MCAT Biochemistry Quick Quiz

Practice Test

Name: _____ Date: _____

Choose the single best answer for each question.

Section 1 · Multiple Choice

1. The Michaelis constant K_m is defined as:

   A) The maximum reaction velocity
   B) The substrate concentration at half V_max
   C) The turnover number of the enzyme
   D) The ratio of [E] to [S]

2. Which amino acid is most likely to be found in the interior of a globular protein in aqueous solution?

   A) Lysine
   B) Glutamate
   C) Serine
   D) Leucine

3. In glycolysis, the net yield of ATP per glucose molecule is:

   A) 0
   B) 2
   C) 4
   D) 36

4. A competitive inhibitor:

   A) Decreases V_max but does not change K_m
   B) Increases apparent K_m but does not change V_max
   C) Decreases both K_m and V_max
   D) Binds the enzyme–substrate complex only

5. The peptide bond is best described as:

   A) An ionic bond
   B) A non-covalent interaction
   C) A covalent amide bond
   D) A disulfide bridge

Answer Key

Section 1 · Multiple Choice

1. **B**
   K_m is the substrate concentration at which reaction velocity is half of V_max. Lower K_m = higher affinity.

2. **D**
   Leucine is hydrophobic and tends to bury away from water. Lysine and glutamate are charged; serine is polar.

3. **B**
   Glycolysis produces 4 ATP and consumes 2 ATP, for a net gain of 2 ATP per glucose.

4. **B**
   Competitive inhibitors compete with substrate for the active site, raising the apparent K_m. V_max is unchanged because excess substrate outcompetes the inhibitor.

5. **C**
   A peptide bond is a covalent amide bond formed between the carboxyl group of one amino acid and the amine group of the next.