

## Biochemistry 400: Chapter 1 & 2 Questions

Chapter 2: Study exercises: 2, 3, 4, and 5. Questions: 1, 2, 5, 6, 8, 9, 10, 11, 13, 16.  
Don't forget the homework problems.

- 1) What is the pH of a 0.50 L,  
 $3.45 \times 10^{-5}$  M solution of KOH?
  - a) 3.47
  - b) 4.47
  - c) 5.53
  - d) 9.54
  - e) None of the above
  
- 2) The key principle/characteristic that makes water so important is:
  - a) The manner in which it disrupts disulfide bonds
  - b) Its ability to solubilize hydrophobic amino acids
  - c) Its ability to decrease the attraction between ions
  - d) The ability to be both an acceptor and a donor in hydrogen bonds
  - e) c and d
  - f) The manner in which it interacts in a large cold margarita
  
- 3) At pH 7.0, the side chain of histidine would be: (see the pKa in the book)
  - A) virtually all positively charged
  - B) 50% charged
  - C) Not Charged
  - D) 50% negatively charged
  - E) Virtually all negatively charged
  
- 4) The interaction between two phenylalanine amino acids are?
  
- 5) Arrange these amino acids in order of hydrophobicity from most to least  
Arg, Ser, Gln, Phe, Ala
  
- 6) Histidine has a pKa of 6.5. At physiological pH (7.40) is there enough of both the acid and conjugate base forms to make it a blood buffer? If blood has a 2.5 liter total volume, and the total histidine concentration is 0.01 M, what is the actual concentration of the acid and conjugate base forms of histidine?