Exam 1  Average = 75.6%

In an email, appeals - tell me what question and why your answer should be counted as correct. Put appeal in the subject line for faster response.

Grades will be posted on eCampus shortly.

\[
\text{Na}^{+} \quad H - B^2 - H \\
\text{NaBH}_4 \\
\text{Weaker}
\]

\[
\text{Li}^{+} \quad H - Al - H \\
\text{LiAlH}_4 \quad \text{(LAH)} \\
\text{STRONG}!!
\]
Aldehydes + Ketones

\[ \ce{H+ \rightarrow \ce{H3BO3} \rightarrow \ce{H2O}} \]

\[ \ce{CH3\text{CH2CH2CO2H} + \ce{H+} \rightarrow \ce{CH3\text{CH2CH2CO2H}+}} \]

\[ \text{Step 1} \]

Esters - NaBH4 doesn't react.

\[ \ce{CH3\text{CO2CH3} + \ce{NaBH4} \rightarrow \ce{CH3\text{OH} + \ce{CH3CO2H}} \]

\[ \text{Step 2} \]

\[ \ce{\text{OH} + \ce{H+}} \]
Carboxylic Acids

1. $\text{LiAlH}_4 \rightarrow \text{H}_2$ (LiAlH₄)
2. $\text{LiAlH}_4 \rightarrow \text{H}_2$ (LiAlH₄)
3. $\text{LiAlH}_4 \rightarrow \text{H}_2$ (LiAlH₄)
4. $\text{LiAlH}_4 \rightarrow \text{H}_2$ (LiAlH₄)
5. $\text{LiAlH}_4 \rightarrow \text{H}_2$ (LiAlH₄)
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7. $\text{LiAlH}_4 \rightarrow \text{H}_2$ (LiAlH₄)
8. $\text{LiAlH}_4 \rightarrow \text{H}_2$ (LiAlH₄)
9. $\text{LiAlH}_4 \rightarrow \text{H}_2$ (LiAlH₄)
10. $\text{LiAlH}_4 \rightarrow \text{H}_2$ (LiAlH₄)

NaBH₄ Reaks

Step 2

$\text{H}_2$
What functional groups? Arene, Ketone, ester
No reaction of Arenes + NaBH₄
Grignard Reaction

\[ \text{CH}_3\text{Br} + \text{Mg} \rightarrow \text{CH}_3\text{MgBr} \]

\[ \text{H}_2\text{C} = \text{O} + \text{MgBr} \]

Grignard + Aldehydes

\[ \text{CH}_3\text{MgBr} \rightarrow \text{H} + \text{CH}_3\text{MgBr} \]

2nd Step

\[ \text{OH} \rightarrow \text{H}^+ \]

Potential Problems

\[ \text{H}_2\text{O} + \text{CH}_3\rightarrow \text{CH}_4 + \text{HO} \]

Any OH bonds can react in this way.

Radical Chemistry

\[ \text{CH}_3\text{MgBr} \rightarrow \text{CH}_3\text{Mg}^\cdot \]
Br

ether

\[ \text{Final Step} \]

CH₃OH +
Give the major organic product(s) of the following reaction. Give your answer as a text answer, with the correct answers being listed in alphabetical order. (Example: xxxx a b)

E - None of these products are a major product of the reaction that is shown.

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