Williamson Ether Synthesis — Student Worksheet

Name: _____ Date: _____ Topic: Ethers

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: CH3CH2OH + CH3I → CH3CH2OCH3. Name the reagent(s), predicted product, and one selectivity issue.

2. Plan the conversion: Phenol (C6H5OH) + CH3I → Anisole (C6H5OCH3). Name the reagent(s), predicted product, and one selectivity issue.

3. Plan the conversion: CH3CH2CH2OH + CH3CH2Br → CH3CH2CH2OCH2CH3. Name the reagent(s), predicted product, and one selectivity issue.

4. Plan the conversion: (CH3)2CHOH + CH3I → (CH3)2CHOCH3. Name the reagent(s), predicted product, and one selectivity issue.

5. Plan the conversion: (CH3)3COH + CH3I → (CH3)3COCH3. Name the reagent(s), predicted product, and one selectivity issue.

6. Plan the conversion: Target: ethyl tert-butyl ether → (CH3)3COCH2CH3. Name the reagent(s), predicted product, and one selectivity issue.

7. Why is tert-butyl bromide generally a poor Williamson SN2 electrophile?

8. Explain why methyl iodide can work with a bulky alkoxide.