(a) mechanism of formation for compound A  mechanism of formation for compound B

(b) The mechanism for opening a positively charged three-membered ring intermediate is still bimolecular, even with methanol. The methanol is significantly less basic than methoxide, and so the elimination pathway is not observed (even with the strong base, the substitution reaction was already favored).
Ring opening reactions of the positively charged three-membered rings follow bimolecular $S_N2$ selectivity. The series of aziridinium ions, reading from left to right, is getting progressively less hindered, and so the bimolecular reaction rate increases.
Structure and Reactivity: An Introduction to Organic Chemistry
First Edition • Book B • Study Guide

Chapter 9

09.38

(a)

(b)
1) H–C≡C : Li
2) H₂/Pd-CaCO₃, PbO
3) CH₃CO₃H

(c)
1) BH₃
2) H₂O₂, NaOH
3) HCl, cold, dilute
4) NaCN

(d)

(e)

(f)
C₁₁H₁₄O

(g)

H₃C

H₂CH₂Ph
(a) 

D 

Na⁺ O \[\text{C}=\text{C} \text{H}_2\text{H}_2\text{H}_2\text{H}_3\] 

Na⁺ 

E 

HO \[\text{C}=\text{C}-\text{C}_2\text{H}_2\text{H}_2\text{H}_2\text{H}_3\] 

F (spodoptol) 

HO \[\text{C}=\text{C}-\text{C}_2\text{H}_2\text{H}_2\text{H}_2\text{H}_3\] 

1-tetradecanol, \(\text{C}_{14}\text{H}_{30}\text{O}\) 

\(\text{H}_2/\text{Pd-C}\) 

(b) 

HO \[\text{C}=\text{C}-\text{C}_2\text{H}_2\text{H}_2\text{H}_2\text{H}_3\] 

(c) 

A \(\text{O}=\text{C}-\text{C}_2\text{H}_2\text{H}_2\text{H}_2\text{H}_3\) 

B \(\text{HO}-\text{C}=\text{O}\)
(a) \( \text{M} \ C_{10}H_{11}\text{BrO} \)

(b) \( \text{N} \ \text{PhCH}_2\text{O} \)

\[ \begin{align*}
\text{HO} & \quad \text{C} \quad \text{CH}_2\text{CH}_3 \\
\text{Ph} & \quad \text{C} \quad \text{Br}
\end{align*} \]
a) A meso compound

b) B racemic mixture

Intermediate

+ enantiomer