Two-Step Synthesis — Student Worksheet

Name: _____ Date: _____ Topic: Multistep

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: CH3CH2CH2CH2Br → CH3CH2CH2CO2H. Name the reagent(s), predicted product, and one selectivity issue.

2. Plan the conversion: CH3CHBrCH3 → CH3CH2CH2OH. Name the reagent(s), predicted product, and one selectivity issue.

3. Plan the conversion: CH2=CHCH2CH3 → CH3CH2CH2CH2OCH2CH3. Name the reagent(s), predicted product, and one selectivity issue.

4. Plan the conversion: Cyclohexene → Cyclohexanone. Name the reagent(s), predicted product, and one selectivity issue.

5. Plan the conversion: CH2=CHCH2CH3 → CH3COCH2CH3. Name the reagent(s), predicted product, and one selectivity issue.

6. Plan the conversion: CH2=C(CH3)2 → (CH3)2CHCHO. Name the reagent(s), predicted product, and one selectivity issue.

7. Explain why the intermediate matters in a two-step synthesis.

8. Why should every proposed route be checked for reaction competition?