

Biology 251
October/November 2011
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 _____.
- the somatic nervous system
 - the autonomic nervous system
 - gap junctions
 - tight junctions
 - slow wave potentials

Question 9 refers to the following:

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

9. What type of muscle is (are) controlled by the autonomic nervous system?
- 1
 - 2, 3
 - 4
 - 2, 3, 4
 - 1, 2, 3, 4
10. Blood in the venae cavae flows into the
- Right atrium
 - Left atrium
 - Right ventricle
 - Left ventricle
 - Aorta
11. A rapid repolarization of the membrane caused by K^+ leaving the cell occurs in
- neurons
 - autorhythmic cardiac cells
 - contractile cardiac cells
 - all the above
 - only a and c
12. Depolarization of the membrane caused by Na^+ entering the cell when threshold is reached occurs
- In neurons
 - In autorhythmic cardiac cells
 - In contractile cardiac cells
 - In all the above
 - In only a and c
13. During the ST segment ventricular pressure is _____ pressure in the arteries and atrial pressure is _____ ventricular pressure.
- higher than; higher than
 - less than; higher than
 - equal to; higher than
 - higher than; less than
 - less than; less than
14. so blood _____.
- flows into the arteries from the ventricles
 - flows into the atria from the ventricles
 - flows into the ventricles from the atria
 - both a and c
 - 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