**Quiz II**

**Biochemistry I April 8, 2020**

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1. **Multiple-choice questions:**

1. Which of the following parts of IgG are *not* involved in binding to an antigen?

A) Fab B) Light chain C) Heavy chain D) Fc E) Variable domain

**Answer**  D

2. Which of the following statement about the heme binding site in myoglobin is true?

A) The iron in heme binds the oxygen atom of CO.

1. The distal histidine covalently binds oxygen.
2. The proximal histidine covalently binds iron.
3. The distal histidine covalently binds iron.

**Answer**  C

3. Allosteric enzymes:

A) usually show strict Michaelis-Menten kinetics.

B) usually have more than one polypeptide chain.

C) usually catalyze several different reactions within a metabolic pathway.

D) usually have only one active site.

**Answer**  B

4. Which of the following binding constants represents the highest affinity?

A) *K*a = 1.0 x 109 M B) *K*d = 1.0 x 10-9 M-1

C) *K*d = 1.5 x 10-9 M D) *K*a = 2.0 x 108 M-1 E) *K*d = 1.0 x 10-9 M

**Answer**  E

5. Which of the following best represents the backbone arrangement of two peptide bonds?

A) C—N—C—C—C—N—C—C B) C—C—N—C—C—N

C) C—N—C—C—N—C D) C—C—C—N—C—C—C—N

E) C—C—C—N—C—C—C—N

**Answer**  B

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**II. Simple-answer questions:**

1. What is Michaelis-Menten equation? Determine the fraction of Vmax that would be obtained when the substrate concentration [S] = 5*K*m? What is the effect of increasing concentrations of a competitive inhibitor on *K*m and Vmax of the enzyme?

V=5/6Vmax

Km will increase and Vmax won’t change significantly.

2. When a protein is unfolded (denatured), it becomes less water soluble and often precipitates from solution. Why?

Because most hydrophobic residues locat interior of a protein. When proteins are denatured, the hydrophobic groups are exposed so that they become less water soluble. Also, hydrophobic interactions makes unfolded proteins aggregate and then precipitate.