Chapter 15 Principles of Metabolic Regulation

Multiple Choice Questions

1. **The metabolism of glycogen in animals**
   Page: 563 Difficulty: 1 Key: C
   Glycogen is converted to uridine diphosphate sugars by:

   (A) glucokinase.
   (B) glucose 6-phosphatase.
   (C) glucogen phosphorylase.
   (D) glucogen synthase.
   (E) glucogenase.

2. **The metabolism of glycogen in animals**
   Page: 566-568 Difficulty: 2 Key: A
   The glycogen branching enzyme catalyzes:

   (A) degradation of $(1\rightarrow4)$ – α-D linkages in glycogen.
   (B) formation of $(1\rightarrow4)$ – α-D linkages in glycogen.
   (C) formation of $(1\rightarrow6)$ – α-D linkages during glycogen synthesis.
   (D) glycogen degradation in liver branches.
   (E) removal of unbranched glucose residues at the ends of branches.

3. **The metabolism of glycogen in animals**
   Page: 566-570 Difficulty: 2 Key: D
   Glycogenin:

   (A) catalyzes the conversion of UMP to uridine diphosphate.
   (B) is the enzyme responsible for forming branches in glycogen.
   (C) is the gene that encodes glycogen synthase.
   (D) is the protein on which new glycogen chains are assembled.
   (E) regulates the synthesis of glycogen.

4. **The metabolism of glycogen in animals**
   Pages: 568, 570 Difficulty: 3 Key: B
   Which of the following is true of glycogen synthesis?

   (A) Activation of the enzyme involves a phosphorylation.
   (B) It catalyzes addition of glucose residues to the nonreducing end of a glycogen chain for formation of $(1\rightarrow4)$ – α-D linkages.
   (C) It uses glucose 6-phosphate as donor of glucose units.
   (D) The conversion of an active to an inactive form of the enzyme is controlled by the concentration of cAMP.
   (E) The enzyme has measurable activity only in liver.