

STEIN GRADED QUIZ 6 -- BIOLOGY 3058 -- APRIL 17, 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.

Q6.2. Which of the following processes occur in the lung?

- A. Net flux of oxygen from red blood cells into the plasma in capillaries of the lung.
- B. Removal of oxygen from hemoglobin in response to high levels of hydrogen ions in red blood cells in the lung.
- C. Binding of oxygen to hemoglobin in response to high partial pressures of oxygen in red blood cells in the lung.
- 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.

Q6.3. Which of the following processes in capillaries in a leg assist in the removal of carbon dioxide from the body?

- A. Net flux of bicarbonate from plasma into red blood cells.
- B. Formation of carbonic acid by carbonic anhydrase in red blood cells.
- C. Net flux of carbon dioxide from plasma into red blood cells.
- D. A and B.
- E. A and C.
- F. B and C.
- G. A, B, and C.
- H. None of the above.

- Q6.4. In epithelial cells of the small intestine, which of the following are involved in processes that (either directly or indirectly) contribute to the absorption of glucose from the lumen of the small intestine into the blood plasma?
- A. Net flux of sodium across the basolateral membranes of the epithelial cells from intracellular spaces to interstitial spaces via sodium-potassium ATPase pumps.
 - B. Net flux of glucose across the luminal membranes of the epithelial cells from luminal spaces to intracellular spaces via GLUT2 transporters.
 - C. Net flux of glucose across basolateral membranes of the epithelial cells from intracellular spaces to interstitial spaces via SGLT1 cotransporters (sodium-glucose cotransporters 1).
 - D. A and B.
 - E. A and C.
 - F. B and C.
 - G. A, B, and C.
 - H. None of the above.
- Q6.5. Which of the following is true?
- A. Trypsinogen is produced in the pancreas and is secreted into the lumen of the small intestine. It is converted into trypsin by enterokinase. Enterokinase is located in the membranes of cells in the walls of the small intestine. In the lumen of the small intestine, trypsin breaks down carbohydrates into double sugars.
 - B. Pancreatic amylase is produced in the pancreas and is secreted into the lumen of the small intestine. In the small intestine, it breaks proteins down into small chains of amino acids.
 - C. Pepsinogen is produced by cells in the walls of the stomach and is secreted into the lumen of the stomach. It is converted into pepsin by HCl in the lumen of the stomach. In the stomach, it converts triglycerides into monoglycerides and fatty acids.
 - D. A and B.
 - E. A and C.
 - F. B and C.
 - G. A, B, and C.
 - H. None of the above.
- Q6.6. Healthy Person P takes a drug that produces a condition with a strong effect on the epithelial cells of the kidney medullary collecting duct within one hour and lasts for one week after taking the drug. There is no direct effect of the drug on other cells in the body. One day after taking the drug, which of the following drugs will produce a condition with the symptoms of diabetes insipidus in Healthy Person P?
- A. Drug X that stimulates exocytosis of AQP2 and blocks endocytosis of AQP2 for one week in the epithelial cells of the kidney medullary collecting duct.
 - B. Drug Y that is an antagonist at V2 receptors that remains bound to V2 receptors in the basolateral membranes of the epithelial cells of the kidney medullary collecting duct for one week.
 - C. Drug Z that produces a condition in which the amounts of cytosolic cAMP in the epithelial cells of the kidney medullary collecting duct are very low for one week.
 - D. A and B.
 - E. A and C.
 - F. B and C.
 - G. A, B, and C.
 - H. None of the above.

- Q6:7. From March 1 to March 31, Healthy Person W ate a normal diet with normal amounts of food and water. From April 1 to April 30, Healthy Person W was on a diet that consisted of normal amounts of food and very large amounts of water.
- A. April 15 values of W's blood plasma levels of vasopressin were lower than March 15 values of W's blood plasma levels of vasopressin.
 - B. April 15 values of the concentration of dissolved solutes in W's urine were lower than March 15 values of the concentration of dissolved solutes in W's urine.
 - C. April 15 values of W's water permeability across the luminal membranes of the medullary collecting duct epithelial cells were lower than March 15 values of W's water permeability across the luminal membranes of the medullary collecting duct epithelial cells.
 - 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

Q6:2 C

Q6.3 F

Q6.4 A

Q6.5 H

Q6.6 F

Q6:7 G

Honor2:TRUE