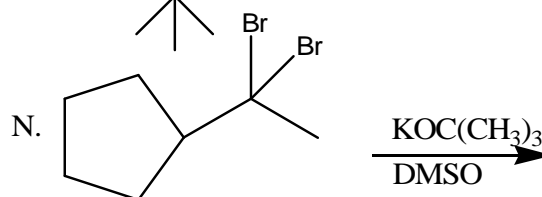
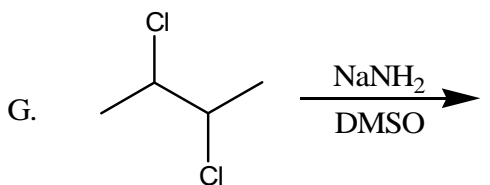
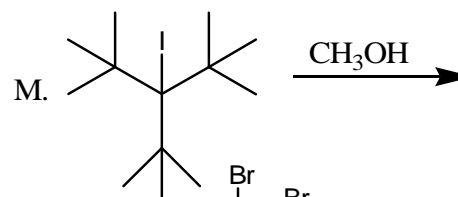
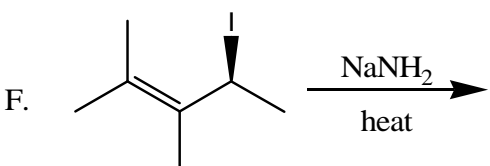
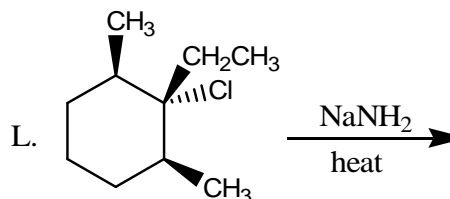
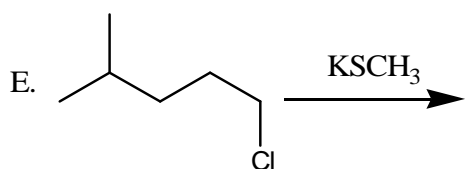
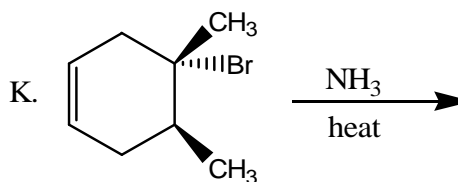
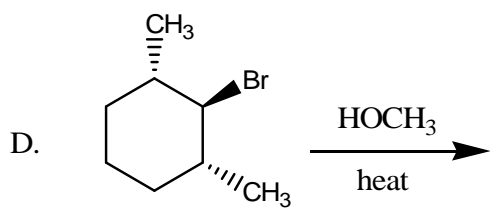
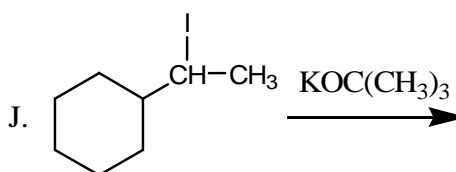
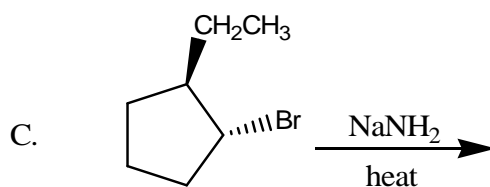
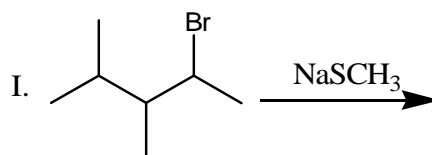
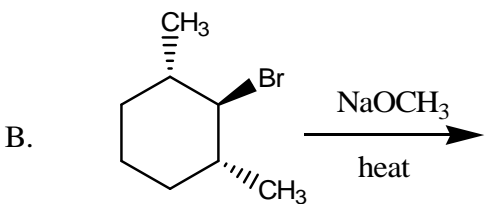
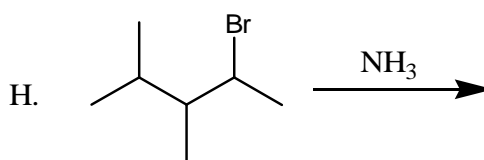
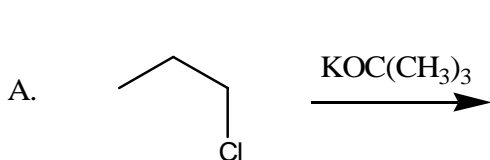
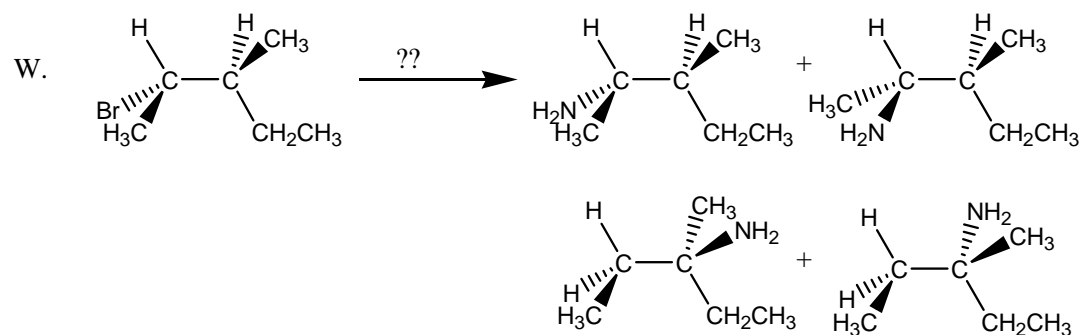
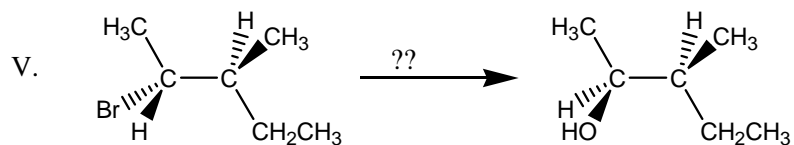
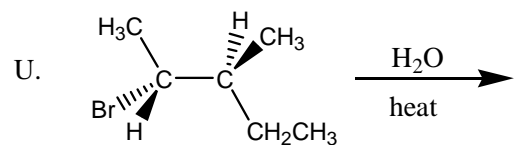
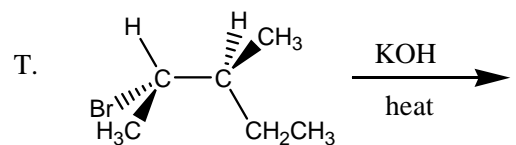
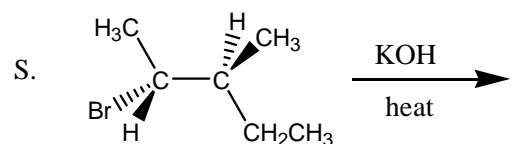
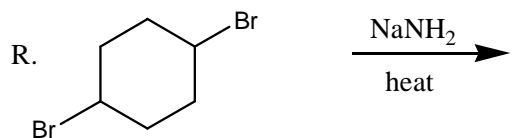
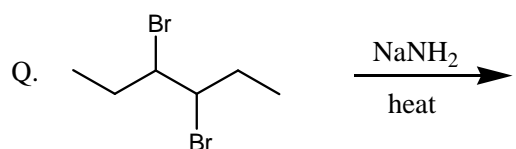
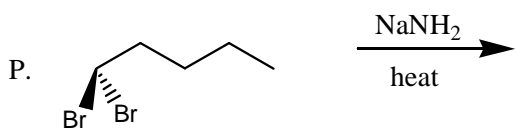
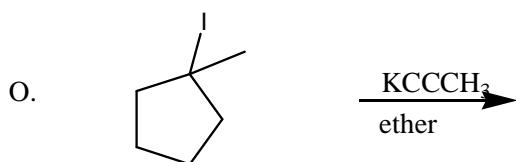


Chem 233: Problem Set #8 (on Chapter 8)

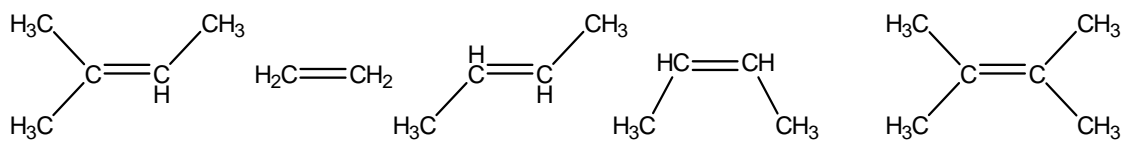
- Specify how each of the following affects the rate of an E1 reaction. Does it increase, decrease, or have no effect on the rate of an E1 reaction?
 - increase in concentration of base
 - increase in base strength
 - increase in concentration of alkyl halide
 - decrease in strength of halide as a leaving group
 - change in alkyl halide from 1° to 3°
- Specify how each of the following affects the rate of an E2 reaction. Does it increase, decrease, or have no effect on the rate of an E2 reaction?
 - decrease in concentration of base
 - decrease in base strength
 - decrease in concentration of alkyl halide
 - increase in strength of halide as a leaving group
 - change in alkyl halide from 3° to 1°
- Circle which of the following pairs will give a higher yield of elimination product over substitution product.
 - $(\text{CH}_3)_2\text{CH-I} + \text{NaNH}_2$
 $\text{p}K_{\text{A}}(\text{NH}_3)=36$ vs. $(\text{CH}_3)_2\text{CH-I} + \text{NaCN}$
 $\text{p}K_{\text{A}}(\text{HCN})=9.1$
 - $(\text{CH}_3)_2\text{CH-I} + \text{NaOH}$ vs. $\text{CH}_3\text{CH}_2\text{CH}_2\text{-I} + \text{NaOH}$
 - $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{-Cl} + \text{KOCH}_3$ vs. $(\text{CH}_3)_2\text{CHCH}_2\text{-Cl} + \text{KOCH}_3$
 - $(\text{CH}_3)_2\text{CH-I} + \text{KOC}(\text{CH}_3)_3$ vs. $(\text{CH}_3)_2\text{CH-I} + \text{KOCH}_3$
 - $(\text{CH}_3)_3\text{C-Br} + \text{NaSCH}_3$ vs. $(\text{CH}_3)_2\text{CH-Br} + \text{NaSCH}_3$
 - $(\text{CH}_3)_2\text{CH-I} + \text{NaCN}$
low temperature vs. $(\text{CH}_3)_2\text{CH-I} + \text{NaCN}$
high temperature

4. For the following reactions: predict major product(s) and specify the mechanism (S_N2 , S_N1 , $E1$, or $E2$) by which the reaction occurs. Show stereochemistry where applicable.





5. Place the following alkenes in order of stability.



6. Are cis/trans isomers possible for each of the following? If so, draw and label both isomers.

- A. 2,3-dichloro-2-butene
- B. 2,3-dichloro-1-butene
- C. 1-pentene
- D. 2-pentene