1. Identify the muscle tissue type described by choosing the correct response(s) from the key choices. Enter the appropriate term(s) or letter(s) of the key choice in the answer blank.

A. Cardiac B. Smooth C. Skeletal

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_1. Involuntary

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_2. Banded appearance

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_3. Longitudinally and circularly arranged layers

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_4. Dense connective tissue packaging

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_5. Figure-8 packaging of the cells

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_6. Coordinated activity to act as a pump

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_7. Moves bones and the facial skin

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_8. Referred to as the muscular system

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_9. Voluntary

 2. Enter the correct letters in the answer blanks

Column A Column B

 \_\_\_\_\_\_1. Connective tissue surrounding a fascicle A. Endomysium

 \_\_\_\_\_\_2. Connective tissue ensheathing the entire muscle B. Epimsysium

 \_\_\_\_\_\_3. Contractile unit of muscle C. Fascicle

 \_\_\_\_\_\_4. A muscle cell D. Fiber

 \_\_\_\_\_\_5. Thin connective tissue investing each muscle cell E. Myofilament

 \_\_\_\_\_\_6. Plasma membrane of the muscle cell F. Myofibril

 \_\_\_\_\_\_7. A long, filamentous organelle found within muscle cells that G. Perimysium

 has a banded appearance

 \_\_\_\_\_\_8. Actin- or myosin—containing structure H. Sarcolemma

 \_\_\_\_\_\_9. Cordlike extension of connective tissue beyond the muscle, I. Sacromere

 serving to attach it to the bone

\_\_\_\_\_\_10. A discrete bundle of muscle cells J. Sarcoplasm

 K. Tendon

 3. Complete the following statements relating to the neuromuscular junction. Insert the correct answers in the numbered answer blanks.

 A motor neuron and all of the skeletal muscle cells it stimulates is call a \_\_\_(1)\_\_\_\_. The axon of each motor neuron has numerous endings called \_\_\_(2)\_\_\_. The actual gap between an axonal ending and the muscle cell is called a \_\_\_(3)\_\_\_. Within the axonal ending are many small vesicles containing a neurotransmitter substance called \_\_\_(4)\_\_\_.

 When the \_\_\_(5)\_\_\_ reaches the ends of the axon, the neurotransmitter is released and it diffuses to the muscle cell membrane to combine with receptors there. Binding of the neurotransmitters with muscle membrane receptors causes the membrane to become permeable to sodium, resulting in the influx of sodium ions and \_\_\_(6)\_\_\_ of the membrane. Then contraction of the muscle cell occurs.

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. Complete the following statements by choosing the correct response from the key choices and entering the appropriate letter or term in the answer blanks.

A. Fatigue E. Isometric contraction I. Many motor units

B. Isotonic contraction F. Whole muscle J. Repolarization

C. Muscle cell G. Tetanus K. Depolarization

D. Muscle tone H. Few motor units

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_1. \_\_\_\_\_\_\_ is a continuous contraction that shows no evidence of relaxation

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_2. A(n) \_\_\_\_\_ is a contraction on which the muscle shortens and work is done

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_3. To accomplish a strong contraction, \_\_\_\_\_ are stimulated at a rapid rate

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_4. When a weak but smooth muscle contraction is desired, \_\_\_\_\_ are stimulated at a rapid rate

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_5. When a muscle is stimulated but is not able to respond due to “oxygen debt” the condition is called \_\_\_\_\_.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_6. A(n) \_\_\_\_\_\_ is a contraction in which the muscle does not shorten but tension in the muscle keeps increasing

 5. Complete the following statements. Insert your answers in the answer blank.

Standing on your toes as in ballet is \_\_(1)\_\_\_ of the foot. Walking on your heels is \_\_\_(2)\_\_\_.

 Winding up for a pitch (as in baseball) can properly be called \_\_\_(3)\_\_\_. To keep your seat when riding a horse, the tendency is to \_\_\_\_(4)\_\_\_ your thighs.

In running, the action at the hip joint is \_\_(5)\_\_ in reference to the leg moving forward and \_\_(6)\_\_ in reference to the leg in the posterior position. When kicking a football, the action at the knee is \_\_(7)\_\_. In climbing stairs, the hip and knee of the forward leg are both \_\_(8)\_\_. You have just touched your chin to your chest; this is \_\_(9)\_\_ of the neck.

Using a screwdriver with a straight arm requires \_\_(10)\_\_ of the arm. Consider all the movements of which the arm is capable. One often used for strengthening all upper arm and shoulder muscles is \_\_(11)\_\_.

Moving the head to signify “no” is \_\_(12)\_\_. Action that moves the distal end of the radius across the ulna is \_\_(13)\_\_. Raising the arms laterally away from the body is called \_\_(14)\_\_ of the arms.

 1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 8. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 9. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 10. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 11. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 12. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 13. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 14. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 6. The terms provided in the key are often used to describe the manner in which muscles interact with other muscles. Select the key terms that apply to the following definitions and insert the correct letter or term in the answer blanks.

Key choices

A. Antagonist B. Fixator C. Prime mover D. Synergist

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1. Agonist

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2. Postural muscle for the most part

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 3. Stabilizes a joint so that the prime mover can act at

 more distal joints

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 4. Performs the same movement as the prime mover

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 5. Reverses and/or opposes the action of a prime

 mover

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 6. Immobilizes the origin of the prime mover

 7. Several criteria are applied to the naming of muscles. These are provided in Column B. Identify which criteria pertain to the muscles listed in Column A and enter the correct letter(s) in the answer blank.

Column A Column B

\_\_\_\_\_\_\_\_\_ 1. Gluteus maximus A. Action of the muscle

\_\_\_\_\_\_\_\_\_ 2. Adductor magnus B. Shape of the muscle

\_\_\_\_\_\_\_\_\_ 3. Biceps femoris C. Location of the muscle’s origin

 and/or insertion

\_\_\_\_\_\_\_\_\_ 4. Abdominis transversus D. Number for origins

\_\_\_\_\_\_\_\_\_ 5. Extensor carpi ulnaris E. Location of muscle relative to a bone

 or body region

\_\_\_\_\_\_\_\_\_ 6. Trapezius F. Direction in which the muscle fibers

 run relative to some imaginary line

\_\_\_\_\_\_\_\_\_ 7. Rectus femoris G. Relative size of the muscle

\_\_\_\_\_\_\_\_\_ 8. External oblique

 8. Identify the major muscles described in Column A by choosing a response from Column B. Enter the correct letter in the answer blank.

Column A Column B

\_\_\_\_\_\_\_\_\_ 1. Used in smiling A. Buccinator

\_\_\_\_\_\_\_\_\_ 2. Used to suck in your cheeks B. Frontalis

\_\_\_\_\_\_\_\_\_ 3. Used in winking C. Masseter

\_\_\_\_\_\_\_\_\_ 4. Used to form the horizontal frown D. Orbicularis oculi

 on the forehead

\_\_\_\_\_\_\_\_\_ 5. The “kissing” muscle E. Orbicularis oris

\_\_\_\_\_\_\_\_\_ 6. Prime mover of jaw closer F. Sternocleidomastoid

\_\_\_\_\_\_\_\_\_ 7. Synergist muscle for jaw closer G. Temporalis

\_\_\_\_\_\_\_\_\_ 8. Prime mover of head flexion; a two-headed H. Trapezius

 muscle

1. Zygomaticus

 9. Identify the anterior truck muscles described in Column A by choosing a response from Column B. Ender the correct letter in the answer blank

Column A Column B

\_\_\_\_\_\_\_\_\_ 1. The name means “straight muscle of the A. Deltoid

 abdomen”

\_\_\_\_\_\_\_\_\_ 2. Prime mover for shoulder flexion and B. Diaphragm

 adduction

\_\_\_\_\_\_\_\_\_ 3. Prime mover for shoulder abduction C. External intercostal

\_\_\_\_\_\_\_\_\_ 4. Part of the abdominal girdle; forms the D. External oblique

 external lateral walls of the abdomen

\_\_\_\_\_\_\_\_\_ 5. Acting alone, each muscle of this pair turns E. Internal intercostal

 the head toward the opposite position

\_\_\_\_\_\_\_\_\_ 6. and 7. Besides the two abdominal muscles F. Internal oblique

 (pairs) named above, two muscle pairs that

 help form the natural abdominal girdle

\_\_\_\_\_\_\_\_\_ 8. Deep muscle of the thorax that promote G. Latissimus dorsi

 the inspiratory phase of breathing

\_\_\_\_\_\_\_\_\_ 9. An unpaired muscle that acts with the H. Pectoralis major

 muscles named immediately above to

 accomplish inspiration

 I. Rectus abdominis

 J. Sternocleidomastoid

 K. Transversus abdominis

10. Identify the posterior trunk muscles described in Column A by choosing a response from Column B. Enter the correct letter in the answer blank.

Column A Column B

\_\_\_\_\_\_\_\_\_ 1. Muscle that allows you to shrug your A. Deltoid

 shoulders or extend your head

\_\_\_\_\_\_\_\_\_ 2. Muscle that adducts the shoulder and B. Erector spinae

 causes extension of the shoulder joint

\_\_\_\_\_\_\_\_\_ 3. Shoulder muscle that is the antagonist C. External oblique

 of the muscle just described

\_\_\_\_\_\_\_\_\_ 4. Prime mover of back extension; a deep

 composite muscle consisting of 3 columns D. Gluteus maximus

\_\_\_\_\_\_\_\_\_ 5. Large pared superficial muscle of the lower E. Latissimus dorsi

 back

 F. Trapezius

11. Identify the muscles describe in Column A by choosing a response from Column B. Enter the correct letter in the answer blank.

Column A Column B

\_\_\_\_\_\_\_\_\_ 1. Hip flexor, deep in pelvis; a composite of 2 muscles A. Adductors

 B. Biceps femoris

\_\_\_\_\_\_\_\_\_ 2. Used to extend the hip when climbing stairs C. Fibularis muscles

 D. Gastrocnemius

\_\_\_\_\_\_\_\_\_ 3. “Toe dancer’s” muscle; a 2-bellied muscle of the calf E. Gluteus maximus

 F. Gluteus medius

\_\_\_\_\_\_\_\_\_ 4. Inverts and dorsiflexes the foot G. Hamstrings

 H. Iliopsoas

\_\_\_\_\_\_\_\_\_ 5. Muscle group that allows you to draw you to the I. Quadriceps

 midline of your body, as when standing to attention

 K. Sartorius

\_\_\_\_\_\_\_\_\_ 6. Muscle group that extends to the knee L. Semimembranosus

 M. Semitendinosus

\_\_\_\_\_\_\_\_\_ 7. Muscle group that extends the thigh and flexes the N. Soleus

 the knee

 O. Tibialis anterior

\_\_\_\_\_\_\_\_\_ 8. Smaller hip muscle commonly used as an injection P. Vastus intermedius

 site

 Q. Vastus lateralis

\_\_\_\_\_\_\_\_\_ 9. Muscle group of the lateral leg; plantar flex and R. Vastus medialis

 evert the foot

\_\_\_\_\_\_\_\_\_10. Strap-like muscle that is a weak thigh flexor; the

“tailor’s muscle”

\_\_\_\_\_\_\_\_\_11. Like the 2-bellied muscle that lies over it, this

 muscle is a plantar flexor

12. Identify the muscles described in Column A by choosing a response from Column B. Enter the correct letter in the answer blank.

Column A Column B

\_\_\_\_\_\_\_\_\_ 1. Wrist flexor that follows the ulna A. Biceps brachii

\_\_\_\_\_\_\_\_\_ 2. Muscle that extends the fingers B. Deltoid

\_\_\_\_\_\_\_\_\_ 3. Muscle that flexes the fingers C. Extensor carpi radialis

\_\_\_\_\_\_\_\_\_ 4. Muscle that allows you to bend (flex) the elbow D. Extensor digitorum

\_\_\_\_\_\_\_\_\_ 5. Muscle that extends the elbow F. Flexor digitorum superficialis

\_\_\_\_\_\_\_\_\_ 6. Powerful shoulder abductor, used to raise the arm G. Triceps brachii

 overhead

13. Complete the following statements describing muscles. Insert the correct answers in the answer blanks.

Three muscles--\_\_(1)\_\_, \_\_(2)\_\_, and \_\_(3)\_\_--are commonly used for intramuscular injections in adults

The insertion tendon of the \_\_(4)\_\_ group contains a large sesamoid bone, the patella.

The triceps surae insert in common into the \_\_(5)\_\_ tendon.

The bulk of the tissue of a muscle tends to lie \_\_(6)\_\_ to the part of the body it causes to move.

The extrinsic muscles of the hand originate on the \_\_(7)\_\_.

Most flexor muscles are located on the \_\_(8)\_\_ aspect of the body; most extensors are located \_\_(9)\_\_. An exception to this generalization is the extensor-flexor musculature of the \_\_(10)\_\_

The pectoralis major and deltoid muscles act synergistically to \_\_(11)\_\_ the arm.

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 6, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 8. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 9. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

10. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

11. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

14. Complete the following statements concerning the embryonic development of muscles and their functioning throughout life. Insert your answers in the answer blanks.

The first movement of the baby detected by the mother-to-be is called the \_\_(1)\_\_

An important congenital muscular disease that results in the degeneration of the skeletal muscles by young adulthood is called \_\_(2)\_\_.

A baby’s control over muscular progresses in a \_\_(3)\_\_ direction as well as a \_\_(4)\_\_ direction. In addition, \_\_\_(5)\_\_\_ muscular control (that is, waving of the arms) occurs before \_\_(6)\_\_ control (pincer grasp\_ does.

Muscles will ordinarily stay healthy if they are \_\_(7)\_\_ regularly; without normal stimulation they \_\_(8)\_\_

\_\_(9)\_\_ is a disease of the muscles, which results from some problem with the stimulation of the muscles by the acetylcholine. The muscles become progressively weaker in this disease.

With age, our skeletal muscles decrease in mass; this leads to a decrease in body \_\_(10)\_\_ and in muscle \_\_(11)\_\_. Muscle tissue that is lost is replaced by noncontractile \_\_(12)\_\_ tissue.

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 8. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 9. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 10. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

11. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

12. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_