

Biology 251
October/November 2009
PRACTICE Exam Three

1. What structure in skeletal muscle permits action potentials to penetrate deep into the muscle cell?
 - a) endoplasmic reticulum
 - b) sarcoplasmic reticulum
 - c) motor end plate
 - d) sarcomere
 - e) T-tubules

2. What molecule initiates cross bridge cycling in skeletal muscle by binding to troponin?
 - a) Na^+
 - b) K^+
 - c) Ca^{++}
 - d) Phosphate
 - e) Acetylcholine

3. The link between actin and myosin in skeletal muscle is broken when the myosin head binds a molecule of _____.
 - a) Na^+
 - b) K^+
 - c) Ca^{++}
 - d) ADP
 - e) ATP

4. During skeletal muscle contraction, factor(s) that influence whole muscle tension are
 - a) Number of motor units recruited
 - b) Length of fiber at onset of contraction
 - c) Frequency of stimulation
 - d) all the above
 - e) only a and b

5. Creatine phosphate is an important source of skeletal muscle ATP because
 - a) it catalyzes important reactions in aerobic metabolism that produce ATP
 - b) it catalyzes important reactions in anaerobic metabolism that produce ATP
 - c) it is catalyzed in the presence of ADP to produce creatine and ATP
 - d) both a and b
 - e) both a and c

6. Which of the following statements about tetanus in skeletal muscle is true?
 - a) It is a contraction of maximum strength
 - b) All fibers in a muscle are recruited during tetanus
 - c) A maximum number of cross bridge sites are uncovered
 - d) Only a and c are true
 - e) All the above are true

7. During smooth muscle contraction Ca^{++} activates
 - a) sarcomeres
 - b) dense bodies
 - c) calmodulin
 - d) troponin
 - e) myosin kinase

8. Single-unit smooth muscle fibers are electrically linked by _____.
- a) the somatic nervous system
 - b) the autonomic nervous system
 - c) gap junctions
 - d) tight junctions
 - e) slow wave potentials

Question 9 refers to the following:

- 1. Skeletal
- 2. Single Unit Smooth
- 3. Multi Unit smooth
- 4. Cardiac

9. What type of muscle is (are) controlled by the autonomic nervous system?
- a) 1
 - b) 2, 3
 - c) 4
 - d) 2, 3, 4
 - e) 1, 2, 3, 4
10. Blood in the venae cavae flows into the
- a) Right atrium
 - b) Left atrium
 - c) Right ventricle
 - d) Left ventricle
 - e) Aorta
11. A rapid repolarization of the membrane caused by K^+ leaving the cell occurs in
- a) neurons
 - b) autorhythmic cardiac cells
 - c) contractile cardiac cells
 - d) all the above
 - e) only a and c
12. Depolarization of the membrane caused by Na^+ entering the cell when threshold is reached occurs
- a) In neurons
 - b) In autorhythmic cardiac cells
 - c) In contractile cardiac cells
 - d) In all the above
 - e) In only a and c
13. During the ST segment ventricular pressure is _____ pressure in the arteries and atrial pressure is _____ ventricular pressure.
- a) higher than; higher than
 - b) less than; higher than
 - c) equal to; higher than
 - d) higher than; less than
 - e) less than; less than
14. so blood _____.
- a) flows into the arteries from the ventricles
 - b) flows into the atria from the ventricles
 - c) flows into the ventricles from the atria
 - d) both a and c
 - e) none of the above

15. Stroke volume is equal to
- end diastolic volume
 - end systolic volume
 - end systolic volume + end diastolic volume
 - end diastolic volume - end systolic volume
 - end systolic volume - end diastolic volume
16. Diffusion in the capillaries is facilitated by
- thin capillary walls
 - small surface area of capillaries
 - high blood velocity through capillaries
 - all the above
 - a and b only
17. What percent of your blood plasma volume passes through your lymph system each day?
- About 10%
 - About 25%
 - About 50%
 - About 75%
 - About 100%
18. Which blood vessel experiences the highest pressure? Which experiences the lowest pressure?
- Capillaries; veins
 - Arteries; veins
 - Arteries; capillaries
 - Arterioles; veins
 - Arterioles; capillaries
19. Doubling the radius of a vessel will
- increase the flow rate through the vessel by a factor of 2
 - increase the flow rate through the vessel by a factor of 4
 - decrease the flow rate through the vessel by a factor of 2
 - decrease the flow rate through the vessel by a factor of 16
 - not change the flow rate through the vessel
20. The major component of plasma is
- Water
 - Proteins
 - Na⁺
 - Cl⁻
 - Nutrients and waste
21. When mean arterial blood pressure drops
- Baroreceptors send an afferent signal to the cardiovascular control center in the medulla
 - Baroreceptors send an efferent signal to effector organs
 - The cardiovascular control center sends efferent signal to effector organs
 - Both a and c are true
 - None of the above are true