PSE 4U - Exercise Science Unit Test

Unit 2 - Muscular System

Knowledge and Understanding	Thinking and Inquiry	Communication	Application
/ 16	/ 10	/ 15	/ 11
/ 52			

Part 1 - Knowledge and Understanding

Multiple choice - Please circle the correct answer for each of the following questions (10 pts)

1) Which of these muscles insert on the tibial tuberosity?
    a. Semitendinosus, semimembranosus, biceps femoris
    b. Vastus lateralis, vastus intermedius, vastus medialis, rectus femoris
    c. gracilis, adductor, psoas major
    d. none of the above

2) Which of the following muscles flexes the knee?
    a. Semitendinosus, semimembranosus, and rectus femoris
    b. Vastus lateralis, vastus intermedius, vastus medialis, rectus femoris
    c. Supraspinatus, infrspinatus, subscapularis
    d. none of the above

3) The three types of muscles in the human body are:
    a. skeletal, smooth, abdominal
    b. skeletal, cardiac, smooth
    c. skeletal, vascular, cardiac
    d. motor, smooth, cardiac

4) Which of the following statements about skeletal muscles are **FALSE**?
    a. Makes up about 30-40% of the human body mass
    b. Striated
    c. Found in the walls of hollow organs and tubes such as the stomach, intestines and blood vessels
    d. Voluntary

5) Which layer of muscles connective tissue surrounds the entire muscle and separates it from other tissues.
    a. Epimysium
    b. Endomysium
    c. Perimysium
    d. None of the above

6) Which of the following muscles is not an erector of the spine?
    a. Longissimus
    b. Spinalis
    c. Scalenus
    d. Iliocostalis

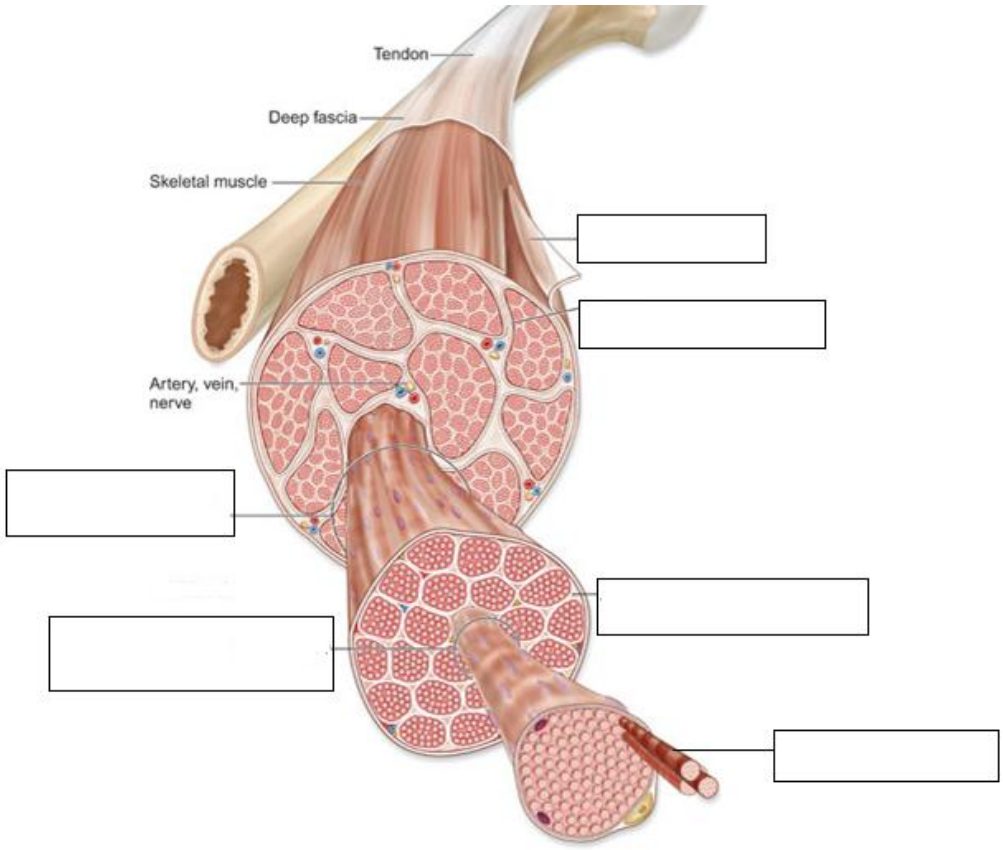
7) Striated muscles include:
    a. skeletal and cardiac
    b. smooth and skeletal
    c. smooth and cardiac
    d. all of the above

8) What is the chemical necessary for the transmission of an impulse from a nerve ending (axon terminal) to a muscle fiber?
    a. calcium
    b. acethycholine (Ach)
    c. ATP
    d. none of the above

9) An Isotonic muscle contraction is:
    a. Muscle contraction, but no movement
    b. No muscle contraction, and no visible movement
    c. Muscle contraction, with visible movement
    d. A constant state of tension in the muscle

10) Which of the following muscles dorsiflexes the ankle?
    a. Gastronemeous
    b. Soleus
    c. Gluteus Maximus
    d. Tibialis Anterior

11) Fill in the blanks on the following skeletal muscle diagram (6pts)



Part 2 - Thinking and Inquiry

1) Describe the difference between an origin and an insertion of a muscle (3 pts).

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2) What is the difference between an afferent nerve and an efferent nerve? (3 pts)

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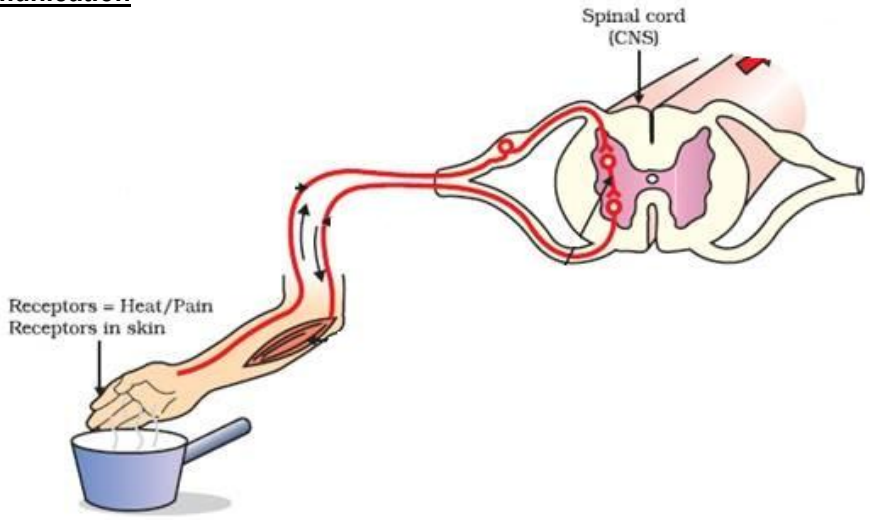
3) While the quadriceps muscle group consists of four muscles with similar actions, one of them is unique when compared to the others. First name all four muscles, then highlight the unique muscle and explain its distinctive characteristic. (4 pts)

Part 3 - Communication



1) Refer to the following diagram to explain the concept of the **Reflex Arc**. Be sure to include all important terms. Feel free to label the diagram to help with the explanation. (5 pts)

2) Describe, in great detail, the sliding-filament theory of muscle contraction *beginning with the neuromuscular junction.* **Please number the steps for clarity** (10 pts).

Part 4 - Application

1) Give an example of a isometric exercise for each of the following muscles or muscle groups. Please explain the exercise in detail. (6 pts)

a. Rectus abdominus

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b. Hamstring muscle group (Semitendinosus, semimembranosus, biceps femoris)

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c. Deltoid Muscle

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2) In the picture below, a man is performing a push-up exercise. **Name and describe two muscles involved in this movement**. Refer to the picture when trying to determine the actions of these two muscles. (5 pts)

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