Academic Honesty Policy. Academic honesty is strictly enforced on quizzes, exams, and other aspects of this course. Academic dishonesty will result in a failing grade in the class and a letter in the student's file. Activities constituting academic dishonesty include:

Cheating
- Copying from others during an examination.
- Communicating exam answers with other students during an examination.
- Offering another person's work as one's own.
- Taking an examination for another student or having someone take an examination for oneself.
- Tampering with an examination after it has been corrected, then returning it for more credit.
- Using unauthorized materials, prepared answers, written notes, or concealed information during an examination.

Dishonest Conduct
- Stealing or attempting to steal an examination or answer key from the instructor.
- Allowing another student to copy off of one's own work during a test.

Collusion
- Any student who knowingly or intentionally helps another student perform any of the above acts is subject to discipline for academic dishonesty.

I understand and will abide by this academic honesty policy: ____________________________ (signature) Seat: ______

1. (4 pts)
a. Rank the following in order of increasing C–O bond length: ____ < ____ < ____
   A. ethanol
   B. acetone
   C. sodium acetate

b. Rank the following in order of increasing acidity: ____ < ____ < ____
   A. formic acid
   B. ethanol
   C. acetic acid

2. Rank the following in order of increasing basicity (Smith 19.40c, 2 pts): ____ < ____ < ____

   A.  
   B.  
   C.  

3. Explain the following. If acetic acid (CH₃COOH), labeled at its OH oxygen with the uncommon ¹⁸O isotope, were treated with aqueous base, and then the solution was acidified, two products having the ¹⁸O label at different locations would be formed. (Smith 19.47, 4 pts)

\[
\begin{align*}
\text{CH}_3\text{COOH} & \xrightarrow{[1] \text{NaOH}} \text{CH}_3\hat{\text{O}}\text{H} + \text{CH}_3\text{CO}^\text{O}^{-} \\
& \xrightarrow{[2] \text{H}_2\text{O}^+} \text{CH}_3\hat{\text{O}}\text{H} + \text{CH}_3\text{COOH}
\end{align*}
\]

The label is now in two different locations.