Skeletal Muscle Quiz

Directions: Choose the best answer to the questions below

1. Which of the following is in the correct order from large to small?
   a. muscle belly -> sarcomere -> myofibril
   b. myofibril -> sarcomere -> thin and thick filaments
   c. muscle belly -> thin and thick filaments -> sarcomere
   d. thick and thin filaments -> sarcomere -> myofibril

2. What structure stores Ca\(^{2+}\) in the muscle fiber?
   a. T Tubule
   b. Myofibril
   c. Sarcoplasmic reticulum
   d. Troponin
   e. Sarcomere

3. A ________ neuron releases the neurotransmitter that initiates skeletal muscle contraction.
   a. Somatic Motor (afferent) neuron
   b. Sympathetic neuron
   c. Sensory neuron
   d. Muscle neuron
   e. Sarcoplasmic neuron

4. The neurotransmitter that excites the muscle fiber is _____________.
   a. GABA
   b. Na\(^+\)
   c. Ca\(^{2+}\)
   d. Troponin
   e. Ach

5. The extracellular receptor that binds the neurotransmitter on the muscle fiber is ________.
   a. An adrenergic receptor
   b. A beta receptor
   c. A cholinergic
   d. An alpha receptor
   e. A tyrosine kinase
6. After the receptor is activated, __________ ion depolarizes the muscle fiber cell and travels through the __________.
   a. Ca²⁺, Sarcoplasmic Reticulum
   b. Na⁺, T Tubules
   c. K⁺, Sarcomere
   d. Ca²⁺, Sarcomere
   e. Na⁺, Sarcoplasmic Reticulum

7. ______ leaves the sarcoplasmic reticulum and binds to __________ in the sarcomere.
   a. Ca²⁺, Troponin
   b. Na⁺, Tropomyosin
   c. K⁺, Myosin
   d. Ca²⁺, Tropomyosin
   e. Na⁺, Troponin

8. ____________ moves _____________ off of the myosin binding sites on actin.
   a. Ca²⁺, troponin
   b. Troponin, myosin
   c. Tropomyosin, troponin
   d. Myosin, troponin
   e. Troponin, tropomyosin

9. Thick Filament is made up of ____________.
   a. Troponin
   b. Tropomyosin
   c. Actin
   d. Myosin
   e. ALL except d

10. Thin Filament is made up of ____________.
    a. Troponin
    b. Tropomyosin
    c. Actin
    d. Myosin
    e. ALL except d

11. ____________ Filament moves the ____________ Filament
    a. Thin, Thick
    b. Thick, Thin
12. Once myosin binds to actin, ________ heads change shape and slide the ________.
   This is the sliding filament theory.
   a. actin, myosin
   b. troponin, myosin
   c. troponin, actin
   d. myosin, actin

13. ________ heads stay bound to actin until __________.
   a. troponin, more Ca\(^{2+}\) enters the cell
   b. myosin, more Ca\(^{2+}\) enters the cell
   c. tropomyosin, more Ach is released
   d. myosin, another ATP binds
   e. troponin, another depolarization event occurs

14. Each myosin head uses ________ to change shape.
   a. 1 Ca\(^{2+}\) ion
   b. 2 ADP molecules
   c. 2 ATP molecules
   d. 1 ATP molecule
   e. 1 Na\(^{+}\) ion

15. Contraction of many sarcomeres results in shortening of the overall ________.
   a. Thick Filament
   b. Myofibril
   c. Motor Proteins
   d. Sarcoplasmic Reticulum
   e. Receptor

Please see the following page for answers.
ANSWER KEY

1. b
2. c
3. a
4. e
5. c
6. b
7. a
8. e
9. d
10. e
11. b
12. d
13. d
14. d
15. b