1. What is the pH of a solution containing 0.200 mol sodium acetate and 0.100 mol acetic acid dissolved in 100.0 mL of water, given that the pKa of acetic acid is 4.75?
2. What is the pH of a solution containing 0.020 mol sodium hydroxide and 0.100 mol acetic acid dissolved in 100.0 mL of water, given that the pKa of acetic acid is 4.75?
3. This amino acid has an overall net charge of -1 at pH 8.5
4. Select one:
5. a. arginine
6. b. cysteine
7. c. histidine
8. d. lysine
9. e. proline

What is the charge on aspartic acid at pH 5? [Examples: -1, 0, OR +1]

Consider the tetrapeptide Val-Ile-Leu-Met. What is the net charge on this peptide at pH 6.56.56.56.56.56.5? (Examples: +1, 0, OR -1)

What is the charge on glycine at pH 3.1? [Examples: -1, 0, OR +1]

What is the charge on phenylalanine at pH 11? [Examples: -1, 0, OR +1]

Glycine, aspartic acid, isoleucine, leucine and valine all have pKa2's very close to 9.60.  
Which would be best to prepare a 1.0 M, pH 9.60 buffer?

Select one:

a. aspartic acid

b. Glycine

c. Isoleucine

d. Leucine

e. Valine

f. All are equally good.

What is the pI of the pentapeptide Cys-Leu-Glu-Ala-Lys?

In small peptides, six atoms associated with the peptide bond lie in a single plane. These are the alpha C, the carbonyl C, and the carbonyl O of the left-side amino acid, and the amino nitrogen, the hydrogen attached to the nitrogen, and the alpha C of the right-side amino acid. This coplanarity requires that the hybridize of the carbonyl C and the amino nitrogen both be

Select one:

a. sp

b. sp2

c. sp3

d. Trick question. The hybridization varies with the side chain.

What is the charge on leucine at pH 7? [Examples: -1, 0, OR +1]

These TWO amino acids have aromatic side chains

Select one or more:

a. alanine

b. histidine

c. methionine

d. tyrosine

e. valine

Consider a mutant form of alanine racemase that has an ionic interaction between the side chains of an aspartic acid and an arginine when the protein is at pH 7.4. Assuming all other conditions remain constant, how would changing the arginine to lysine affect the stability of the protein?

Select one:

a. It would increase the stability

b. It would have no or very little effect on the stability

c. It would decrease the stability

What is the charge on tyrosine at pH 1.5? [Examples: -1, 0, OR +1]

What is the pH of a solution containing 0.200 mol sodium acetate and 0.100 mol acetic acid dissolved in 100.0 mL of water, given that the pKa of acetic acid is 4.75?

This amino acid has an overall net charge of -1 at pH 8.5

Select one:

a. arginine

b. cysteine

c. histidine

d. lysine

e. proline

Consider the tetrapeptide Val-Ile-Leu-Met. What is the net charge on this peptide at pH 6.56.56.56.56.56.5? (Examples: +1, 0, OR -1)

What is the charge on leucine at pH 7? [Examples: -1, 0, OR +1]

What is the charge on tyrosine at pH 1.5? [Examples: -1, 0, OR +1]

Glycine, aspartic acid, isoleucine, leucine and valine all have pKa2's very close to 9.60.  
Which would be best to prepare a 1.0 M, pH 9.60 buffer?

What is the pI of the pentapeptide Cys-Leu-Glu-Ala-Lys?

In small peptides, six atoms associated with the peptide bond lie in a single plane. These are the alpha C, the carbonyl C, and the carbonyl O of the left-side amino acid, and the amino nitrogen, the hydrogen attached to the nitrogen, and the alpha C of the right-side amino acid. This coplanarity requires that the hybridize of the carbonyl C and the amino nitrogen both be

Select one:

a. sp

b. sp2

c. sp3

d. Trick question. The hybridization varies with the side chain.

Consider a mutant form of alanine racemase that has an ionic interaction between the side chains of an aspartic acid and an arginine when the protein is at pH 7.4. Assuming all other conditions remain constant, how would changing the arginine to lysine affect the stability of the protein?

Select one:

a. It would increase the stability

b. It would have no or very little effect on the stability

c. It would decrease the stability