

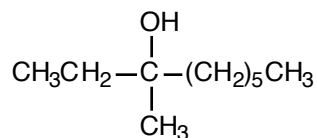
WORKSHOP, Chapter 14

Organometallic Compounds / Alcohol Syntheses

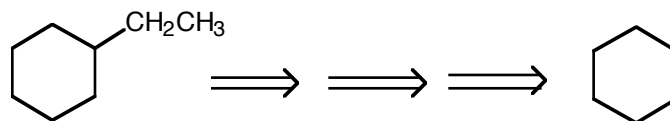
1. Compounds **A** and **B** both have a molecular formula of C_7H_7Br . When either is reacted with Mg/Et_2O followed by treatment with H_2O , toluene ($C_6H_5CH_3$) is obtained. When **A** is added to $AgNO_3/EtOH$, an immediate precipitate occurs. However, when **B** is added to $AgNO_3/EtOH$, even heating for extended periods of time yields no precipitate. Give possible structures for **A** and **B**, and explain the reasoning behind your assignments.

2. Methyl formate reacts with two equivalents of ethyl magnesium bromide. Give the structure of the final product, $C_5H_{12}O$, isolated after work up. Give a mechanism for the formation of this product.

3. a. Disconnect the following alcohol to all of the possible combinations of Grignard reagents and carbonyl reactants.



b. Construct a retrosynthetic tree for the synthesis of ethylcyclohexane from cyclohexane. Include as many routes (branches) as possible. Evaluate the efficiency of each step in each route. Come to a group consensus about the most efficient route.



4. Write synthetic sequences for the following compounds, beginning only with alcohols having four carbons or fewer.

