

Quiz I

Biochemistry II

October 7, 2008

Name: _____

ID (学号): _____

1. If the $\Delta G'$ of the reaction $A \rightarrow B$ is -12 kJ/mol , which of the following statements is **correct**? (Note the prime symbol means that a thermodynamic parameter is measured at pH 7.0)

- A. The reaction will proceed spontaneously from left to right at the given conditions.
- B. The reaction will proceed spontaneously from right to left at standard conditions.
- C. The equilibrium constant favors the formation of A over the formation of B.
- D. The equilibrium constant could be calculated if the initial concentrations of A and B were known.
- E. The value of $\Delta G'^{\circ}$ is also negative.

Answer _____

2. The steps of glycolysis between glyceraldehyde 3-phosphate and 3-phosphoglycerate involve all of the following **except**

- A. ATP synthesis
- B. Utilization of P_i
- C. Oxidation of NADH to NAD^+
- D. Formation of 1,3-bisphosphoglycerate
- E. Catalysis by phosphoglycerate kinase

Answer _____

3. The oxidation of 3 mol of glucose by the pentose phosphate pathway may result in the production of:

- A. 2 mol of pentose, 4 mol of NADPH, and 8 mol of CO_2 .
- B. 3 mol of pentose, 4 mol of NADPH, and 3 mol of CO_2 .
- C. 3 mol of pentose, 6 mol of NADPH, and 3 mol of CO_2 .
- D. 4 mol of pentose, 3 mol of NADPH, and 3 mol of CO_2 .
- E. 4 mol of pentose, 6 mol of NADPH, and 6 mol of CO_2 .

Answer _____

4. Indicate whether each of the following statements about phosphofructokinase-1 (PFK-1) is true (T) or false (F).

- A. It is activated by AMP. Answer _____
- B. It is inhibited by citrate. Answer _____
- C. It is inhibited by fructose 2,6-bisphosphate. Answer _____
- D. It is inactivated by insulin. Answer _____
- E. ATP increases its $K_{0.5}$ for fructose-6-phosphate. Answer _____