

(Don't forget that each question should be answered on a separate sheet of paper. Also, please *type* your narrative answers.)

1. Calculate the isoelectric point (pI) of the following peptides:
 - a. MILLARD
 - b. MCGRATH
 - c. FEKETE
2. Draw the peptide, ATLDAK. What is its net charge at pH 7.0?
3. The two C α hydrogen atoms of Gly are said to be *prochiral* because when one of them is replaced by another group, C α becomes chiral. Draw a Fischer projection of Gly and indicate which H must be replaced with a methyl group to yield D-Ala.
4. If you had a 100 mL solution of 4.0 mM aspartic acid, buffered at pH 2.1, how many moles of KOH are required to increase the pH to 9.5? (*you may assume constant volume*)