

HOMEWORK ASSIGNMENT #8 ORGANIC CHEMISTRY II

(to and from alcohols)

(due Wednesday 16 April)

m.i.ne

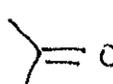
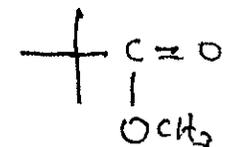
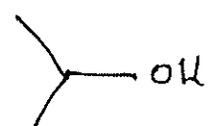
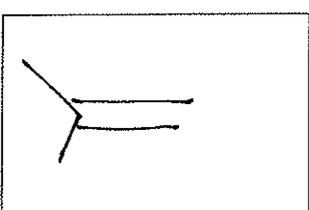
Your name: _____

An Swartz

(25 points total)

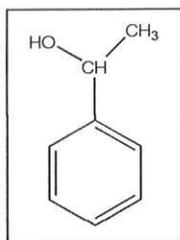
8.1

Nothing but boxes

- a) CH₃CH₂-OH $\xrightarrow{\text{pcc}}$ $\begin{matrix} \text{CH}_3\text{C}=\text{O} \\ | \\ \text{H} \end{matrix}$
- b)  + CH₃MgBr $\xrightarrow[\text{H}_2\text{O}]{\text{ether}}$ t-butanol (CH₃)₃C-OH
- c) ethanol $\xrightarrow[\text{H}_2\text{SO}_4]{\text{K}_2\text{Cr}_2\text{O}_7}$ acetic acid
- d)  $\xrightarrow[\text{(then H}_2\text{O)}]{\text{LiAlH}_4/\text{ether}}$ $\begin{matrix} \text{CH}_3 \\ | \\ \text{CH}_3-\text{C}-\text{CH}_2\text{OH} \\ | \\ \text{CH}_3 \end{matrix}$
- e)  $\xrightarrow[\text{H}_2\text{SO}_4]{\text{K}_2\text{Cr}_2\text{O}_7}$ acetone
+ CH₃OH
⇒ ester reduced
- f)  $\xrightarrow[\text{Solvent}]{\text{B}_2\text{H}_6}$ $\xrightarrow[\text{OH}^-]{\text{H}_2\text{O}_2}$ $\begin{matrix} \text{CH}_3 \\ | \\ \text{CH}_3-\text{C}-\text{CH}_2\text{OH} \\ | \\ \text{H} \end{matrix}$ Known 2-step
- g) methanol + $\begin{matrix} \text{HO}-\text{C}=\text{O} \\ | \\ \text{C}_4\text{H}_9 \end{matrix}$ $\xrightarrow{\text{H}^+}$ $\begin{matrix} \text{CH}_3\text{O}-\text{C}=\text{O} \\ | \\ \text{C}_4\text{H}_9 \end{matrix}$ Fischer esterification
- h) C₃H₇MgCl +  $\xrightarrow[\text{H}_2\text{O}]{\text{dry ether}}$ n-pentanol

8.2. Alcoholic Synthesis Binge

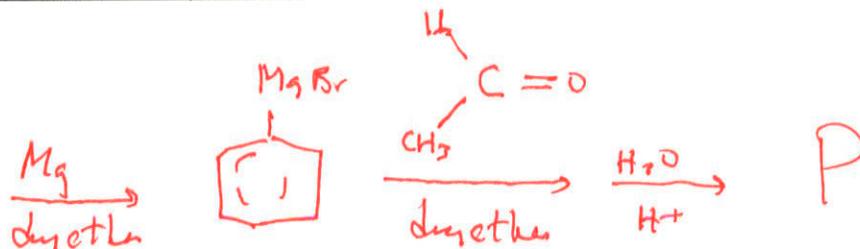
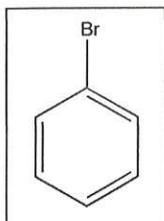
Provide synthetic routes to 1-phenylethanol starting from the substrates below:



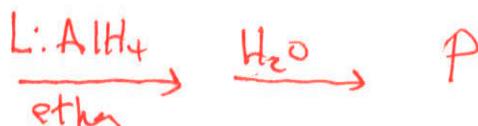
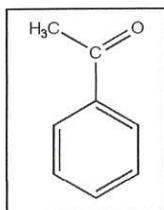
= P (Product)

START HERE (2 PT EACH)/10 pts total

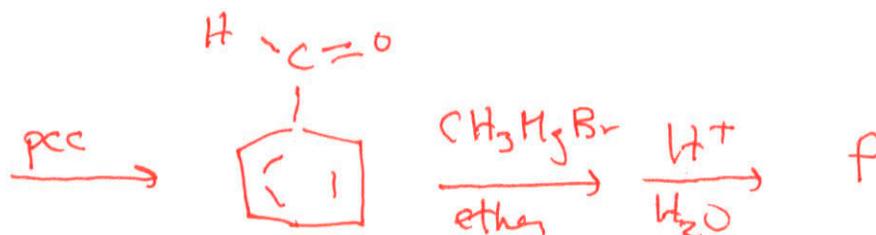
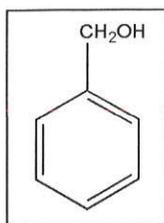
1) chlorobenzene



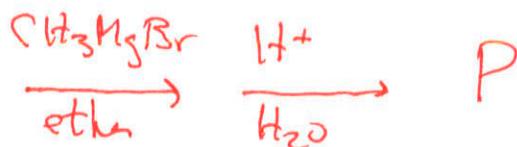
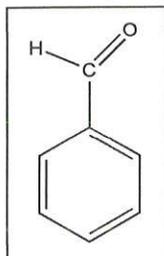
2) acetophenone



3) benzyl alcohol



4) benzaldehyde



5) benzoic acid

