1. Predict the major product(s) of the reaction below and provide a complete mechanism. If multiple regioisomers are possible, explain which, if any, are expected to predominate in the reaction mixture. If multiple stereoisomers are possible, explain which, if any, are expected to predominate in the reaction mixture. Justify your answers in terms of the mechanism. (4 points)

Regiochemistry: Markovnikov product forms bc.
2° carbocation is more stable than the alternative (1°).

2. Predict the major product(s) of the reaction below and provide a complete mechanism. If multiple regioisomers are possible, explain which, if any, are expected to predominate in the reaction mixture. If multiple stereoisomers are possible, explain which, if any, are expected to predominate in the reaction mixture. Justify your answers in terms of the mechanism. (4 points)

Regiochemistry: N/A in this case
Stereochemistry: Anti addition via bromonium ion

3. Show the products of these reactions. (2 points)

\[
\begin{align*}
\text{H}_3\text{C}\text{CH}_2\text{C} & \text{H}_3 + \text{HBr} \rightarrow \text{CH}_3\text{CH}_2\text{C} - \text{CH}_3 \\
\text{H}_3\text{C} & \text{C} \rightarrow \text{H}_2\text{O} \rightarrow \text{H}_3\text{C} + \text{Cl}_2 \rightarrow \text{Cl}_3
\end{align*}
\]