UCI DEPARTMENT OF ORGANIC CHEMISTRY PEER TUTORING
REVIEW SESSION FEEDBACK EVALUATION

TUTORS/CLASS BEING EVALUATED

Quarter: Winter 2018
Date:

Class: Professor Richardson
Circle One
Organic Chemistry 51B: Midterm I, Midterm II, Final

Tutors' Names Samantha Rodriguez, Zachary Valley

Evaluation

COMMENTS/ SUGGESTIONS

(VERY IMPORTANT!)

Samantha Rodriguez:

Zachary Valley:

What worked best?

What could be improved?

What would you like to see next time?

Strongly Disagree Disagree Neither Agree or Disagree Agree Strongly Agree

This review was interactive and engaging

Comments

The presentation volume was acceptable.

Comments

The presentation was visually clear and logically organized.

Comments

The review improved/reinforced your understanding of the material.

Comments

The quality of the review packet was excellent.

Comments
PLEASE fill out this evaluation, even if you plan to leave early! Thanks!
Midterm 1 Study Guide

1. How many $^1$H NMR signals does each product exhibit?

   a. 
   ![Image](image1.png)

   b. 
   ![Image](image2.png)

   c. 
   ![Image](image3.png)

   d. 
   ![Image](image4.png)

2. How many $^1$C NMR signals does each compound exhibit?

   a. 
   ![Image](image5.png)

   b. 
   ![Image](image6.png)
3. How many peaks would be observed on the $^1$H NMR signals for each of the protons indicated for each molecule below?

a. 

\[
\begin{array}{c}
\text{H}_a \to \text{H} & \text{CH}_3 \\
\text{H}_b \to \text{H} & \text{CH}_2\text{CH}_3
\end{array}
\]

b. 

\[
\begin{array}{c}
\text{CH}_2\text{CH}_3 \\
\text{H}_a \text{ H}_b
\end{array}
\]

c. 

\[
\begin{array}{c}
\text{H}_2\text{N} & \text{H}_3 \\
\text{H}_4 & \text{H}_5 \\
\text{H}_6 & \text{H}_7 \\
\text{H}_8 & \text{H}_9 \\
\text{H}_10 & \text{H}_11
\end{array}
\]

d. 

\[
\begin{array}{c}
\text{CH}_3\text{CH}_2\text{CH}_2\text{OH} \\
\text{H}_a \text{ H}_b \text{ H}_c
\end{array}
\]

e. 

\[
\begin{array}{c}
\text{O} \\
\text{H}_a \text{ H}_b \text{ H}_c \text{ H}_d
\end{array}
\]
4. Determine the structures using the following $^1$H and $^1$C NMR:

**$^1$H NMR:**

Chemical Formula: $C_3H_{12}$
$^1$H NMR (300 MHz, DMSO-$d_6$, 25 °C)
$\delta$ 2.18 (3 H, s)
$\delta$ 2.29 (6 H, s)
$\delta$ 7.14 (2 H, d, $J$ 7.3 Hz)
$\delta$ 7.33 (1 H, t, $J$ 7.3 Hz)

**$^1$C NMR:**

$^1$C NMR (75 MHz, DMSO-$d_6$, 25 °C)
$\delta$ 16.3
$\delta$ 19.1
$\delta$ 125.5
$\delta$ 127.3
$\delta$ 135.8
$\delta$ 136.7
5. Determine the structures using $^1$H and $^1$C NMR:

$^1$H NMR:

Chemical Formula: $\text{C}_8\text{H}_{12}\text{N}_2$

$^1$H NMR, 300 MHz, DMSO-$d_6$
\[ \delta 7.84 \text{ (2 H, s)} \]

$^{13}$C NMR, 75 MHz, DMSO-$d_6$
\[ \delta 100.4 \]
\[ \delta 115.8 \]
\[ \delta 127.3 \]
\[ \delta 142.7 \]

$^1$C NMR:
6. For each of the following reactants, find the major product. Draw each mechanism and determine whether each reaction is E1 or E2.

1. \[
\begin{align*}
\text{H}_2\text{O} \quad \text{H}_2\text{O}
\end{align*}
\]

2. \[
\begin{align*}
-\text{OH} \quad -\text{OH}
\end{align*}
\]

3. \[
\begin{align*}
\text{H}_2\text{O} \quad \text{H}_2\text{O}
\end{align*}
\]

4. \[
\begin{align*}
-\text{OH} \quad -\text{OH}
\end{align*}
\]

7. Draw a stepwise mechanism that illustrates the formation of four different organic products from the following reaction:

\[
\begin{align*}
\begin{array}{c}
\text{CH}_3\text{O}^- \\
\text{Cl} \\
\end{array} & \quad \rightarrow \\
\begin{array}{c}
\text{OCH}_3 \\
\text{OCH}_3 \\
\end{array} \\
\text{Cyclohexene} & \quad + \\
\text{Cyclohexene} & \quad + \\
\text{Cyclohexene} & \quad + \\
\text{Cyclohexene} & \quad +
\end{align*}
\]
8. Draw all products, including stereoisomers in each reaction. Label each competing elimination product as major or minor and determine what reaction was used to obtain each product.

a. 

b. 

c. 

d. 