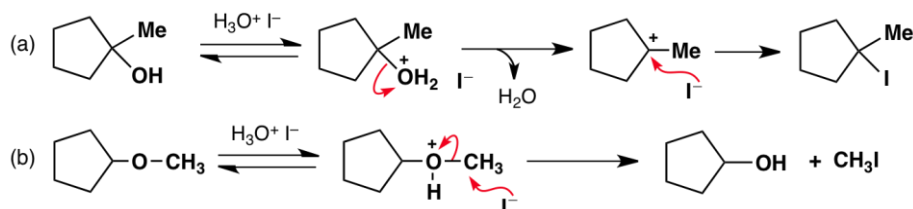
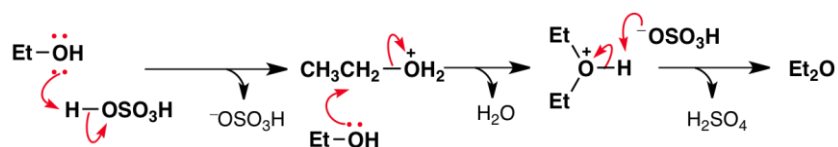


Solutions to Exercises, Chapter 14

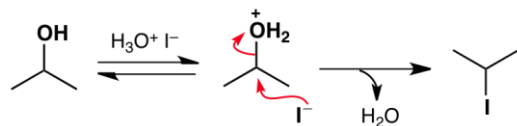
14.1 (a) S_N1 for 3° alcohol; (b) S_N2 at methyl by I^- .



14.2



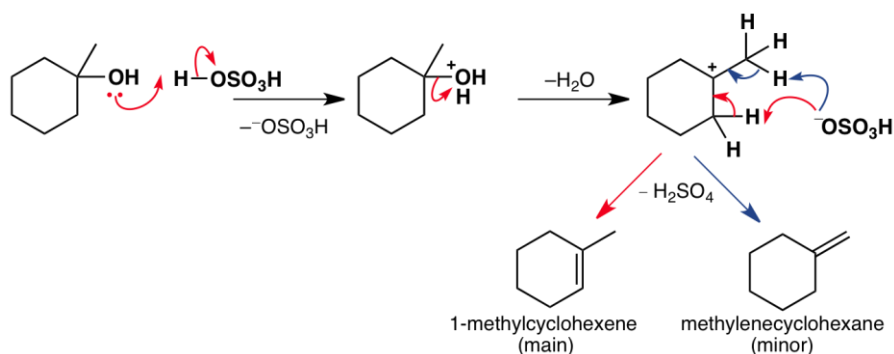
14.3 2-Iodopropane is formed by the acid-catalysed S_N2 reaction of the propan-2-ol formed in the initial reaction.



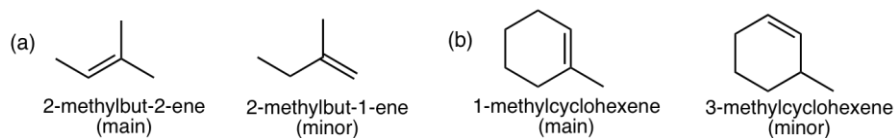
14.4 But-1-ene is formed as a minor product.



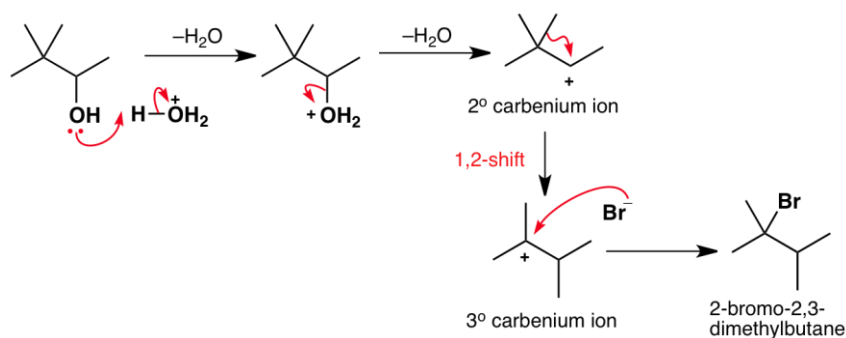
14.5 An intermediate tertiary carbenium ion is formed in the heterolytic step of an $E1$ mechanism, then the more stable trisubstituted alkene is the main product (Zaitsev regioselectivity).



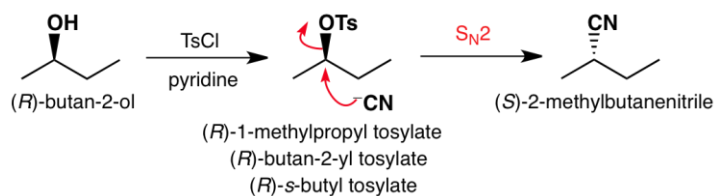
14.6



14.7



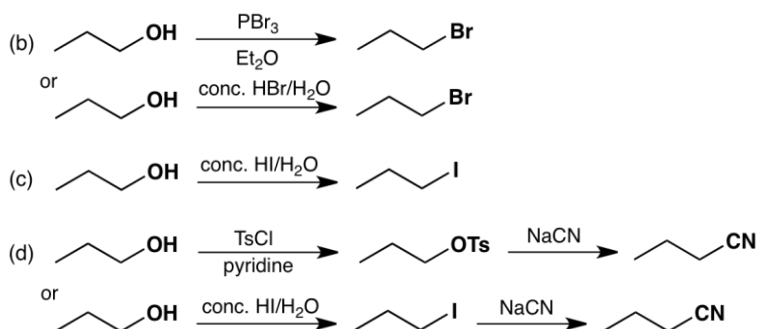
14.8 Hydroxide, HO^- , is a very poor leaving group and cannot be displaced even by a powerful nucleophile like CN^- .



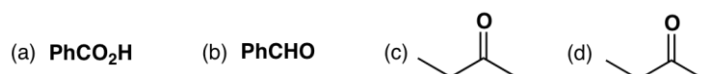
14.9



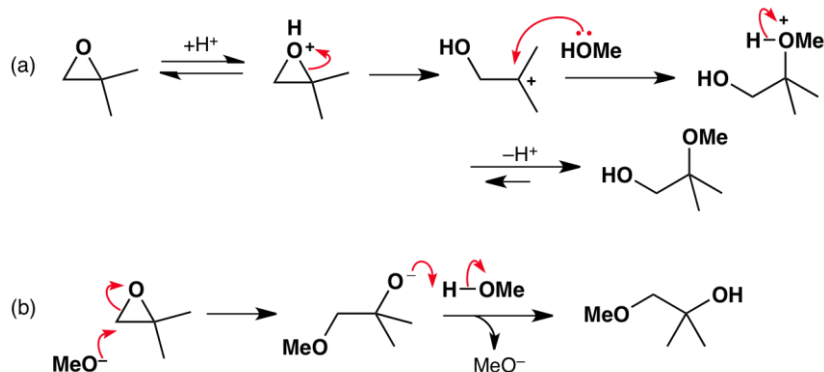
The SOCl_2 /pyridine method at room temperature is normally preferred over the use of hot concentrated hydrochloric acid.



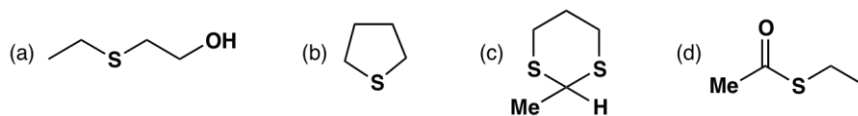
14.10



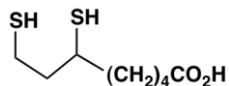
14.11 Under acidic conditions, reaction proceeds by the $\text{S}_{\text{N}}1$ mechanism and formation of the 3° carbenium ion which is captured by a methanol molecule. Sodium methoxide in methanol induces an $\text{S}_{\text{N}}2$ reaction at the 1° carbon.



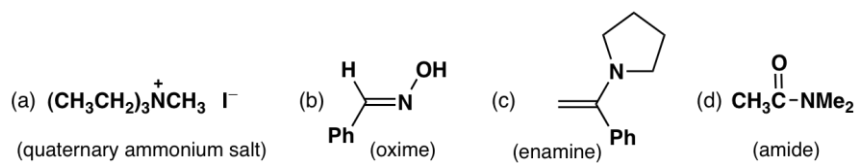
14.12



14.13



14.14



14.15

