

Biology 251
October/November 2009
Answers to PRACTICE Exam Three

Bold = 2 pt answer *Italics = 1/2 pt answer*

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
 - increase 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