Biology 13A Problem Set 4
Chapters 8-9

Name_________________________________

1. Draw a cross section muscle. Label the *fascia, muscle fiber, myofibril, and filaments*.

2. Draw a diagrams showing muscle contraction of a sarcomere. Label actin, myosin, ATP, and ADP in your diagrams.

3. Define a neurotransmitter.
4. Explain what causes muscle fatigue when you over-exercise.

5. Draw a graph of a muscle twitch. Label both the X and Y axis with time and force and label the three phases of the twitch.

6. What is the difference between summation and tetanus?
7. List the 7 major groups of muscles and give the functions of each group.

8. Draw a neuron and label: *cell body, dendrite, axon, and myelin sheath.*
9. Draw a synapse. Show how an impulse can be transmitted across the synapse into the next cell. Label: *synaptic knob, neurotransmitter, receptors, synaptic cleft, vesicles.*

10. Briefly explain how each of the drugs below effect synaptic signaling.

Cocaine

Heroin

LSD
11. Describe or draw out how an impulse travels down an axon of a nerve. Be sure to show the roles of sodium and potassium.

12. List the 4 major parts of the brain. Describe the functions of each part.
13. Describe the differences between a patellar and withdrawal reflex.

14. Describe the differences between the sympathetic and parasympathetic nervous systems.

Multiple Choice

1. What is part of the peripheral nervous system?
   a. Ascending tract
   b. Brain
   c. Descending tract
   d. Spinal cord
   e. Sympathetic nervous system

2. Before an action potential begins, what is true about an axon?
   a. Sodium is high outside the membrane
   b. Potassium is high outside the membrane
   c. Sodium is low outside the membrane
   d. Potassium is low outside the membrane
   e. Both a. and d.
3. When a potassium channel opens and closes and cannot reopen for a period of time, this period of time is called:
   a. Delayed
   b. Impulse
   c. Latent
   d. Refractory
   e. Relaxation

4. What part of the brain is most involved in breathing?
   a. Brainstem
   b. Cerebellum
   c. Cerebrum
   d. Diencephalon

5. If you get suddenly scared, what part of the nervous system will most likely be activated?
   a. Brainstem
   b. Parasympathetic
   c. Spinal cord
   d. Sympathetic
   e. Synapse

6. What muscle group is used when chewing food?
   a. Abdominal
   b. Arms
   c. Facial
   d. Mastication
   e. Pectoral

7. Muscle striations are due to:
   a. Fascia ridges
   b. Muscle plate attachments
   c. Overlapping filaments
   d. Torn ligaments
   e. Tendon attachments

8. Rigor mortis occurs because of an arrest in what stage of muscle contraction?
   a. ATP hydrolysis to ADP and P
   b. Binding of ATP to myosin
   c. Myosin binding to actin
   d. Myosin changing its shape
   e. Myosin releasing actin

9. The first stage of a muscle twitch is called:
   a. Contraction
   b. Latent period
   c. Relaxation
   d. Summation
   e. Tetanus