

BIO 131 PAL

Week 6 – Problem Set 1

SKELETAL MUSCLE

1. Write at least one potential essay question and one potential multiple choice question for the skeletal muscle section of a BIO 131 exam.

2. Make a schematic showing all the steps during skeletal muscle excitation/contraction coupling. Begin with neurotransmitter release from a somatic motor neuron and end with the “powerstroke” between actin and myosin (add as much detail as possible: ions, ion channels, equilibrium potentials, regulatory proteins etc.)

3. List all possible ways you can think of that will induce flaccid muscle paralysis. For each, make a drawing of a somatic motor neuron and a skeletal muscle cell to explain what is happening.

4. True or false: Increasing the extracellular Ca^{++} concentration around a muscle fiber will increase the force of contraction for the fiber. Explain your reasoning.

5. How do you think your muscle fibers change when you begin endurance training? How do you think they change when you begin weight training?

6. After death the body freezes in position ("rigor mortis"). Explain why this occurs.

7. Which steps of skeletal muscle contraction/relaxation require ATP? Where does this ATP come from?