1. Duchenne's muscular dystrophy
   A. is an X-linked recessive trait.  
   B. most often affects women.  
   C. involves degeneration of smooth muscle.  
   D. All of the choices are correct.

2. ________ is characterized by continued attachment of myosin heads to actin filaments due to a lack of ATP.
   A. Tetanus  
   B. Rigor mortis  
   C. ALS  
   D. Hypotonia  
   E. Treppe  
   F. Botulism

3. ________ occurs as a warm-up in muscle cells when stimulus frequency increases to produce a greater cumulative force of contraction with each stimulus, but still allows the muscle to relax in between stimuli.
   A. Tetanus  
   B. Treppe  
   C. Summation  
   D. Muscle twitch  
   E. Rigor mortis  
   F. Oxygen debt

4. ________ occurs in muscle cells when stimulus frequency increases to produce a greater (but not maximal) force contraction, with frequency too great to allow muscle relaxation in between stimuli.
   A. Tetanus  
   B. Treppe  
   C. Summation  
   D. Muscle twitch  
   E. Rigor mortis  
   F. Oxygen debt

5. A reserve of high energy phosphate, to regenerate ATP from ADP, is stored in muscle as
   A. phosphocreatine.  
   B. adenosine triphosphate.  
   C. glucose 6-phosphate.  
   D. creatine kinase.

6. Myostatin is
   A. a molecule that inhibits phosphorylation of ADP to ATP.
   B. a molecule that stimulates phosphorylation of ADP to ATP.
   C. a molecule that inhibits de-phosphorylation of ATP to ADP.
   D. a molecule that stimulates de-phosphorylation of ATP to ADP.
   E. a molecule that inhibits satellite cells and muscle growth.
   F. a molecule that stimulates satellite cells and muscle growth.

7. The muscle spindle apparatus is associated with
   A. extrafusal fibers.  
   B. tendons.  
   C. intrafusal fibers.  
   D. Golgi tendon organs.

8. Alpha motoneurons innervate
   A. nuclear chain fibers.  
   B. nuclear bag fibers.  
   C. extrafusal fibers.  
   D. intrafusal fibers.

9. The stimulation of gamma motoneurons produces
   A. isotonic contraction of intrafusal fibers.
   B. isometric contraction of intrafusal fibers.
   C. Either isotonic or isometric contraction of intrafusal fibers.
   D. contraction of extrafusal fibers.

10. The __________ reflex prevents excessive muscle contraction.
    A. flexor  
    B. cross-extensor  
    C. Golgi tendon  
    D. muscle spindle
11. The inhibition of an antagonistic muscle so that the agonist can do the intended movement is due to
   A. crossed-extensor reflex.                 C. reciprocal innervation.
   B. monosynaptic reflex.                  D. Hypotonia.

12. Muscle unit of scale composed of repeating units of sarcomeres.
    A. Organ                                  D. Fascicle
    B. Myofibril                              E. Fiber
    C. Myofilament                           

13. Which of the following substances, which accumulate with muscle fatigue, is cleared from the bloodstream by the
    Cori cycle?
    A. ADP                                      E. Glycogen
    B. Phosphate                                F. Lactic acid
    C. CO₂                                      G. Oxygen
    D. Myoglobin                                

14. The reciprocal innervation reflex that occurs during striking of the patellar tendon causes
    A. Contraction of the quadriceps muscles and relaxation of the ipsilateral hamstring muscles.
    B. Relaxation of the quadriceps muscle and contraction of the ipsilateral hamstring muscle.
    C. Contraction of the quadriceps muscle and relaxation of the contralateral hamstring muscle.
    D. Relaxation of the quadriceps muscle and contraction of the contralateral hamstring muscle.

  Take your time with this! Stop. Think. Work it out. What do you need to happen if you step on a tack with one foot?

15. The double reciprocal innervation reflex, which occurs when you step on a tack with your right foot, causes
    A. Contraction of the left quadriceps muscles and relaxation of the ipsilateral hamstring muscles, and simultaneous
        contraction (extension) of the contralateral (right) quadriceps muscles.
    B. Relaxation of the left quadriceps muscle and contraction of the ipsilateral hamstring muscles, and simultaneous
        contraction (extension) of the contralateral (right) quadriceps muscles.
    C. Relaxation of the left quadriceps muscle and contraction of the ipsilateral hamstring muscles, and simultaneous
        relaxation of the contralateral (right) quadriceps muscles.
    D. Contraction of the right quadriceps muscles and relaxation of the ipsilateral hamstring muscles, and simultaneous
        contraction (extension) of the contralateral (left) quadriceps muscles.
    E. Relaxation of the right quadriceps muscle and contraction of the ipsilateral hamstring muscles, and simultaneous
        relaxation of the contralateral (left) quadriceps muscles.
    F. Relaxation of the right quadriceps muscle and contraction of the ipsilateral hamstring muscles, and simultaneous
        contraction (extension) of the contralateral (left) quadriceps muscles.
Ch 9. Answers:
1. A
2. B
3. B
4. C
5. A
6. E
7. C
8. C
9. B
10. C
11. C
12. B
13. F
14. A
15. F

How did you do?