UCI DEPARTMENT OF ORGANIC CHEMISTRY PEER TUTORING REVIEW SESSION
FEEDBACK EVALUATION

<table>
<thead>
<tr>
<th>Quarter: Fall 2017</th>
<th>Date: November 14, 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class: Professor Shea</td>
<td>Midterm 2 Review</td>
</tr>
<tr>
<td>Tutors’ Names: Phuc Nguyen, Kathy Vu, Amelia Ooi</td>
<td></td>
</tr>
</tbody>
</table>

**COMMENTS/ SUGGESTIONS**

(VERY IMPORTANT!)

Phuc Nguyen:

Kathy Vu:

Amelia Ooi:

What worked best?

What could be improved?

What would you like to see next time?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree or Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>This review was interactive and engaging.</td>
<td>⬜️</td>
<td>⬜️</td>
<td>⬜️</td>
<td>⬜️</td>
<td>⬜️</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The presentation volume was acceptable.</td>
<td>⬜️</td>
<td>⬜️</td>
<td>⬜️</td>
<td>⬜️</td>
<td>⬜️</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The presentation was visually clear and logically organized.</td>
<td>⬜️</td>
<td>⬜️</td>
<td>⬜️</td>
<td>⬜️</td>
<td>⬜️</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The review improved/reinforced your understanding of the material.</td>
<td>⬜️</td>
<td>⬜️</td>
<td>⬜️</td>
<td>⬜️</td>
<td>⬜️</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The quality of the review packet was excellent.</td>
<td>⬜️</td>
<td>⬜️</td>
<td>⬜️</td>
<td>⬜️</td>
<td>⬜️</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please fill out this evaluation, even if you plan to leave early. Thank you very much.
This page is intentionally left blank. You may use it as scratch paper.
Midterm 2 Review Packet

1) Rank the following molecules in order of increasing boiling point: ____<____<____
   (a) pentane \([\text{CH}_3(\text{CH}_2)_2\text{CH}_3]\)
   (b) neopentane \([\text{(CH}_3)_4\text{C}]\)
   (c) Hexane \([\text{CH}_3(\text{CH}_2)_4\text{CH}_3]\)

2) Rank the following molecules in order of increasing solubility in pentane \([\text{CH}_3(\text{CH}_2)_3\text{CH}_3]\):
   ____<____<____
   (a) butanol \((\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OH})\)
   (b) butanal \((\text{CH}_3\text{CH}_2\text{CH}_2\text{CHO})\)
   (c) potassium bromide

3) The repeating structures of two important types of synthetic polymers are given below. In the box provided, name the most important molecular force for each polymer.

<table>
<thead>
<tr>
<th>Intermolecular Forces</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyethylene</td>
</tr>
<tr>
<td>Nylon 6,6</td>
</tr>
</tbody>
</table>

4) Explain why benzene has a lower boiling point but a much higher melting point than toluene.

<table>
<thead>
<tr>
<th></th>
<th>benzene</th>
<th>toluene</th>
</tr>
</thead>
<tbody>
<tr>
<td>bp</td>
<td>80° C</td>
<td>111° C</td>
</tr>
<tr>
<td>mp</td>
<td>5° C</td>
<td>-93° C</td>
</tr>
</tbody>
</table>
5) Calculate the degrees of unsaturation for the following molecules:
(a) \( \text{C}_{8}\text{H}_9\text{Br} \)  
(b) \( \text{C}_{8}\text{H}_9\text{ClO} \)  
(c) \( \text{C}_{10}\text{H}_{18}\text{CINO} \)

(d) 

(e) 

6) Which of these molecules correspond to the IR spectrum below?

\( \text{C}_5\text{H}_{10}\text{O} \)
7) Match each compound to its IR spectrum.
8) Identify the IUPAC name for the following compounds.

a.

b.

c.
9) Draw the skeletal structure of the following IUPAC names. Be sure to add wedges/dashes if necessary.

a. 5-isopropyl-2,2-dimethylnonane

b. cis-1-iodo-3-propylcyclopentane

c. trans-1-bromo-3-ethylcyclohexane

d. 1-sec-butyl-2-methylcyclopentane

e. 2-flouro-3-ethylheptane

f. 1-bromo-3-isopropyl-1-methylcyclohexane
10) The molecule below is alprazolam, commonly known as Xanax, is a drug used to treat anxiety disorders, panic disorders, and anxiety caused by depression. Use this structure to classify each carbon as $1^\circ, 2^\circ, 3^\circ, \text{ or } 4^\circ$ where indicated.

11) 
   a. Draw the skeletal structure of 1-bromopropane
b. Using your skeletal structure of 1-bromopropane, draw the following Newman conformations looking down the C1-C2 bond.

- anti-conformation
- gauched-conformation
- eclipsed-conformation

12) Convert the following Newman projections into skeletal structure, then determine the IUPAC name for each.

a. 

b. 

b. 

b.
13) Use the following structures to draw a Newman projection looking down on the indicated bond.

a.

b.

c.
14) For the following examples:

i. Draw both chair conformations.

ii. Circle the arrows for the favored chair at equilibrium.

a. 1-bromocyclohexane

b. trans-1-chloro-2methylcyclohexane

c. cis-1-ethyl-3-methylcyclohexane

d. cis-1-tert-butyl-3-chlorocyclohexane

e. trans-1-bromo-3-tert-butylcyclohexane
15) Name the following chairs, be sure to include whether the chair is in \textit{trans} or \textit{cis} position if needed.

a. 
\[ \text{Diagram} \]

b. 
\[ \text{Diagram} \] 

Br


c. 
\[ \text{Diagram} \]

d. 
\[ \text{Diagram} \]

\[ \text{Diagram} \]

\[ \text{Diagram} \]

\[ \text{Diagram} \]

\[ \text{Diagram} \] 

Cl
16)
A) Order the following molecules from least oxidized to most oxidized:

A) \[ \text{OH} \]  
B) \[ \text{OH} \]  
C) \[ \text{OH} \]  
D) \[ \text{OH} \]  

B) Circle the stereogenic centers in the following compound:

C) Draw the enantiomer of the following molecule. Then, indicate the configuration of the stereogenic center and provide the IUPAC name for both.
D) Draw all possible stereoisomers for the following compound. Label the configuration of each stereogenic center, and indicate the interrelationships of these isomers.

E) Indicate the relationship between the two molecules as enantiomers (E), diastereomers (D), the same molecule (S), or constitutional isomers (C):