Name: _____ **Class:** _____ **Date:** _____ **ID: A**

Bio12-Q4W1-Ch.32-Skletal and Muscles-Qs.Bank

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. Which type of muscle makes up the heart?
a. cardiac
b. smooth
c. skeletal
d. all of these

____ 2. A(n) _____ muscle contracts under unconscious control.
a. voluntary
b. involuntary
c. skeletal
d. striated

____ 3. Contractions of _____ muscle are slow and prolonged.
a. skeletal
b. smooth
c. voluntary
d. all of these

____ 4. Which type of muscle is found in internal organs?
a. skeletal
b. striated
c. smooth
d. voluntary

____ 5. What is an effect of aging on the skin?
a. wrinkles
b. sagging
c. dryness
d. all of these

____ 6. The first reaction of the body to a cut is to restore the continuity of the _____.
a. skin
b. capillaries
c. sweat glands
d. none of these

____ 7. _____-degree burns involve the death of epidermal and dermal cells/layers.
a. First
b. Second
c. Third
d. Fourth

____ 8. By age 20, a person's bones stop growing because _____.
a. bone-forming cells are no longer present
b. less calcium is present in the body
c. hormones cause the growth centers at the ends of bones to degenerate
d. bone cells receive less oxygen and nutrients at that time

____ 9. Which of the following examples illustrates a pivot joint in use?
a. You wind up to pitch a baseball.
b. You wave good-bye to a friend.
c. You kick a football.
d. You look behind you.

____ 10. After suffering widespread third-degree burns, the burn victim _____.
a. is unlikely to incur bacterial infection
b. recovers in a short time
c. has a harder time regulating body temperature
d. has slight damage to cells of the dermis

____ 11. The skin regulates the temperature of the body on a hot day by _____.
a. closing the pores
b. dilating blood vessels
c. constricting the blood
d. reducing access to the exterior

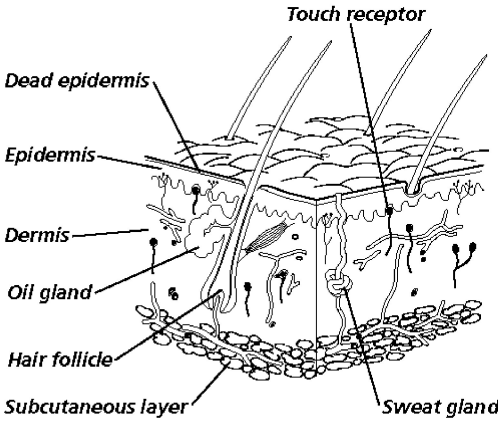

Figure 34-2

____ 12. Which portion of skin shown in Figure 34-2 changes when you get a suntan?
a. dead epidermis
b. epidermis
c. dermis
d. subcutaneous layer

____ 13. Which portion of skin shown in Figure 34-2 is where a pimple forms?
a. oil gland
b. sweat gland
c. hair follicle
d. subcutaneous layer

____ 14. Which portion of skin shown in Figure 34-2 contains sense receptors?
a. dead epidermis
b. epidermis
c. dermis
d. subcutaneous layer

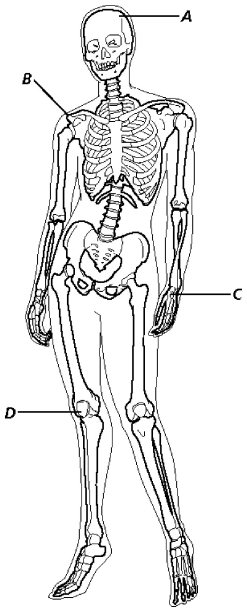

Figure 34-3

____ 15. Identify the ball-and-socket joints in Figure 34-3.
a. A
b. B
c. C
d. D

____ 16. Which joints in Figure 34-3 do not move?
a. A
b. B
c. C
d. D

____ 17. Which area shown in Figure 34-3 is not involved in the production of blood cells?
a. A
b. B
c. C
d. D

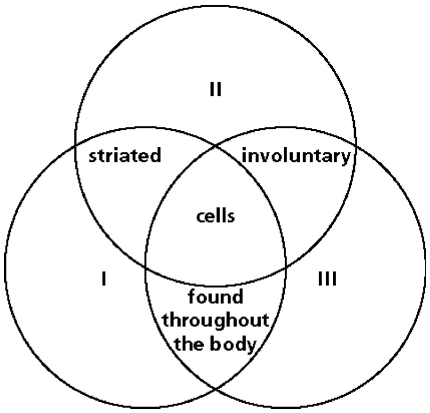

Figure 34-4

____ 18. Which type of muscle is labeled I in the Venn diagram shown in Figure 34-4?
a. cardiac
b. filament
c. skeletal
d. smooth

____ 19. Which type of muscle is labeled II in the Venn diagram shown in Figure 34-4?
a. cardiac
b. filament
c. skeletal
d. smooth

____ 20. Which type of muscle is labeled III in the Venn diagram shown in Figure 34-4?
a. cardiac
b. filament
c. skeletal
d. smooth

Completion
Complete each statement.

21. When an inadequate supply of oxygen is available to meet a muscle cell's oxygen needs, the _____ energy system is the primary source of ATP.

22. Muscle strength depends on the _____ of the fibers and the number of fibers that contract at a time.

23. Bones grow in length at the _____ of the bone.

24. Bones grow in diameter on the _____ surface of the bone.

25. Contraction of _____ muscle, the muscle of internal organs, is slow and prolonged.

26. The mineral _____, found in dairy products, is a critical part of the diet for healthy, strong bones.

27. The _____ produces red blood cells, some white blood cells, and cell fragments involved in blood clotting.

28. Beneath the scab of a wound, _____ begin to multiply to fill in the gap.

Matching

Match each item with the correct statement below.

a. myofibril
b. joint
c. keratin
d. marrow
e. sarcomere
f. bursa
g. melanin
h. osteoblast
i. ligament

____ 29. One of the functional units of a myofibril
____ 30. Smaller fiber in a muscle fiber
____ 31. Band of tissue connecting bone to bone
____ 32. Cell pigment that colors skin and protects it from solar radiation
____ 33. Protein in dead epidermal cells that protects and waterproofs underlying cells
____ 34. Soft tissue that fills center cavities of bones
____ 35. Potential bone cell found in cartilage of embryo
____ 36. Fluid-filled sac between bones
____ 37. Where two or more bones meet

Short Answer

38. Compare and contrast *epidermis* and *dermis*.

39. Compare and contrast *voluntary muscle* and *involuntary muscle*.

40. Compare and contrast *axial skeleton* and *appendicular skeleton*.

41. Describe the cause and effects of a sprain.

42. Why is the skin considered an organ? Give two important functions of skin.

43. Identify the following types of joints: skull, hip, ankle, knee, toe, and neck.

44. Why do people apply sunblocks?

45. Why does a third-degree burn heal slowly?

46. Explain one beneficial and one harmful effect of exposure to sunlight.

47. How does the buildup of lactic acid in muscle cells result in more oxygen being delivered to your cells?

48. How does the sliding filament theory explain muscle contraction?

49. A paramedic at an accident is aware of pressure points, which are areas where a major blood vessel crosses a bone close to the body's surface. How might the paramedic use these points to stop bleeding?

50. Bone fractures in children are often different from fractures in adults. Explain why this may be so.

Table 34-1 shows whether or not a karate expert should be able to break a board or a concrete patio block. The modulus of elasticity (E) is a ratio that measures the capability of a strained body to recover its size and shape after being stretched, bent, or otherwise deformed. The modulus of rupture (R) measures the maximum bending that a material can resist before breaking.

Breaking Parameters for Wood, Concrete, and Bone			
	Wood	**Concrete**	**Bone**
Elasticity modulus (E)	1.4	28.0	180
Rupture modulus (R)	3.6	4.5	210

Table 34-1

51. Why don't the bones of the karatekan's hand break during the karate strike? Refer to Table 34-1.

Problem

Because different muscles in the human body perform different functions, you might expect that there is variation in the kinds of contractions that occur. When you stand watching a game, you tense your leg muscles to maintain a fixed position. This prolonged contraction is called isometric (meaning "same length"). On the other hand, when you are walking and moving your legs, the contraction is rapid and is called isotonic (meaning "same force"). Two muscles in your leg, the gastrocnemius and soleus muscles, help you to extend your foot. The gastrocnemius is used in jumping and performing other rapid movements of the foot. The soleus is used principally for support against gravity.

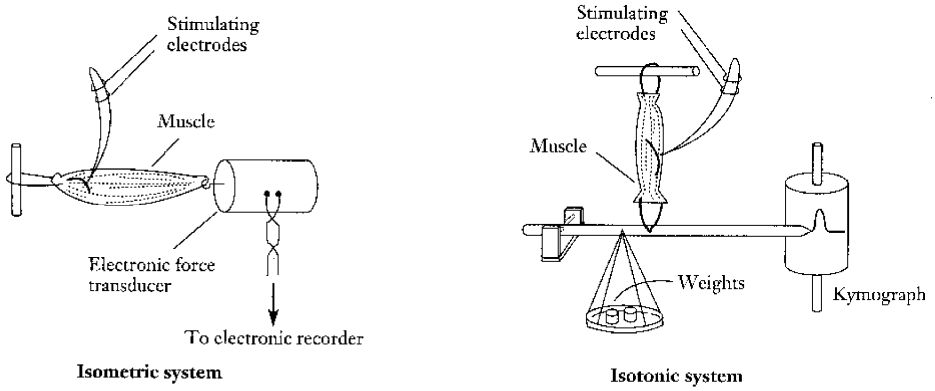

Figure 34-1

52. In which system of Figure 34-1 do you think the twitch will last longer? Why?
53. In which system of Figure 34-1 do you think the shape of the muscle shows greater change during stimulus? Describe the change that must take place.
54. In which system in Figure 34-1 does the muscle not have to overcome inertia?
55. Observe the two systems shown in Figure 34-1. In which system does the muscle have to pull against gravity?

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Answer Section

MULTIPLE CHOICE

1.	ANS: A	PTS: 1	DIF: B	OBJ: 34-7			
	NAT: A1 | C5 | E1						
2.	ANS: B	PTS: 1	DIF: B	OBJ: 34-7			
	NAT: A1 | C5 | E1						
3.	ANS: B	PTS: 1	DIF: B	OBJ: 34-7			
	NAT: A1 | C5 | E1						
4.	ANS: C	PTS: 1	DIF: B	OBJ: 34-7			
	NAT: A1 | C5 | E1						
5.	ANS: D	PTS: 1	DIF: B	OBJ: 34-2			
	NAT: C5 | F1 | F5						
6.	ANS: A	PTS: 1	DIF: B	OBJ: 34-3			
	NAT: C5 | F1 | F5						
7.	ANS: C	PTS: 1	DIF: B	OBJ: 34-3			
	NAT: C5 | F1 | F5						
8.	ANS: C	PTS: 1	DIF: B	OBJ: 34-5			
	NAT: B2 | B6 | C5						
9.	ANS: D	PTS: 1	DIF: B	OBJ: 34-4			
	NAT: B2 | C5 | E1						
10.	ANS: C	PTS: 1	DIF: B	OBJ: 34-3			
	NAT: C5 | F1 | F5						
11.	ANS: B	PTS: 1	DIF: B	OBJ: 34-2			
	NAT: C5 | F1 | F5						
12.	ANS: B	PTS: 1	DIF: A	OBJ: 34-2			
	NAT: C5 | F1 | F5						
13.	ANS: A	PTS: 1	DIF: A	OBJ: 34-2			
	NAT: C5 | F1 | F5						
14.	ANS: C	PTS: 1	DIF: A	OBJ: 34-1			
	NAT: C5 | F1 | F5						
15.	ANS: B	PTS: 1	DIF: B	OBJ: 34-4			
	NAT: B2 | C5 | E1						
16.	ANS: A	PTS: 1	DIF: B	OBJ: 34-4			
	NAT: B2 | C5 | E1						
17.	ANS: A	PTS: 1	DIF: A	OBJ: 34-4			
	NAT: B2 | C5 | E1						
18.	ANS: C	PTS: 1	DIF: A	OBJ: 34-7			
	NAT: A1 | C5 | E1						
19.	ANS: A	PTS: 1	DIF: A	OBJ: 34-7			
	NAT: A1 | C5 | E1						
20.	ANS: D	PTS: 1	DIF: A	OBJ: 34-7			
	NAT: A1 | C5 | E1						

COMPLETION

21. ANS: anaerobic

PTS: 1 DIF: B OBJ: 34-8 NAT: A1 | C5 | E2

22. ANS: thickness

PTS: 1 DIF: B OBJ: 34-8 NAT: A1 | C5 | E2

23. ANS: ends

PTS: 1 DIF: B OBJ: 34-5 NAT: B2 | B6 | C5

24. ANS: outer

PTS: 1 DIF: B OBJ: 34-5 NAT: B2 | B6 | C5

25. ANS: smooth

PTS: 1 DIF: B OBJ: 34-7 NAT: A1 | C5 | E1

26. ANS: calcium

PTS: 1 DIF: B OBJ: 34-6 NAT: B2 | C5 | F1

27. ANS: red marrow

PTS: 1 DIF: B OBJ: 34-6 NAT: B2 | C5 | F1

28. ANS: skin cells

PTS: 1 DIF: B OBJ: 34-3 NAT: C5 | F1 | F5

MATCHING

29. ANS: E PTS: 1 DIF: B OBJ: 34-8
NAT: A1 | C5 | E2

30. ANS: A PTS: 1 DIF: B OBJ: 34-8
NAT: A1 | C5 | E2

31. ANS: I PTS: 1 DIF: B OBJ: 34-6
NAT: B2 | C5 | F1

32. ANS: G PTS: 1 DIF: B OBJ: 34-2
NAT: C5 | F1 | F5

33. ANS: C PTS: 1 DIF: B OBJ: 34-1
NAT: C5 | F1 | F5

34. ANS: D PTS: 1 DIF: B OBJ: 34-6
NAT: B2 | C5 | F1

35. ANS: H PTS: 1 DIF: B OBJ: 34-5
NAT: B2 | B6 | C5

36. ANS: F PTS: 1 DIF: B OBJ: 34-4
NAT: B2 | C5 | E1

37. ANS: B PTS: 1 DIF: B OBJ: 34-4
NAT: B2 | C5 | E1

SHORT ANSWER

38. ANS:
Both epidermis and dermis are layers of skin. The epidermis is the outer, thinner portion of the skin. The dermis is the inner, thicker portion of the skin.

PTS: 1 DIF: B OBJ: 34-1 NAT: C5 | F1 | F5

39. ANS:
Both types of muscle control are in the human body. Voluntary muscle is under conscious control, whereas involuntary muscle is not under voluntary control.

PTS: 1 DIF: B OBJ: 34-7 NAT: A1 | C5 | E1

40. ANS:
Both skeletal systems provide support for the body. The axial skeleton includes the skull, the vertebral column, ribs, and sternum. The appendicular skeleton includes the bones of the arms, legs, shoulders, and pelvic girdle.

PTS: 1 DIF: B OBJ: 34-6 NAT: B2 | C5 | F1

41. ANS:
Caused by forcible twisting of a joint, a sprain can result in injury to the bursa, ligaments, or tendons of the joint.

PTS: 1 DIF: B OBJ: 34-4 NAT: B2 | C5 | E1

42. ANS:
The skin is an organ because it consists of tissues joined together to perform specific activities. Functions of the skin include regulation of body temperature and fluids to maintain homeostasis, protection from physical and chemical damage, and sensing information from the environment.

PTS: 1 DIF: B OBJ: 34-2 NAT: C5 | F1 | F5

43. ANS:
skull—fixed, hip—ball-and-socket, ankle—gliding, knee—hinge, toe—hinge, neck—pivot

PTS: 1 DIF: A OBJ: 34-4 NAT: B2 | C5 | E1

44. ANS:
People apply sunblocks to block the sun's ultraviolet rays to help prevent sunburn and skin cancer.

PTS: 1 DIF: A OBJ: 34-2 NAT: C5 | F1 | F5

45. ANS:
A third-degree burn destroys the epidermis and dermis. Skin no longer functions and must regrow or be replaced by a skin graft.

PTS: 1 DIF: A OBJ: 34-3 NAT: C5 | F1 | F5

46. ANS:
When exposed to the ultraviolet rays in sunlight, dermis cells produce vitamin D, a nutrient that aids calcium absorption. However, exposure to ultraviolet light can damage skin cells and accelerate the aging process.

PTS: 1 DIF: B OBJ: 34-2 NAT: C5 | F1 | F5

47. ANS:
Excess lactic acid in the bloodstream makes the blood more acidic. This stimulates rapid breathing, which supplies more oxygen to the muscle cells. The oxygen breaks down the lactic acid.

PTS: 1 DIF: A OBJ: 34-7 NAT: A1 | C5 | E1

48. ANS:
The sliding filament theory states that actin filaments within a sarcomere slide toward one another during contraction. Myosin filaments do not move.

PTS: 1 DIF: B OBJ: 34-9 NAT: A1 | C5 | E2

49. ANS:
Pressing a blood vessel against a bone may provide the only way to control bleeding effectively.

PTS: 1 DIF: A OBJ: 34-6 NAT: B2 | C5 | F1

50. ANS:
The composition of a child's bones is different from an adult's bones. A child's bones have more collagen and fewer minerals than an adult's. This makes a child's bones less brittle and less likely to break in two.

PTS: 1 DIF: A OBJ: 34-5 NAT: B2 | B6 | C5

51. ANS:
The force on the bones would have to be far greater in order to break them because the modulus of rupture of bone is much higher than that of the board.

PTS: 1 DIF: A OBJ: 34-6 NAT: B2 | C5 | F1

PROBLEM

52. ANS:
In the isotonic system, each twitch will last longer because the muscle must change shape and more work must be done.

PTS: 1 DIF: A OBJ: 34-9 NAT: A1 | C5 | E2

53. ANS:
The change in shape is greater in the isotonic system. The muscle must shorten.

PTS: 1 DIF: A OBJ: 34-9 NAT: A1 | C5 | E2

54. ANS:
In the isometric system, the muscle does not have to overcome inertia and pull against gravity.

PTS: 1 DIF: A OBJ: 34-9 NAT: A1 | C5 | E2

55. ANS:
in the isotonic system because the muscle has to lift the attached weights

PTS: 1 DIF: A OBJ: 34-9 NAT: A1 | C5 | E2