BICH 460 Feb. 29, 2008 NAME (printed LEGIBLY!) _____ANSWERS_____
QUIZ #2B ANSWERS (20 pts)
NO CALCULATORS ARE PERMITTED ON THIS QUIZ.
CIRCLE ONLY 1 ANSWER PER QUESTION. (Please put in folder for first letter of your LAST NAME on back table.)

1. (3 pts) The proteolytic event causing activation of chymotrypsinogen to chymotrypsin causes
***A. a conformational rearrangement generating the correct orientation of groups in the active site.**
B. a conformational rearrangement causing dissociation of a small molecule allosteric inhibitor.
C. removal of an inhibitory pseudosubstrate sequence from its active site.
D. removal of a covalent modifying group from the active site serine residue.
E. none of the above.

2. (3 pts) Which of the following best describes the mechanism by which the regulatory (R) subunit of protein kinase A (PKA) regulates the activity of the catalytic (C) subunit?
A. In the R_2C_2 complex, C is inaccessible to the kinase that activates PKA.
B. In the R_2C_2 complex, C is inaccessible to the protease that activates PKA.
***C. In the R_2C_2 complex, the active site of C is inaccessible to the protein targets of PKA.**
D. In the R_2C_2 complex, C is inaccessible to Ca^{2+}-CaM.
E. none of the above.

3. (3 pts) k_{cat} for any enzyme is equal to
A. K_m/V_{max}
B. $K_m/[E_t]$
***C. $V_{max}/[E_t]$**
D. V_{max}/K_m
E. none of the above

4. (4 pts) A **competitive** inhibitor **(choose one answer from part A and one answer from part B)**:
A. (2 pts) 1) decreases V_{max} 2) increases V_{max} ***3) doesn't change V_{max}**
B. (2 pts) 1) decreases K_m ***2) increases K_m** 3) doesn't change K_m

5. (3 pts) The catalytic mechanism of chymotrypsin uses
A. a His residue as a nucleophile and an Asp residue as a general base/acid catalyst.
***B. a Ser residue as a nucleophile and a His residue as a general base/acid catalyst.**
C. an Asp residue as a nucleophile and a His residue as a general base/acid catalyst.
D. a Ser residue as a nucleophile and an Asp residue as a general base/acid catalyst.
E. a Lys residue as a nucleophile and an Asp residue as a general base/acid catalyst.

6. (2 pts) On the graph shown,
A. The substrate is binding noncooperatively.
***B. The substrate is binding cooperatively.**
C. The graph shows that the enzyme follows Michaelis-Menten kinetics in both the absence and presence of compound X.

7. (2 pts) On the same graph at right,
A. Compound X is a pure noncompetitive inhibitor.
***B. Compound X is an allosteric activator.**
C. Compound X is an allosteric inhibitor.