Skeletal Muscle Anatomy and Contraction Practice

1. Define the following terms:

- Sarcolemma -
- Sarcoplasm -
- Myofibril -
- Sarcoplasmic reticulum -
- Transverse tubules -

2. Describe the thick and thin filaments of a myofibril. Which contractile proteins are found in each?

- Myosin:

- Actin:

3. What is a sarcomere? What is the relationship between actin and myosin in a myofibril?

4. Define the following structures of a sarcomere. How many of each is in one sarcomere?

- A band -
- I band -
- H zone
- M line -
- Z discs -

5. Describe the roles of troponin and tropomyosin during skeletal muscle contraction.

- Troponin

- Tropomyosin
6. Where is Ca\textsuperscript{2+} stored in skeletal muscles? What prompts its release? What role does it play during skeletal muscle contraction?

7. Label the muscle fiber below using the following terms (terms are used for upper and lower diagrams):

I – band (2)  
Z – disc (2)  
H – Zone  
M – line  
A - band  
Thick filament  
Thin filament  
Sarcomere  
Zone of overlap (lower diagram only)
7. Describe the events that take place at an axon terminal. Include a small diagram to illustrate the process.

8. Describe the contraction cycle between myosin and actin. What role does ATP play in this process?