Chemistry 220
Chapter 8A:
Reactions of Alkenes Part A (Sections 8-3 to 8-7)

Complete the following reactions indicating stereochemistry where necessary.

1. \[ \text{[enantiomers]} \]

2. \[ \text{[enantiomers]} \]

3. \[ \text{[diastereomers]} \]

4. \[ \text{[enantiomers]} \]

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5. Write a mechanism to account for the following reactions. Show each step clearly using curved arrows to show the movement of electrons.

6. (1) Write a mechanism to account for the following reactions. Show each step clearly using curved arrows to show the movement of electrons.

(2) What stereoisomers do you expect to get from the above reaction?
7. (a) Write a mechanism.

\[
\text{RO} + \text{H-X} \xrightarrow{\text{heat}} \text{ROOR} \xrightarrow{\text{heat}} 2 \text{RO*} \\
\text{RO*} + \text{H-Br} \rightarrow \text{ROH} + \text{Br*} \\
\text{RO*} + \text{Br*} \rightarrow \text{*} \\
\text{H-Br} \rightarrow \text{Br} \\
\]

8. BD₃ \xrightarrow{\text{THF}} \text{H}_2\text{O}_2 \xrightarrow{\text{H}_2\text{O, OH}^-} \text{D}

9. \text{HBr} \rightarrow \text{Br}

10. Write a full mechanism for the reaction.

\[
\text{H}^+ \xrightarrow{\text{H}_2\text{O}} \text{H}_2\text{O}
\]
11. What are the reactants?

12. Write a full mechanism for the reaction using curved arrows to show the movement of electrons and indicating appropriate stereochemistry.
13. Write a full mechanism for the reaction using curved arrows to show the movement of electrons and indicating appropriate stereochemistry. You can exclude the second peroxide step mechanism for this one.