Alkene-to-Alcohol Planning — Student Worksheet

Name: _____ Date: _____ Topic: Alkenes

Complete each transformation with reagents, a short explanation, and any important selectivity limitation. Show reasoning; there may be more than one defensible synthetic route.

1. Plan the conversion: CH3–CH=CH2 → CH3–CH2–CH2OH. Name the reagent(s), predicted product, and one selectivity issue.

2. Plan the conversion: CH3–CH=CH2 → CH3–CH(OH)–CH3. Name the reagent(s), predicted product, and one selectivity issue.

3. Plan the conversion: CH2=CH–CH2–CH3 → HO–CH2–CH2–CH2–CH3. Name the reagent(s), predicted product, and one selectivity issue.

4. Plan the conversion: CH2=CH–CH2–CH3 → CH3–CH(OH)–CH2–CH3. Name the reagent(s), predicted product, and one selectivity issue.

5. Plan the conversion: Cyclohexene (C_6H_{10}) → Cyclohexanol ($C_6H_{11}OH$). Name the reagent(s), predicted product, and one selectivity issue.

6. Plan the conversion: $CH_2=C(CH_3)_2$ → $(CH_3)_2CH–CH_2OH$. Name the reagent(s), predicted product, and one selectivity issue.

7. Explain why oxymercuration and hydroboration generally give different alcohol regioisomers from propene.

8. Why are E/Z or R/S claims inappropriate without inspecting the product structure?