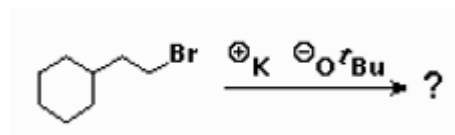
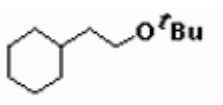
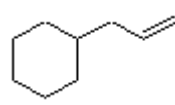
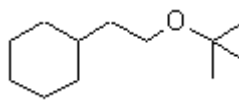
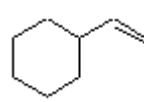
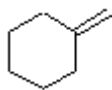


Organic Chemistry (I) Chapter 7

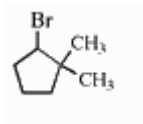
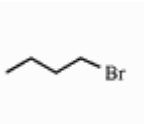
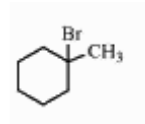
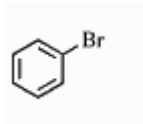
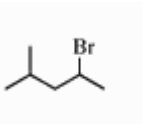
1. Predict the *major* product of the following reaction.



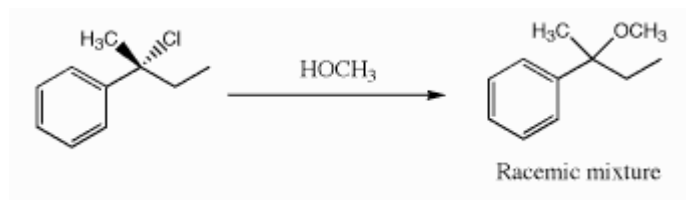
- A.  D. 
- B.  E. 
- C. 

2. Which of the five following compounds would you expect to react most rapidly with methanol to do the following reaction?



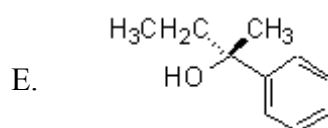
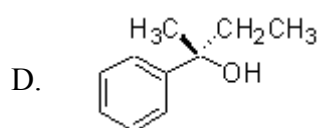
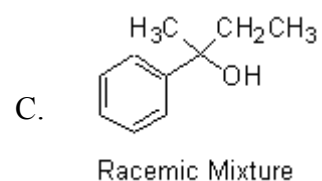
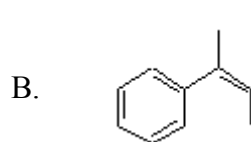
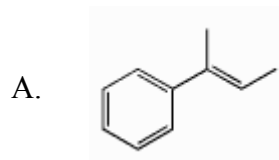
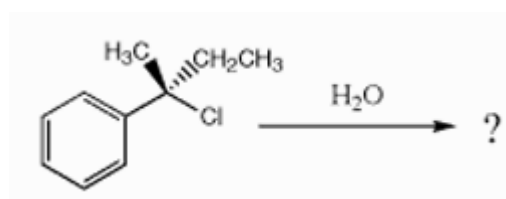
- A.  B.  C. 
- D.  E. 

3. following reaction (as written) most likely proceeds through what mechanism?

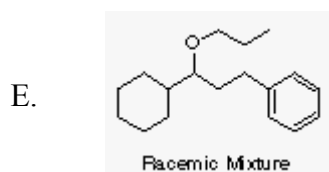
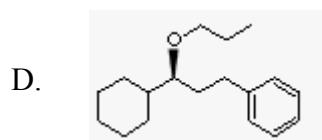
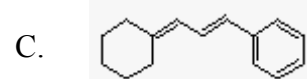
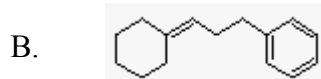
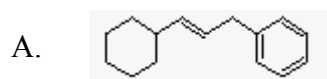
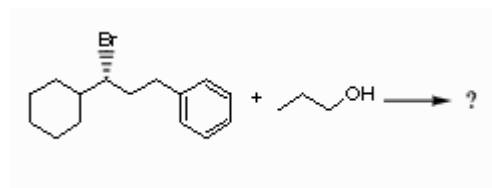


- A. $\text{S}_{\text{N}}2$ D. $\text{E}1$
- B. $\text{S}_{\text{N}}1$ E. Free-radical halogenation
- C. $\text{E}2$

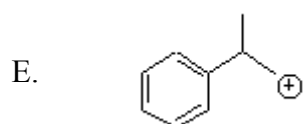
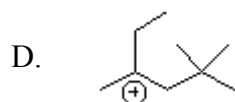
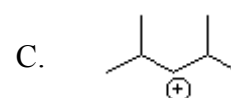
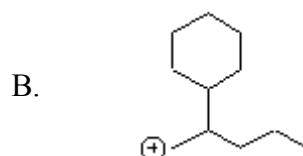
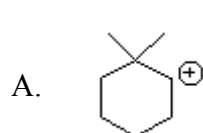
4. What is the major product of the following reaction?



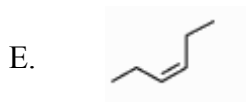
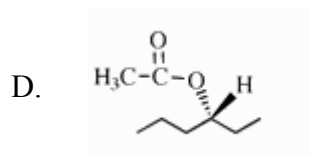
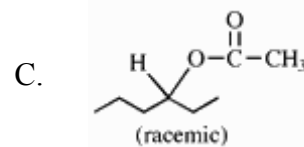
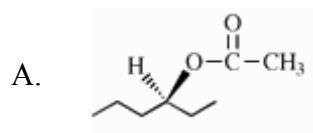
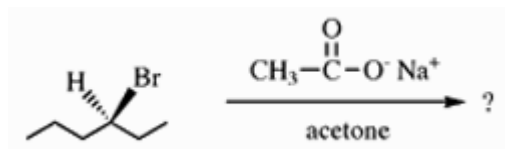
5. Predict the *major* product of the following reaction.



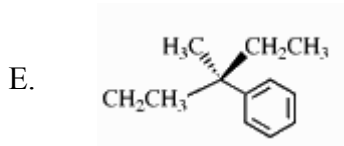
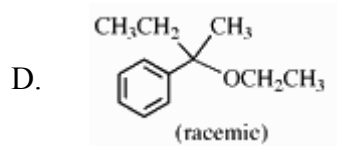
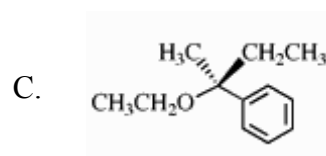
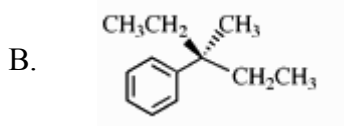
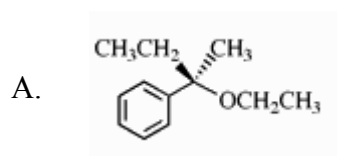
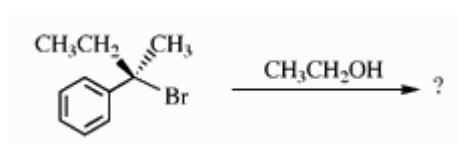
6. Which of the following is the most stable carbocation?



7. Which product would you expect to predominate in the reaction of (*S*)-3-bromohexane with sodium acetate?

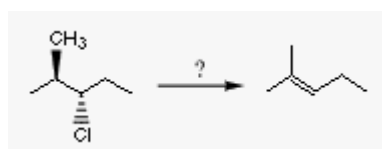


8. What product would you expect to be formed in the reaction of the (*R*) bromide shown?

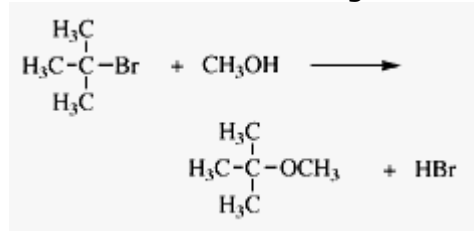


9. Which of the following would be true of the reaction shown?

To ensure that the elimination reaction (shown below) proceeds through an E2 mechanism, which of the following reagents should be utilized as the base?



10. Which of the following would be true of the reaction shown?



- A. The rate of the reaction depends only on the alkyl bromide concentration.
- B. The rate of the reaction depends only on the methanol concentration.
- C. The rate of the reaction depends on both the alkyl halide concentration and the methanol concentration.
- D. The rate of the reaction depends on the concentration of neither reactant.
- E. There is no way to predict what the rate would depend on.

11. Which of the following structures would be an intermediate (short-lived, reactive species) in the reaction shown?

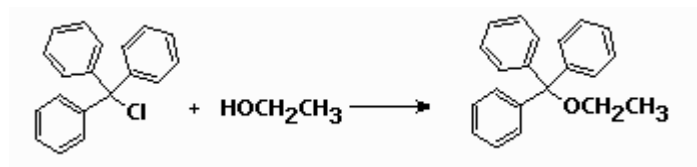


- A. $\begin{array}{c} \text{H}_3\text{C} \\ | \\ \text{H}_3\text{C}-\text{C}\cdot \\ | \\ \text{H}_3\text{C} \end{array}$
a free radical
- B. $\text{CH}_3\text{O}^\ominus$
- C. $\begin{array}{c} \text{H}_3\text{C} \\ | \\ \text{H}_3\text{C}-\text{C}^\ominus \\ | \\ \text{H}_3\text{C} \end{array}$
an anion
- D. $\text{CH}_3\text{O}^\oplus$
- E. $\begin{array}{c} \text{H}_3\text{C} \\ | \\ \text{H}_3\text{C}-\text{C}^\oplus \\ | \\ \text{H}_3\text{C} \end{array}$
a cation

12. Why is it that alkoxides of tertiary alcohols tend to cause E2 reactions in reactions with 1° halides far more than do alkoxides of 1° or 2° alcohols?

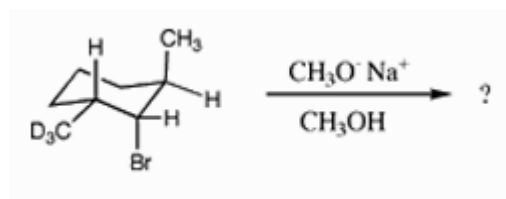
- A. Tertiary alkoxides are stronger bases than alkoxides of 1° or 2° alcohols.
- B. Tertiary alkoxides are better nucleophiles than alkoxides of 1° or 2° alcohols.
- C. Tertiary alkoxides provide a more polar environment than do alkoxides of 1° or 2° alcohols.
- D. Tertiary alkoxides are poorer nucleophiles than alkoxides of 1° or 2° alcohols.
- E. Tertiary alkoxides provide a less polar environment than do alkoxides of 1° or 2° alcohols.

13. In the following reaction, if the concentration of HOCH₂CH₃ is tripled, what will happen to the rate of the reaction?



- A. Triple
 B. Decrease by a factor of 3
 C. Increase by a factor of 6
 D. No change in rate
 E. Increase by a factor of 9

14. Which product would result from the reaction shown? Note the presence of one deuterated methyl group.



- A. B. C.
 D. E.