Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Review Sheet for Muscles

1. Define or explain the 4 physiological characteristics or properties of muscle tissue.

a.

b.

c.

d.

2. Name the different kinds of muscle proteins and tell their function.

Type of protein functional type function of protein

Actin

Calmodulin

Myomesin

Myosin

Titin

Tropomyosin

Troponin

3. Skeletal muscle cells are specialized for a high level of metabolism. Tell how they are specialized with respect to –

a. controlling the rate of metabolism –

b. supplying sufficient oxygen for aerobic metabolism –

c. carrying out a high rate of aerobic metabolism –

d. forming a large supply of ATP molecules –

4. Tell the difference between –

The origin and insertion of a muscle

Synergistic and antagonistic muscles

5. Tell the function of each of the following in a skeletal muscle contraction.

a. Acetylcholine –

b. binding of ACH to ACH receptor –

c. muscle action potential –

d. calcium ions –

e. myosin heads –

f. sarcoplasmic reticulum –

g. T tubules –

6. Now - tell what happens during the 9 steps in contraction and relaxation of a skeletal muscle.

1. 2.

3. 4.

5. 6.

7. 8. 9.

7. Compare the 3 kinds of muscle tissue by completing the table below.

Skeletal muscle Smooth muscle Cardiac muscle

# of nuclei/cell –

b. shape of cell –

c. SR –

d. Contractile protein –

e. Regulatory protein –

f. autorhythmicity? –

g. speed of contraction –

8. What do we mean by a Motor Unit? –

Muscles that control precise movements (ex. Movement of the eyes) are composed of

\_\_\_\_\_\_\_\_\_\_\_\_\_(many or few) motor units that are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in size (smaller/larger)

What do we mean by “muscle recruitment”?

9. Tell the difference between an isometric and isotonic muscle contraction.

10. Complete the table to compare the 3 kinds of skeletal muscle fibers.

Slow Oxidative Fast Oxidative/Glycolytic Fast Glycolytic

Myoglobin content –

# of mitochondria –

Rate of ATP production –

Contraction speed –

Glycogen stores –

Fatigue resistance –

Fiber diameter –

Color of Muscle –

Primary function –

11. What is the cause of the following muscle disorders?

Myasthenia gravis (Lou Gehrig’s ) –

Duchenne Muscular Dystrophy –

Fibromyalgia –

Muscle Cramp

12. For each of the following, tell the cause and the difference between –

A muscle twitch –

Wave summation –

Incomplete tetanus –

Complete tetanus