

**CHEM106 Quiz 3**

*Please show all equations, all substitutions, all units, and all work to receive any credit*

1. Draw the complete Lewis structures for each of the following amino acids in the form that is most abundant at a physiological pH of 7.4. Except for aromatic rings; show all atoms, bonds and full charges (not partial charges) for these compounds:
  - a. Threonine
  - b. Methionine
  - c. Glutamic Acid
  - d. Arginine
  - e. Leucine
  - f. Alanine
  - g. Valine
  - h. Phenylalanine
  
2. Lactic acid [ $\text{CH}_3\text{CH}_2\text{OHCOOH}$ ] is an alpha hydroxy acid (AHA) with a pKa of 3.86 and is often used for chemical peels. For an aqueous lactic acid solution at a pH of 3.0, calculate the relative amounts of ionized and unionized lactic acid. Draw the complete Lewis structure for each form and identify which is present in a greater concentration.