

STEIN GRADED QUIZ 5 -- BIOLOGY 3058 -- APRIL 13, 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).

- Q5.2. Which of the following processes in capillaries in the lungs assist in the removal of carbon dioxide from the body?
- A. Formation of carbonic acid from carbon dioxide and water by carbonic anhydrase in the blood plasma.
 - B. Net flux of carbon dioxide from red blood cells into blood plasma.
 - C. Net flux of bicarbonate from red blood cells into blood plasma.
 - 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.
- Q5.3. Which of the following serves as an actuating signal, or as part of an actuating signal, in a negative feedback system?
- A. Action potentials in motor neurons that synapse upon skeletal muscles in the lung.
 - B. Action potentials in central hydrogen-ion-sensitive chemoreceptors.
 - C. Action potentials in diaphragm muscle cells.
 - D. A and B.
 - E. A and C.
 - F. B and C.
 - G. A, B, and C.
 - H. None of the above.

- Q5.4. Which of the following are involved in the long-term regulation of the oxygen-carrying capacity of the blood?
- A. Change in the total amount of hemoglobin in the blood.
 - B. Secretion of the hormone erythropoietin (EPO) from cells in the bone marrow.
 - C. Production of red blood cells by peritubular interstitial cells (PIC) of the renal cortex in response to EPO binding to EPO Receptors in the plasma membranes of the PIC of the renal cortex.
 - D. A and B.
 - E. A and C.
 - F. B and C.
 - G. A, B, and C.
 - H. None of the above.
- Q5.5. Which of the following are true for ventilation?
- A. The problems with ventilation induced by injection of curare occur because of the drug's direct action on muscarinic ACh Receptors (mAChRs) in the plasma membranes of the respiratory muscles (the diaphragm and the rib-cage muscles).
 - B. An increase in the hydrogen ion concentration in the interstitial spaces of the brainstem leads to a decrease in the duration of the respiratory cycle (duration of respiratory cycle equals duration of inspiration plus duration of expiration).
 - C. When the pressure within the alveoli is greater than atmospheric pressure, there will be inspiration of air into the lungs.
 - D. A and B.
 - E. A and C.
 - F. B and C.
 - G. A, B, and C.
 - H. None of the above.
- Q5.6 Which of the following processes help bring oxygen to the body cells that are in a leg?
- A. An increase in hydrogen ion concentration in the cytosol of red blood cells in the body capillaries in the leg.
 - B. Removal of oxygen from hemoglobin in response to a low partial pressure (concentration) of oxygen in the body capillaries in the leg.
 - C. Net flux of oxygen from red blood cells into blood plasma in the capillaries in the lung.
 - D. A and B.
 - E. A and C.
 - F. B and C.
 - G. A, B, and C.
 - H. None of the above.

Q5:7. Which of the following is true for red blood cells?

- A. Carbonic anhydrase is a spanning protein in the plasma membrane of red blood cells responsible for the net flux of bicarbonate across the plasma membrane.
- B. Anion Exchanger 1 (AE1) is an enzyme in the cytosol of red blood cells responsible for formation of carbonic acid from hydrogen ions and bicarbonate.
- C. Hemoglobin is a spanning protein in the plasma membrane of red blood cells with binding sites for oxygen on the extracellular portion of the protein.
- 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:

Q5.2 B
Q5.3 H
Q5.4 A
Q5.5 B
Q5.6 D
Q5.7 H