Match the following:

1. Element that serves as the actual “go” signal for muscle contraction F
2. Neurotransmitter substance released by the neuron to stimulate muscle cell A
3. Normally stored in the sarcoplasmic reticulum F
4. A metabolic pathway that produces water, carbon dioxide, and ATP, and provides for a large amount of ATP per glucose because oxygen is present B
5. Element that “rushes” into the muscle cell after stimulation from the nerve E
6. acetylcholine b. aerobic respiration c. enzymes d. anaerobic respiration e. potassium ions f. calcium ions g. sodium ions
7. Muscle used to turn head H
8. “Kissing” muscle D
9. Chewing muscle F
10. Muscle used to furrow eyebrows H
11. Shoulder muscle G
	1. occipitalis b. zygomaticus c. trapezius d. orbicularis oris e. orbicularis oculi f. masseter g. deltoid h. frontalis i. pectoralis major j. sternocleidomastoid
12. Represents the H zone
13. Will move towards each other during contraction (2 numbers)
14. Muscle tissue that is involuntary:
	1. skeletal muscle only
	2. smooth muscle only
	3. skeletal and smooth
	4. **cardiac and smooth**
15. Which of the following is ***not*** a function of the muscular system:
	1. producing movement
	2. maintaining posture
	3. **fat synthesis**
	4. generating heat
16. A sarcomere is:
	1. **a nonfunctional unit of skeletal muscle**
	2. the unit between 2 z-discs
	3. the light and dark striations of muscle tissue
	4. made of solely actin
17. Which of the following are in the proper order from superficial to deep?
	1. **Epimysium, muscle belly, perimysium, fascicle, endomysium, muscle fiber, myofibril, sarcomere**
	2. Endomysium, muscle belly, perimysium, fascicle, epimysium, muscle fiber, myofibril, sarcomere
	3. Epimysium, muscle belly, endomysium, fascicle, perimysium, muscle fiber, myofibril, sarcomere
	4. Epimysium, muscle belly, perimysium, sarcomere, endomysium, muscle fiber, myofibril, fascicle
18. Which of the following groups of terms is placed in the correct order from largest to smallest?
	1. myofilament, myofibril, muscle fiber, fascicle
	2. **fascicle, muscle fiber, myofibril, sarcomere**
	3. muscle fiber, myofibril, sarcomere, fascicle
	4. fascicle, sarcomere, myofibril, myofilament
19. A motor unit consists of:
	1. a skeletal muscle and all the neurons that supply it
	2. all the neurons that stimulate a single action
	3. all the skeletal muscles in a single movement
	4. **a neuron and all the skeletal myofibrils it stimulates**
20. In muscle contraction, calcium apparently acts to:
	1. increase the action potential transmitted along the sarcolemma
	2. release myosin from actin
	3. **expose binding sites on actin**
	4. stimulate the relaxation of the sarcomere
21. The mechanical force of contraction is generated by:
	1. shortening of thick filaments
	2. shortening of thin filaments
	3. **sliding of thin filaments past thick ones**
	4. an “accordion-like” folding of thick and thin filaments
22. Acetylcholine is:
	1. an ion pump
	2. a source of energy for muscle contraction
	3. a component of actin
	4. **a neurotransmitter**
23. During muscle contraction, myosin cross bridges attach to the active sites of:
	1. myosin
	2. **actin**
	3. Z lines
	4. H zone
24. Which of the following are accessory proteins of actin?
	1. Troponin and sarcoplasm
	2. Troponin and myosin
	3. **Troponin and tropomyosin**
	4. Sarcoplasm and sarcolemma
25. The striations of muscle cells are produced by:
	1. a difference in thickness of the sarcolemma
	2. the T tubules
	3. **the arrangement of myofilaments (actin and myosin)**
	4. the cocked position of myosin
26. The condition of fatigue can be explained by:
	1. **insufficient quantities of ATP**
	2. all-or-none law
	3. inadequate number of mitochondira
	4. a total lack of ATP
27. Creatine Phosphate functions in muscle cells to:
	1. form a temporary chemical compound with actin
	2. form a temporary chemical compound with myosin
	3. cause a conformational change in actin and myosin
	4. **provide temporary, yet rapid, ATP production**
28. Muscle tone is:
	1. the feeling of well being following an exercise
	2. **a state of sustained partial contraction resulting from use of muscles**
	3. the ability of a muscle to maintain a contraction for an extended amount of time
	4. how rapidly muscles can contract and relax in succession
29. Observe the list of muscle actions below. Which of them would ***not*** be classified as isotonic?
	1. writing a letter
	2. tying your shoe
	3. **pushing against a stationary object (ie. wall)**
	4. lifting a glass of water to your mouth
30. The insertion of a muscle is:
	1. immovable
	2. **movable**
	3. attached to 2 or more bones
	4. a tendon
31. Which of the following is completely true?
	1. semimembranosus originates at the pelvis and inserts at the fibula
	2. **biceps brachii originates at the clavicle and inserts at the radius**
	3. deltoid originates at the humerus and inserts at the second cervical vertebrae
	4. soleus originates at the femur and inserts at the carpals
32. Rigor mortis is a result of:
	1. sodium entering the muscle cell
	2. increased stimulus on muscle cells
	3. decreased stimulus on muscle cells
	4. **an excess of calcium being released by the sarcoplasmic reticulum**
33. Which criteria is not used in naming muscles?
	1. Action of the muscle
	2. **Method of attachment**
	3. Directions of fibers in the muscle
	4. Relative size of muscle
34. Muscular dystrophy results in:
	1. muscle tone
	2. muscle fatigue
	3. **muscle atrophy**
	4. muscle growth
35. While doing “jumping jacks” during gym class, your arms and legs move away from the midline of your body. This motion is called:
	1. extension
	2. flexion
	3. **abduction**
	4. adduction
36. Which of the following muscles is involved in abduction?
	1. latissimus dorsi
	2. occipitalis
	3. biceps brachii
	4. **tensor fascia lata**
37. Paralysis of which of the following would make an individual unable to flex the anterior thigh?
	1. biceps femoris
	2. adductor
	3. tibialis anterior
	4. **rectus femoris**
38. Which of the following is true?
	1. **Muscles can only pull, they never push**
	2. Muscles do not need to cross a joint
	3. The insertion moves away from the origin during flexion
	4. Muscles readily regenerate
39. Muscle cramps are caused by which of the following:
	1. Dehydration
	2. Thyroid disorders
	3. Overuse
	4. **All of the above**
40. 
41. 
42. 
43. 

Short Answer:

1. Write about one of the homeostatic imbalances of the muscles. What does it affect? What is the result? How does this affect activity?
2. What are the 5 golden rules of skeletal activity?
3. Explain the difference between isometric and isotonic exercises. Provide a description and examples of each. How are they beneficial?