

Chem 1515.001 – 1515.006  
InClass Exercise #1  
Week of September 24, 2001  
Fall 2001

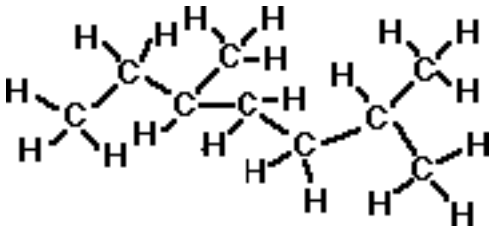
Name \_\_\_\_\_

TA Name \_\_\_\_\_

Lab Section # \_\_\_\_\_

ALL work must be shown to receive full credit. **Due at the end of laboratory.**

ICE1.1. Give the name or draw the Lewis structure for each of the following compounds.

 <p>The image shows a Lewis structure of 3-ethyl-3-methylpentane. It consists of a five-carbon main chain (pentane) with an ethyl group and a methyl group both attached to the third carbon atom. All carbon and hydrogen atoms are explicitly drawn with their respective bonds.</p>	3-ethyl-3-methylpentane	2,3,5-trimethyloctane
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ICE1.2. Draw and name the structural isomers for  $C_7H_{16}$ .

ICE1.3. Which member of the following pairs is more soluble in water? Provide a brief explanation supporting your choice. Also provide a brief explanation why you ruled out the other choice.

a) HCl or C<sub>4</sub>H<sub>9</sub>Cl

b) CH<sub>3</sub>NH<sub>2</sub> or (CH<sub>3</sub>)<sub>3</sub>N

ICE1.4. A solution of formic acid, HCOOH, is prepared by 54.0 g of formic acid in enough water to make 250 mLs of solution.

a) calculate the molarity of the solution;

b) the solution described above is also 20.0 % by weight formic acid. Calculate the mole fraction of formic acid in the solution;

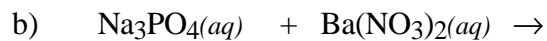
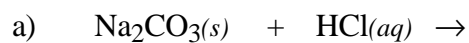
c) assuming formic acid is a nonvolatile, nonelectrolyte calculate the freezing point of this solution;

ICE1.4. (CONTINUED)

d) formic acid is actually a weak acid. Suggestion a reasonable experimental freezing point (do not calculate) for this solution? Explain your answer.

e) Calculate the density of the solution.

ICE1.5. Write the chemical formula(s) of the product(s) and balance the following reactions. Identify all products phases as either (g)as, (l)iquid, (s)olid or (aq)ueous. Soluble ionic compounds should be written in the form of their component ions.



ICE1.6. Write the ionic and net ionic chemical equations for 1b).

1b)  
Ionic equation:

Net Ionic equation: