The following Aldol condensation product was formed by reaction of an enolate anion and a carbonyl compound in the presence of heat. Identify the structure that provided the enolate anion and the structure that was the Lewis acid (electrophile) in the enolate addition step.

A

\[ \text{Enolate} \quad \text{= Lewis acid} \]

B

\[ \text{Enolate} \quad \text{= Lewis acid} \]

C

\[ \text{Enolate} \quad \text{= Lewis acid} \]

D

\[ \text{Enolate} \quad \text{= Lewis acid} \]
QUESTION 2
MC34n
Which is the most correct statement?

A an enol is a stronger nucleophile than an enamine because oxygen is more electronegative than nitrogen
B an enol is a weaker nucleophile than an enamine because oxygen is more electronegative than nitrogen
C an enol is a stronger nucleophile than an enamine because oxygen is less electronegative than nitrogen
D an enol is a weaker nucleophile than an enamine because oxygen is less electronegative than nitrogen
QUESTION 3
MC34m

Which is the most correct statement?

A an ester is a stronger Bronsted acid than a ketone because the oxygen in the $\alpha$-position to the C=O bond is electron donating

B an ester is a stronger Bronsted acid than a ketone because the oxygen in the $\alpha$-position to the C=O bond is electron withdrawing

C an ester is a weaker Bronsted acid than a ketone because the oxygen in the $\alpha$-position to the C=O bond is electron donating

D an ester is a weaker Bronsted acid than a ketone because the oxygen in the $\alpha$-position to the C=O bond is electron withdrawing

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QUESTION 4
MC34k

How many enolizable hydrogens does the following structure possess?

A 0  C  2
B 1  D  3
QUESTION 5
MC34g
Which best characterizes the product of the following reaction sequence?

\[
\begin{align*}
&\text{1. LDA} \\
&\text{2. } \text{Br} \\
&\text{???
}
\end{align*}
\]

A Chiral 
B Achiral 
C Meso Compound 
D Racemic Mixture

QUESTION 6
MC34p
Which is the product of the Calisen reaction of the following ester?

\[
\begin{align*}
&\text{1. Na}^+ \text{OMe/MeOH} \\
&\text{2. } \text{H}_3\text{O}^+ \\
&\text{???
}
\end{align*}
\]

A 
B 
C 
D
QUESTION 7
MC34j

Using the provided bond dissociation energies, which is the enthalpy of the following reaction? (hint, calculate the energy cost of breaking the relevant bonds and calculate the energy gain from making the relevant bonds. I am not going to tell you if a positive enthalpy of reaction is endothermic or exothermic, you are supposed to know that by now!)

\[
\begin{array}{c}
\text{Ph} \\
\text{C} \\
\text{O} \\
\text{OCH}_3 \\
\end{array}
\quad \rightarrow \quad
\begin{array}{c}
\text{Ph} \\
\text{C} \\
\text{O} \\
\text{OCH}_3 \\
\end{array}
\quad + \quad \begin{array}{c}
\text{CH}_3\text{OH} \\
\end{array}
\]

<table>
<thead>
<tr>
<th>Bond</th>
<th>BDE (kcal/mol)</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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<tr>
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<td>9</td>
<td>3</td>
<td>-9</td>
<td>-3</td>
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<tr>
<td>C–O</td>
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<td>RO–H</td>
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<td></td>
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<tr>
<td>C–H</td>
<td>99</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

QUESTION 8
MC34l

Which best describes the following equilibrium?

\[
\begin{array}{c}
\text{O} \\
\text{TsOH (cat.)} \\
\end{array}
\quad \longleftrightarrow \quad
\begin{array}{c}
\text{O} \\
\text{OH} \\
\text{THF} \\
\end{array}
\]

A equilibrium lies of the left because the C=O bond is stronger than the C=C bond
B equilibrium lies on the right because the C=O bond is stronger than the C=C bond
C equilibrium lies of the left because the C=C bond is stronger than the C=O bond
D equilibrium lies on the right because the C=C bond is stronger than the C=O bond
QUESTION 9
There are NO INCORRECT answers to this question, ALL answers to this question will be considered correct for grading purposes

I study hard to learn organic chemistry.

A  Never
B  Rarely
C  Sometimes
D  Often
E  Always

QUESTION 10
There are NO INCORRECT answers to this question, ALL answers to this question will be considered correct for grading purposes

I spend a lot of time learning organic chemistry.

A  Never
B  Rarely
C  Sometimes
D  Often
E  Always

QUESTION 11
There are NO INCORRECT answers to this question, ALL answers to this question will be considered correct for grading purposes

I put enough effort into learning organic chemistry.

A  Never
B  Rarely
C  Sometimes
D  Often
E  Always
QUESTION 12
There are NO INCORRECT answers to this question, ALL answers to this question will be considered correct for grading purposes
I use strategies to learn organic chemistry well.

A  Never  
B  Rarely  
C  Sometimes  
D  Often  
E  Always

QUESTION 13
There are NO INCORRECT answers to this question, ALL answers to this question will be considered correct for grading purposes
What overall final grade do you really need in this class (note that the question asks about the grade that you need, not the grade you want, these two may not be the same!)?

A  
B  
C  
D  

QUESTION 14
There are NO INCORRECT answers to this question, ALL answers to this question will be considered correct for grading purposes
As of today, what final grade would you be realistically willing to accept in this course

A  
B  
C  
D  