1. Draw a stepwise, detailed mechanism for each reaction. (8.61, 4th Ed)

   a. \[
   \text{Cl} \xrightarrow{\text{CH}_3\text{CH}_2\text{OH}} \text{OCH}_2\text{CH}_3 + \text{CH}_2=\text{CH}_2 + \text{CH}_2=\text{CH}_2 + \text{HCl}
   \]
   b. \[
   \text{Cl} \xrightarrow{\text{OH}} \text{CH}_3 + \text{CH}_2\text{CH}_2 + \text{H}_2\text{O} + \text{Cl}^-
   \]

2. Draw the structure of a dihalide that could be used to prepare each alkyne. There may be more than one possible dihalide. (8.52, 4th Ed)

   a. \(\text{CH}_3\text{C}≡\text{CCH}_3\)
   b. \(\text{CH}_3\text{CH}≡\text{CCH}_3\)
   c. \[
   \text{Ph} - \text{C}≡\text{C} - \text{Ph}
   \]
3. Draw the organic products formed in each reaction. (8.54, 3rd edition)

a. \[
\begin{array}{c}
\text{Br} \\
\text{OC(CH}_3\text{)_3}
\end{array}
\]

b. \[
\begin{array}{c}
\text{I} \\
\text{OCH}_2\text{CH}_3
\end{array}
\]