Muscular System Review Packet for Quiz on Tuesday 12/10

(You should study this packet, notes, warm-ups and online activities in order to prepare yourself for the quiz)

Muscular System: Anatomy Review: Skeletal Muscle Tissue

*List the four main functions of the Muscular System:

1. Fill in the characteristics of the three muscle types:

<table>
<thead>
<tr>
<th>Muscle Type</th>
<th>Cardiac</th>
<th>Skeletal</th>
<th>Smooth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shape of cell</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># of nuclei</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Striations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td></td>
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</tbody>
</table>

2. What attaches muscles to bone? ________________________.

3. The whole muscle is composed of muscle cells (fibers) grouped in bundles called ________________.

4. Name the connective tissue coverings surrounding the following:

   1. Whole muscle ______________________
   2. Fascicles ______________________
   3. Muscle cell ______________________

5. Match the following three terms with their definitions:

   1. Sarcolemma ______ endoplasmic reticulum in muscle cell that stores calcium
   2. Sarcoplasmic reticulum ______ intracellular fluid around organelles
   3. Cytoplasm ______ plasma (cell) membrane of muscle cell
6. Myofibrils consist of contractile proteins called ________________.

   Name the two types and what they’re composed of:

   ________________ composed of ________________

   ________________ composed of ________________

7. Arrangement of myofilaments. Give the letter name of each band:

   Dark band → ___ band

   Light band → ___ band

   Match two definitions with each band:

   ___ contains only thin filaments

   ___ contains both thick and thin filaments

   ___ defined by length of thick filament

   ___ defined as distance between two thick filaments

8. Organization of muscle. Put the following components in order, from smallest to largest:

   fascicle       myofilament

   myofibril      muscle fiber (cell)

   muscle

9. What surrounds (insulates) each muscle cell? _______________________

Muscular System: Contraction of Motor Units

10. Define a motor neuron: ____________________________________________

11. Define a motor unit: ____________________________________________

12. The synapse between a motor neuron and the muscle it connects with is called a/an __________________.
13. The muscles of the eye need to make precise small motor movements. Therefore, you would find (large or small) motor units in the eye.

The muscles of the thigh exhibit gross movements for walking. Therefore, you would find (large or small) motor units in the thigh.

14. If the nerve to a muscle is cut, what will happen to the muscle?

15. Synaptic vesicles in the axon terminal of a motor neuron contain what neurotransmitter?

16. Explain the 6 steps that make up the events at a neuromuscular junction.

1. START: Action potential (elect. Current) reaches axon terminal or motor neuron.

2.

3.

4.

5.

6. END: Ach is broken down by enzymes in the synaptic cleft (gap)

17. Explain the basics of the Sliding Filament Theory. (Use page 192 for help) What happens to a sarcomere?

18. Name the three ways in which ATP is regenerated during muscle activity.

19. What molecule must bind to the myosin head in order for it to disconnect with actin?
20. An immediate source of energy is __________________ (CP), but the supplies are limited and rapidly depleted. This source changes ______ into ATP.

21. a. What is the name of the condition in which muscles become rigid after death?

______________________________

b. What is this condition due to?

Other:

22. Why are you out of breath after a hard workout? Why do your muscles burn? How does this help our bodies to maintain homeostasis?
Label the Skeletal Muscle Fiber Below:

Figure 6.1

Label the Skeletal Muscle Below: