

STEIN GRADED QUIZ4 -- BIOLOGY 3058 -- APRIL 10, 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.

Q4.2. The AV node of a mammalian heart is destroyed. All other parts of the heart are normal and healthy.

- A. The firing rate of cells in the Bundle of His will be equal to the firing rate of ventricular muscle cells.
- B. The firing rate of SA node cells will be equal to the firing rate of atrial muscle cells.
- C. The firing rate of atrial muscle cells will be equal to the firing rate of ventricular muscle cells.
- 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.

Q4.3. At 1:00 AM, healthy person X's blood pressure is equal to the blood pressure set point.

At 1:01 AM, there is an increase in the firing rate of carotid artery baroreceptors,

- A. this will lead to a decrease in the amount of ACh (acetylcholine) released near the SA node of the heart.
- B. this will lead to an increase in the diameter of the arterioles.
- C. this will lead to an increase in the heart rate.
- D. A and B.
- E. A and C.
- F. B and C.
- G. A, B, and C.
- H. None of the above.

- Q4.4. Which of the following events occur at the same time, or nearly at the same time, during the cardiac cycle of a healthy person?
- A. The QRS complex of the electrocardiogram and the closing of the left AV valve, that is, the left AV valve goes from an open state to a closed state.
 - B. The T wave of the electrocardiogram and increases in membrane voltage of ventricular muscle cells.
 - C. The P wave of the electrocardiogram and increases in membrane voltage of atrial muscle cells.
 - D. A and B.
 - E. A and C.
 - F. B and C.
 - G. A, B, and C.
 - H. None of the above.
- Q4.5. Which of the following is true for channels in the plasma membrane of an SA node cell in the heart?
- A. The maximum conductance of its F channels occurs only when the membrane voltage is greater than the value of the threshold voltage for the action potential.
 - B. The equilibrium potential of its F channels is less than the value of the threshold voltage for the action potential.
 - C. The equilibrium potential of its voltage-gated potassium channels is greater than the equilibrium potential of its F channels.
 - D. A and B.
 - E. A and C.
 - F. B and C.
 - G. A, B, and C.
 - H. None of the above.
- Q4.6 Which of the following is true for SA node cells?
- A. An increase in the binding of norepinephrine to beta-adrenergic receptors in SA node cells will lead to a decrease in intracellular levels of cAMP in these cells.
 - B. An increase in intracellular levels of cAMP in SA node cells will lead to an increase in the amount of time between two successive action potentials in SA node cells.
 - C. An increase in the binding of acetylcholine to muscarinic ACh receptors in SA node cells will lead to an increase in heart rate.
 - D. A and B.
 - E. A and C.
 - F. B and C.
 - G. A, B, and C.
 - H. None of the above.

- Q4:7. Which of the following will lead to a decrease of total peripheral resistance?
- A. An increase in the firing frequency of all the carotid artery baroreceptors.
 - B. An increase in the diameter of every arteriole.
 - C. A decrease of the firing rate in all the sympathetic neurons that innervate smooth muscles that surround arterioles.
 - 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

Q4:2 D

Q4.3 B

Q4.4 E

Q4.5 H

Q4.6 H

Q4:7 G

Honor2:TRUE

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