Which of the following carbonyl compounds is the most acidic?

\[
\begin{align*}
\text{A} & : \quad pK_a = 17 \\
\text{B} & : \quad pK_a = 20 \\
\end{align*}
\]

Which of the following carbonyl groups is the more reactive?

What is the product of the following aldol reaction?

Can the following transformation be accomplished using the aldol reaction?  A. yes   B. no
What is the mechanism of the following reaction?

What is the major product of the following reaction?
What is the minor product of the following reaction?

What is the minor product of the following reaction?

How is this formed?

What is the product of the following reaction?

What is the mechanism for this reaction?
Predict the product of the following reaction.

\[
\begin{align*}
\text{H}^+ + \text{H}_2\text{C} = \text{N} & \rightarrow \text{H}_2\text{C} = \text{N} - \text{CH}_3 \\
\text{H}_2\text{C} = \text{N} & \rightarrow \text{H}_2\text{C} = \text{N} - \text{CH}_3 \\
\text{H}_2\text{C} = \text{N} & \rightarrow \text{H}_2\text{C} = \text{N} - \text{CH}_3 \\
\end{align*}
\]

\[
\begin{align*}
\text{A} & \rightarrow \text{B} \\
\text{B} & \rightarrow \text{C} \\
\text{C} & \rightarrow \text{D} \\
\end{align*}
\]

Predict the product of the following reaction.

\[
\begin{align*}
\text{H}^+ + \text{H}_2\text{C} = \text{N} & \rightarrow \text{H}_2\text{C} = \text{N} - \text{CH}_3 \\
\text{H}_2\text{C} = \text{N} & \rightarrow \text{H}_2\text{C} = \text{N} - \text{CH}_3 \\
\text{H}_2\text{C} = \text{N} & \rightarrow \text{H}_2\text{C} = \text{N} - \text{CH}_3 \\
\end{align*}
\]

\[
\begin{align*}
\text{A} & \rightarrow \text{B} \\
\text{B} & \rightarrow \text{C} \\
\text{C} & \rightarrow \text{D} \\
\end{align*}
\]

What is cholesterol? What does it do?

Mannich Reaction
How does cholesterol get in our bodies?

[Diagram showing the process of cholesterol acquisition through diet and biosynthesis, with a cholesterol molecule image and a formula CH₃(CHOH)₇CH(OH)CH₂OH.]