

STEIN GRADED QUIZ 8 -- BIOLOGY 3058 -- APRIL 24, 2020 -- PAGE 1 of 4

There are 6 physiology questions (Q2-Q7) in this Biology 3058 GRADED QUIZ. All these questions are "A, B, C, D, E, F, G, H" questions worth one point each.

There is a total of 6 points in this exam.

The format for this exam is:

Select A if A is the only correct answer.

Select B if B is the only correct answer.

Select C if C is the only correct answer.

Select D if both A and B are correct (and C is NOT correct).

Select E if both A and C are correct (and B is NOT correct).

Select F if both B and C are correct (and A is NOT correct).

Select G if A and B and C are all correct.

Select H if none of the above is correct (A is NOT correct, B is NOT correct, and C is NOT correct).

ONLY SELECT ONE LETTER PER PHYSIOLOGY QUESTION.

There are two honor questions, Q1 and Q8. In order to receive credit for this GRADED QUIZ, you must truthfully answer TRUE for both questions. If you answer FALSE for either question or if you do not answer either question, your GRADED QUIZ grade is 0 (zero).

Honor Question 1.

- Q8.2. An increase in the amount of insulin binding to insulin receptors in the plasma membrane of a
- A. skeletal muscle cell will lead to an increase in the endocytosis of GLUT4 Transporters from the plasma membrane of the skeletal muscle cell into vesicular membranes.
 - B. beta-islet cell of the pancreas will lead to an increase in exocytosis of GLUT4 Transporters from vesicular membranes into the plasma membrane of the beta-islet cell.
 - C. liver cell will lead to an increase in amount of GLUT2 transporters in the plasma membrane of the liver cell.
 - D. A and B.
 - D. A and B.
 - E. A and C.
 - F. B and C.
 - G. A, B, and C.
 - H. None of the above.
- Q8.3. Which of the following serves as an actuating signal, or as part of an actuating signal, in a negative feedback system?
- A. Blood plasma levels of glucose.
 - B. Blood plasma levels of glycogen.
 - C. Blood plasma levels of glucagon.
 - D. A and B.
 - E. A and C.
 - F. B and C.
 - G. A, B, and C.
 - H. None of the above.

- Q8.4. Person X is a healthy human who has volunteered to take experimental drug Y. Person X has a normal dinner at 6 PM on April 1 and then does not eat for 12 hours. At 5 PM on April 2, X takes a dose of Y that opens all the ATP-sensitive potassium channels in X's beta-islet cells of the pancreas for 12 hours. Person X has a normal dinner at 6 PM on April 2 and then does not eat for 12 hours. For this question, ignore any effects due to alpha-islet cells of the pancreas.
- A. At 8 PM on April 2, the glucose permeability of X's skeletal muscle cells will be lower than the glucose permeability of X's skeletal muscle cells at 8 PM on April 1.
 - B. At 8 PM on April 2, X's blood plasma levels of glucose will be higher than X's blood plasma levels of glucose at 8 PM on April 1.
 - C. At 8 PM on April 2, X's blood plasma levels of insulin will be higher than X's blood plasma levels of insulin at 8 PM on April 1.
 - D. A and B.
 - E. A and C.
 - F. B and C.
 - G. A, B, and C.
 - H. None of the above.
- Q8.5. Which of the following is true for GLUT2 transporter molecules?
- A. GLUT2 transporter molecules are responsible for the net flux of glucose from the interstitial spaces surrounding beta-islet cells of the pancreas into the intracellular spaces of beta-islet cells of the pancreas.
 - B. GLUT2 transporter molecules are responsible for the net flux of glucose from the interstitial spaces of the kidney cortex into the intracellular spaces of early proximal tubule epithelial cells.
 - C. When blood plasma levels of glucagon are high and blood plasma levels of insulin are low, GLUT2 transporter molecules are responsible for the net flux of glucose from the interstitial spaces surrounding liver cells into the intracellular spaces of liver cells.
 - D. A and B.
 - E. A and C.
 - F. B and C.
 - G. A, B, and C.
 - H. None of the above.

- Q8.6 Which of the following is an effect of the following drugs?
- A. Drug X is an agonist of the Insulin Receptor. High levels of Drug X in the interstitial spaces surrounding liver cells will lead to high levels of exocytosis of GLUT4 molecules in these cells.
 - B. Drug Y is an agonist of the Insulin Receptor. High levels of Drug Y in the interstitial spaces surrounding fat cells will lead to high levels of exocytosis of GLUT4 molecules in these cells.
 - C. Drug Z is an antagonist of the Vasopressin2 Receptor (V2R). High levels of Drug Z in the interstitial spaces surrounding cells of the kidney medullary collecting ducts will lead to high levels of exocytosis of AQP2 molecules in these cells.
 - D. A and B.
 - E. A and C.
 - F. B and C.
 - G. A, B, and C.
 - H. None of the above.
- Q8:7. Which of the following is correct for liver cells?
- A. An increase in cAMP levels in the cytosol of a liver cell leads to a decrease in the levels of glucagon in the cytosol of that liver cell.
 - B. An increase in glucagon binding to Glucagon Receptors in the plasma membrane of a liver cell leads to an increase in the levels of cAMP in the cytosol of that liver cell.
 - C. An increase in glucagon binding to Glucagon Receptors in the plasma membrane of a liver cell leads to an increase in the exocytosis of GLUT2 molecules from intracellular vesicles into the plasma membrane of the liver cell.
 - D. A and B.
 - E. A and C.
 - F. B and C.
 - G. A, B, and C.
 - H. None of the above.

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ANSWER KEY:

Honor1: TRUE

Q8:2 H

Q8.3 C

Q8.4 D

Q8.5 A

Q8.6 B

Q8:7 B

Honor2:TRUE

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