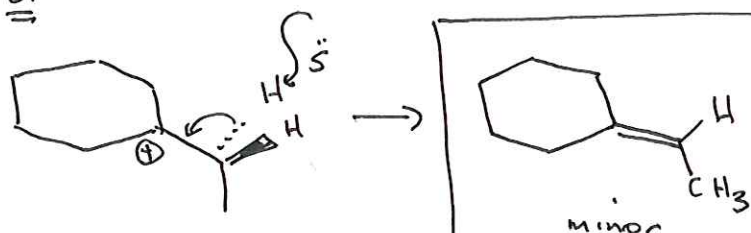
or



- 3° alcohol
- strong acid
- v. weak Nu.
- Expect E1

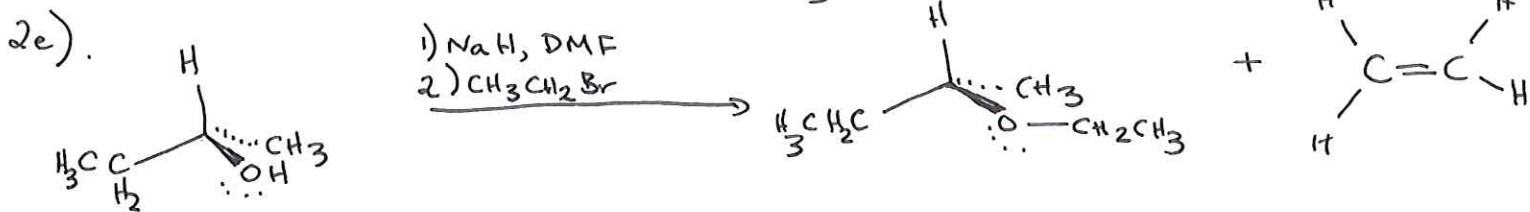


or



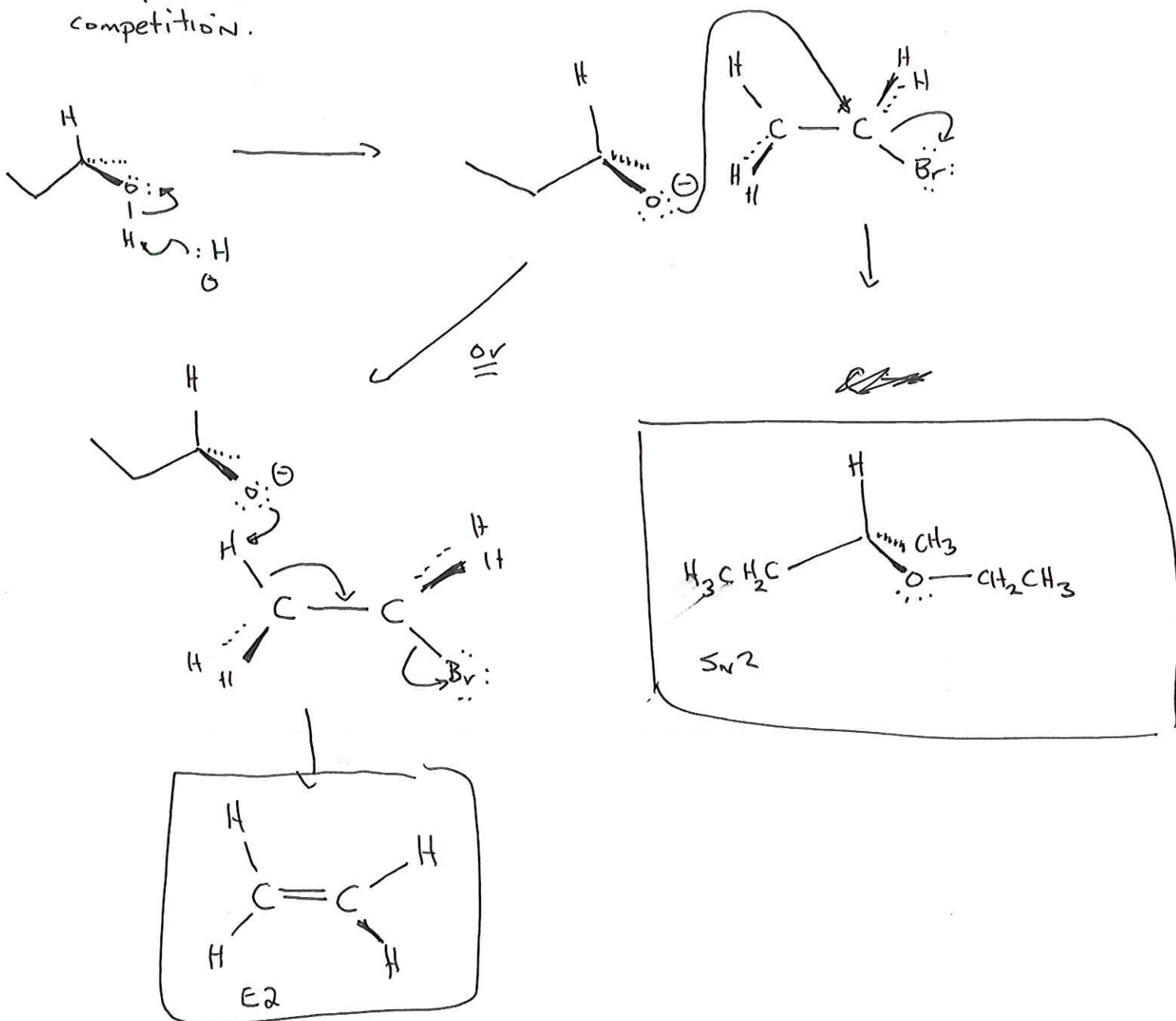


Chem 2500  
 Assignment # 17 - Synthesis  
 Answer Key



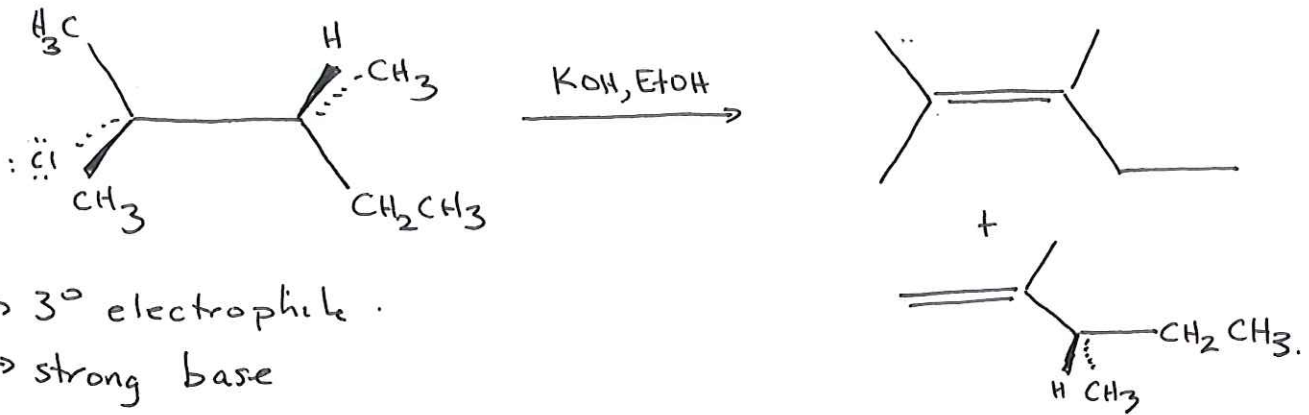
→ Step 1 → strong base deprotonates alcohol.

→ alkoxide anion is a good Nu and  $\text{CH}_3\text{CH}_2\text{Br}$  is a  $1^\circ$  electrophile  
 $\therefore$  expect  $\text{S}_{\text{N}}2$  with  $\text{E}2$  competition.

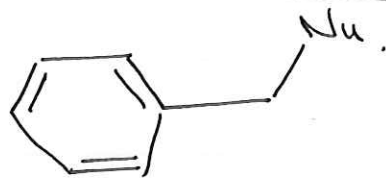
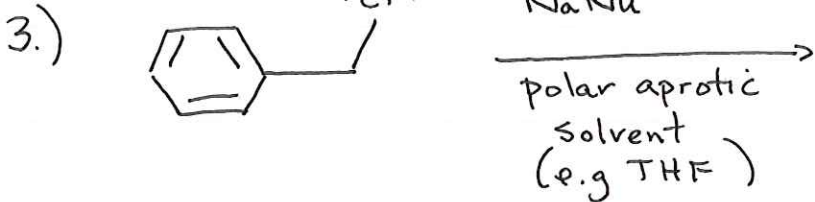
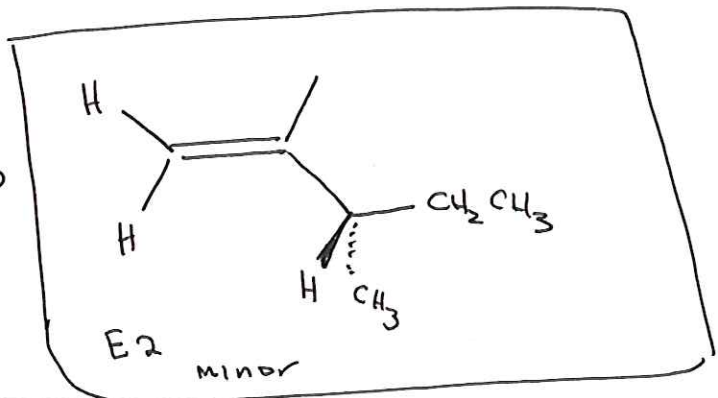
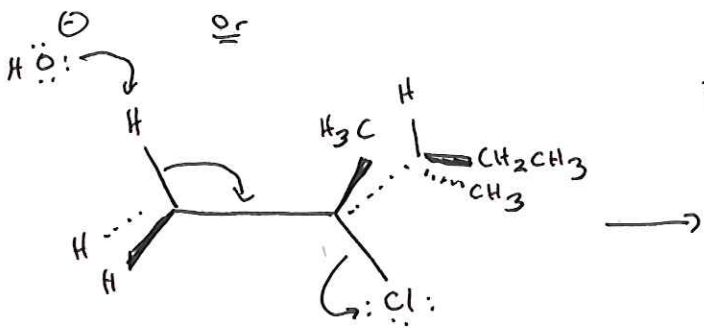
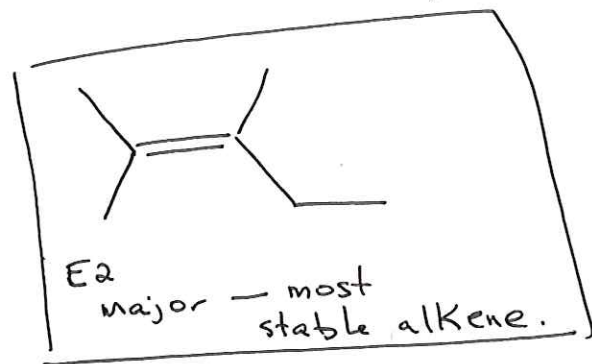
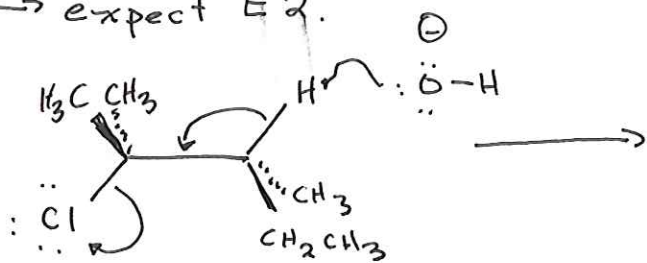


Chem 2500  
Assignment #17 - Synthesis  
Answer Key.

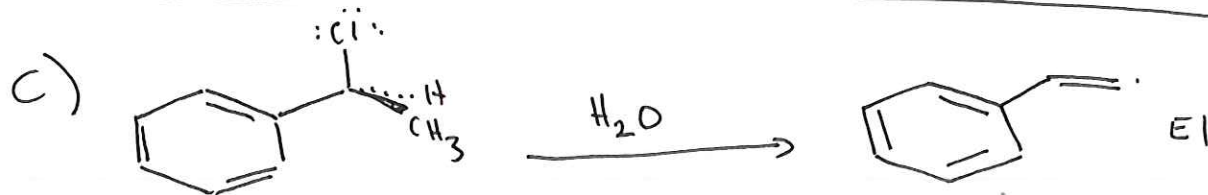
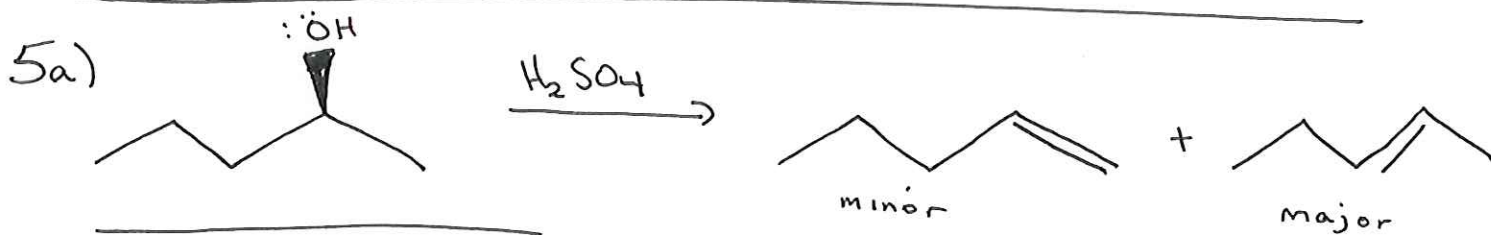
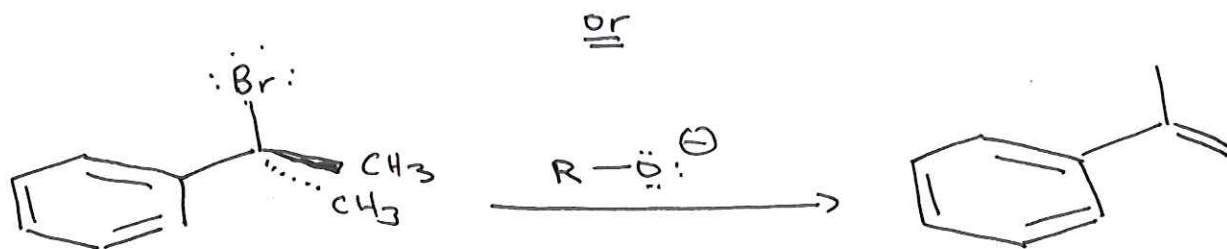
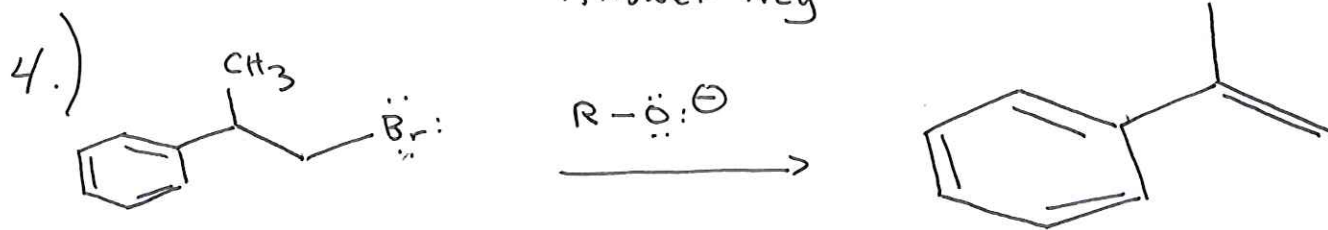
2f.



- 3° electrophile.
- strong base
- expect E2.



Chem 2500  
 Assignment #17 - Synthesis  
 Answer Key



→ 2° benzylic electrophile  
 → weak base/Nu.  
 ∴ S<sub>N</sub>1 + E1

