Class/Lab Activity #6 Physiology

 A. Questions to Consider from the Skeletal Muscle Lecture 1. What 4 properties do all muscle tissues have? Give a brief definition of each of these: 							
	1)						
	2)						
	3)						
	4)						
2.	The controls skeletal muscle.						
3.	It is primarily Control that regulates cardiac muscle.						
4.	The muscle in the walls of the bladder are muscle.						
5.	Give two other examples of smooth muscle in the body: 1) and 2)						
6.	Do skeletal muscles cells have action potentials? Ves No						
7.	What is a motor end plate of skeletal muscle? What does it contain?						
	Action Potential traveling down axon Voltage gated Ca ²⁺ channel Nicotinic Receptors Degradative enzyme Na ⁺ channel Motor end plate						
	((SR) ((SR) (Skeletal Muscle Fiber						

9. I	Now describe	in adequate detail	what happens in eac	ch numbered	sequence in c	drawing above:
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2) _		·
10 . In	the drawing above, the sarcoplasmic reticulum (SR) is over the	, which is called

- **10.** In the drawing above, the sarcoplasmic reticulum (SR) is over the ______, which is called the "functional unit skeletal muscle".
- **11.** The sarcomere contains two contractile proteins ______ and _____. It also contains two regulatory proteins ______ and _____.
- It is the ______ released from the SR that bind to ______. This then causes the other regulatory protein ______ to be moved away from the active site on ______.
- 13. The 'removal of inhibition' that occurs in 12 (above) sets the stage for the pivoting ______ head to bind with the thin filament ______ to create what is called a ______ (a type of bond). The power stroke can commence this is when myosin pulls the actin toward the M-line, going from its ______ energy to its ______ energy state. The result is both z-discs are both pulled inward toward the ______, causing the muscle to shorten and generate ______.
- **14.** Briefly list the **3 sources of ATP** Skeletal Muscle uses to contract, including the order they are used, the amount of ATP provided, how long it can be used for, and any drawbacks involved.
- **15.** Fill in the table below with brief terms regarding the comparison of slow and fast twitch skeletal muscle fibers (cells) for the properties listed. Details found in our OER text (Table 13.2, p 364) and lecture slides.

Muscle	Contraction	Contraction	Primary	Myoglobin	Fatigue	Blood	Size and	Purpose
Туре	Onset	Duration	Metabolism	Content		Supply	Color	in Body
Slow								
Twitch								
Fast								
Twitch								

B. Multiple Choice Questions to Consider for Skeletal Muscle Lecture

1. How many different types of muscle are there in the human body? **b)** 206 **c)** 5 **d)** 3 **e)** 2 **a)** 502 **2.** Muscle tissue that has a striped appearance is described as being: (What are these patterns?) b) non-striated c) excitable d) smooth e) striated a) elastic 3. All muscle tissue has the following properties, except for: a) excitability b) intercalated discs c) elasticity d) contractility e) the need for ATP **4.** Thin and thick filaments of skeletal muscle are organized into functional units called . a) myofibrils b) myofilaments c) sarcomeres d) T-tubules e) motor units 5. What are the three type of skeletal muscle? a) slow, intermediate, and fast twitch b) smooth, striated, and cardiac c) endomysium, perimysium, and epimysium d) sarcolemma, sarcoplasm, and sarcoplasmic reticulum 6. What is the cell membrane of a muscle fiber called? a) myofibril b) sarcoplasm c) myofilament d) sarcolemma e) motor end plate 7. The correct order for the largest to the smallest unit of organization in skeletal muscle tissue is: a) muscle fascicle, myofilament, muscle fiber, myofibril **b)** myoilament, myofibril, muscle fiber, muscle fascicle c) muscle fascicle, muscle fiber, myofibril, myofilament **d**) sarcomere, sarcoplasm, sarcolemma e) muscle fiber, muscle fascicle, myofilament, myofibril **8.** The ______ leaves the sarcoplasmic reticulum, and then binds to ______ in the sarcomere. a) Ca²⁺, troponin b) Na⁺, tropomyosin c) K⁺, myosin d) Ca²⁺, tropomyosin e) Na⁺, troponin 9. The H-band a) is actin and all the tropomyosin b) disappears during relaxation of muscle c) contains myosin only, and no actin d) contains actin only, and no myosin e) b and c **10.** The ______ pulls the ______ off of the myosin binding sites on actin. a) Ca²⁺, troponin b) troponin, myosin c) tropomyosin, troponin **d)** myosin, troponin **e)** troponin, tropomyosin 11. Which of the following statements about myosin of a skeletal muscle are true? **1.** the Z discs are attached to it **2.** it has an ATP binding site on its head **3.** it represents the I band **4.** it is attached to the M-line **5.** troponin is attached to it **6.** it has an actin binding site on its head **a)** 2, 4, 6 **b)** 1, 5, 3 **c)** 2, 4 **d)** 6, 2, 1, 5 **e)** 3, 2

12. Fast-twitch muscle fibers have only <u>one</u> of the following features:

a) high mitochondrial content b) have a large diameter c) have a small diameter d) lots of myoglobin