**QUIZ Ⅰ**

**Biochemistry Ⅱ October 17, 2014**

**Name:\_\_\_\_\_\_\_\_\_\_\_\_ ID(学号):\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. Indicate which of the following statements about the pentose phosphate pathway is not correct?
2. Glucose 6-phosphate can be oxidized to form ribose 5-phosphate via the pentose phosphate pathway.
3. It is less active in muscle than in liver and adipose tissue.
4. Pentose generated is necessary for biosynthesis of nucleic acids.
5. It generates NADH for reductive biosynthesis.
6. It interconverts trioses, tetroses, pentoses, hexoses and heptoses.

**Answer\_\_\_\_\_\_D\_\_\_\_\_\_\_**

1. Which of the following inhibits pyruvate dehydrogenase complex?
2. AMP B. Ca2+ C. NADH D. CoA E. NAD+

**Answer\_\_\_\_\_\_C\_\_\_\_\_\_\_**

1. Which of the following enzyme is the only membrane-bound enzyme in the citric acid cycle?
2. isocitrate dehydrogenase
3. succinate dehydrogenase
4. malate dehydrogenase
5. α-ketoglutarate dehydrogenase

**Answer\_\_\_\_\_\_B\_\_\_\_\_\_\_**

1. In order to examine the citric acid cycle, you have obtained a pure preparation of isolated, intact mitochondria. You add some succinyl-CoA to the suspension of mitochondria. How many moles of ATP would you expect to be generated in one turn of the citric acid cycle from each mole of succinyl-CoA added to the test tube?
2. 5 B. 4 C. 3.5 D. 2.5 E. 0

**Answer\_\_\_\_\_\_E\_\_\_\_\_\_\_**

1. Indicate whether each of the following statements about glycogen phosphorylase is true(T) or false(F).
2. It is activated by high levels of AMP **Answer\_\_\_\_\_\_T\_\_\_\_\_\_\_**
3. It is activated by glucagon **Answer\_\_\_\_\_\_\_T\_\_\_\_\_\_**
4. It is inhibited by epinephrine **Answer\_\_\_\_\_\_\_F\_\_\_\_\_\_**
5. It is activated by high levels of Ca2+ **Answer\_\_\_\_\_\_\_\_T\_\_\_\_\_**
6. The *a* form is phosphorylated and less active **Answer\_\_\_\_\_\_\_\_F\_\_\_\_\_**
7. Insuliin inhibits the liver glycogen phosphorylase *a*  **Answer\_\_\_\_\_\_\_\_T\_\_\_\_\_**

Answer for QUIZ Ⅰ(October 17, 2014):

1. D
2. C
3. B
4. E (Succinyl-CoA cannot enter intact mitochondria. Recall that the inner membrane of mitochondria is selective permeable. Only molecules which have their transporters on the membrane can enter, such as **pyruvate, malate, succinate, citrate, ornithine, citrulline, PEP** and so on)
5. (1)T(2)T(3)F(4)T(5)F(6)T

**QUIZ Ⅰ**

**Biochemistry Ⅱ October 16, 2014**

**Name:\_\_\_\_\_\_\_\_\_\_\_\_ ID(学号):\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. How is NADH, which is made by glycolysis under anaerobic conditions, recycled?
2. Oxidation of pyruvate to acetyl-CoA
3. Oxidation of ethanol to acetaldehyde
4. Reduction of lactate to pyruvate
5. Reduction of pyruvate to lactate

**Answer\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. The oxidation of 3 mol of glucose by the pentose phosphate pathway may result in the production of:
2. 2 mol of pentose, 4 mol of NADPH, and 8 mol of CO2.
3. 3 mol of pentose, 3 mol of NADPH, and 3 mol of CO2.
4. 3 mol of pentose, 6 mol of NADPH, and 3 mol of CO2.
5. 3 mol of pentose, 6 mol of NADH, and 3 mol of CO2.

**Answer\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. Which of the following enzyme is not linked to the generation of NADH?
2. isocitrate dehydrogenase
3. pyruvate dehydrogenase
4. succinate dehydrogenase
5. α-ketoglutarate dehydrogenase

**Answer\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. You have discovered a compound that inhibits fumarase. How many moles of ATP would you expect to be generated from one mole of acetyl-CoA in the presence of this inhibitor?
2. 7.5 B. 6.5 C. 6 D. 5 E. 0

**Answer\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. Indicate whether each of the following statements about phosphofructokinase-1 (PFK-1) is true(T) or false(F).
2. It is activated by AMP. **Answer\_\_\_\_\_\_\_\_\_\_\_\_\_**
3. It is inhibited by fructose 2,6-bisphosphate. **Answer\_\_\_\_\_\_\_\_\_\_\_\_\_**
4. It is inhibited by ATP. **Answer\_\_\_\_\_\_\_\_\_\_\_\_\_**
5. ATP decreases its *Km* for fructose 6-phosphate. **Answer\_\_\_\_\_\_\_\_\_\_\_\_\_**
6. It is inhibited by citrate. **Answer\_\_\_\_\_\_\_\_\_\_\_\_\_**
7. ATP is both the substrate and the regulator of the enzyme. **Answer\_\_\_\_\_\_\_\_\_\_\_\_\_**

Answer for QUIZ Ⅰ(October 16, 2014):

1. D
2. C
3. C
4. B
5. (1)T(2)F(3)T(4)F(5)T(6)T