

Anatomy and Physiology 2020 SSSS Key

Division C - Integumentary, Muscular, and Skeletal

1. Which of the following is NOT a layer of the skin?

- a. Stratum Corneum
- b. Stratum Basale
- c. Stratum Sinusoidal**
- d. Stratum Spinosum

2. List TWO functions of the integumentary system

Protection against injury and infection, Regulates body temperature, Sensory perception, Regulates water loss, Chemical synthesis

3. The protein that helps protect the skin and underlying tissue is _____

- a. Melanin
- b. Keratin**
- c. Actin
- d. Creatinine

4. A burn that involves the entire epidermis and some of the dermis is ____ degree

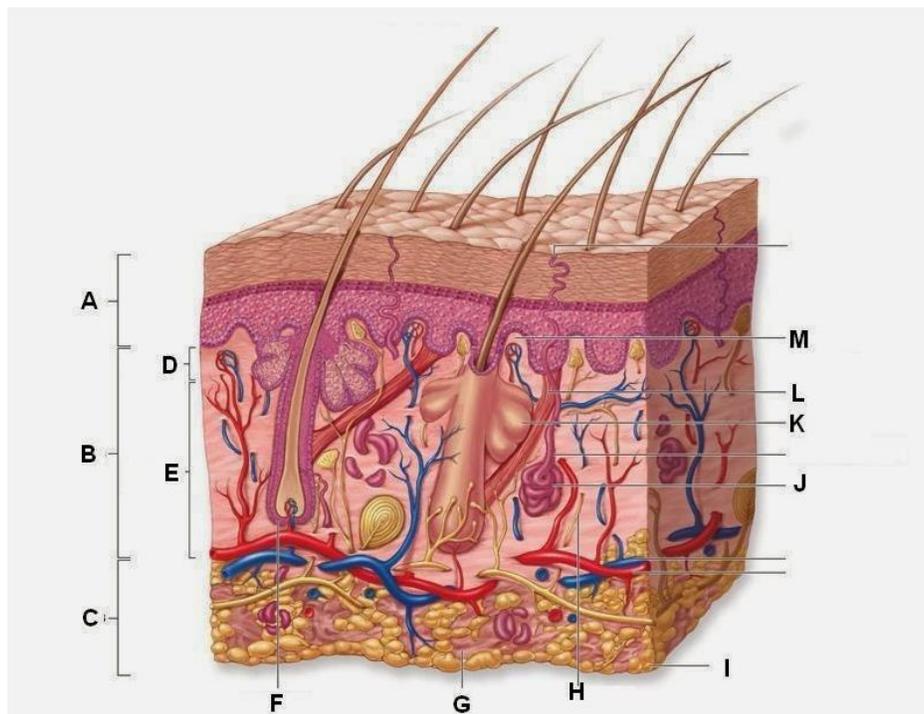
- a. first
- b. second**
- c. third
- d. fourth

5. Sweat is a substance produced by _____ glands

- a. Ceruminous glands
- b. Sebaceous
- c. Holocrine glands
- d. Sudoriferous glands**

Label the following diagram:

6.



- a. Epidermis**
- b. Dermis**
- c. Hypodermis**
- d. Papillary Layer**
- e. Reticular Layer**
- f. Hair Follicle**

- g. Areolar Connective Tissue**
 - h. Sensory Nerve Fiber**
 - i. Adipose Connective Tissue**
 - j. Merocrine Sweat Gland**
 - k. Sebaceous (oil) gland**
 - l. Arrector Pili Muscle**
 - m. Dermal Papilla**
7. Females have a thicker hypodermis than males
- a. True**
 - b. False
8. The likelihood of skin cancer increases due to an _____ in melanocytes
- a. increase
 - b. decrease**
9. What disease do people with a decrease in melanin poses? **albinism**
10. Which epidermal layer include stem cells that continually undergo cell division?
- stratum basale**
11. Carotene is a precursor of which vitamin? **Vitamin D**
12. Dendrites of neurons surrounding each hair follicle are called what? **hair root plexus**
13. Vasodilation in the dermis of the skin (Circle one: **increases**/decreases) the amount of heat loss in the body.

14. Which of the following hormones is associated with Vitamin D?

- a. Apocrine
- b. Calcitriol**
- c. Peptide
- d. Calcitrone

15. What gland is absent in thick skin? **Sebaceous Gland**

16. The two main types of glands are **sweat** and **oil** glands

17. Which of the following secures the nail to the fingertip?

- a. Hyponychium**
- b. Eponychium
- c. Phalanx
- d. Lunula

18. Which of the following cells produce the most pigment molecules?

- a. Epidermal dendritic cells
- b. Melanocytes**
- c. Keratinocytes
- d. Stratified cuboidal epithelial cells

19. Most epidermal cells are:

- a. Epidermal dendritic cells
- b. Keratinocytes**

- c. Squamocytes
- d. Erythrocytes

20. Would you expect an epidermal wound to bleed? Why or why not?

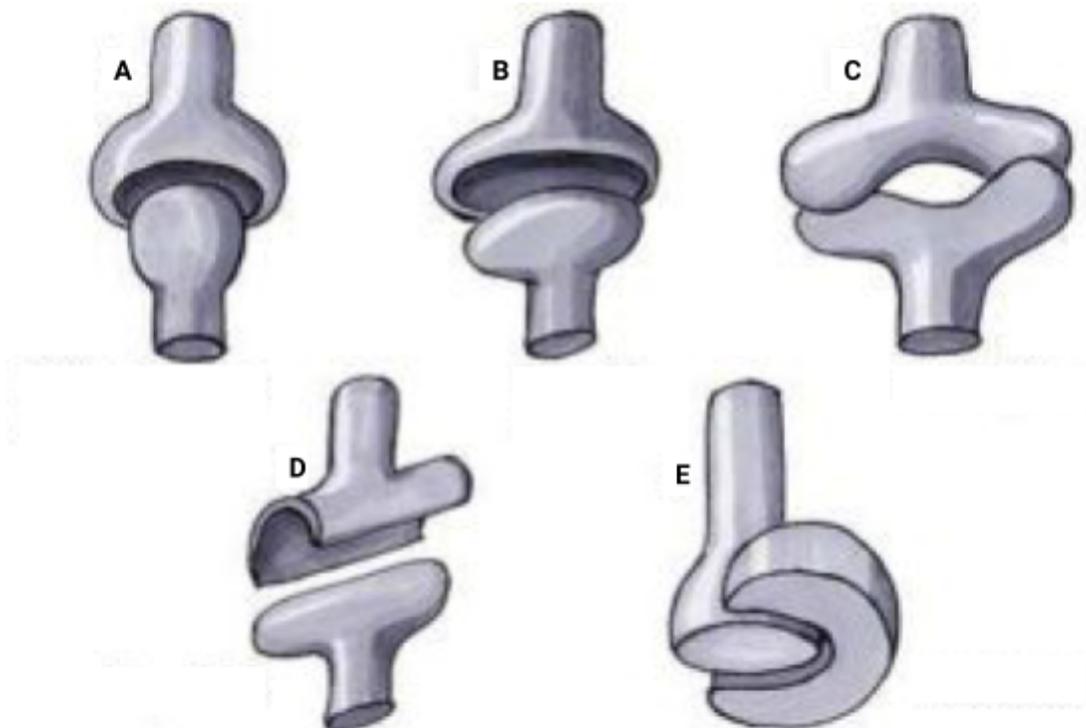
Answers may vary

There aren't any blood vessels in the epidermis; they're located right below it in the dermis, the middle layer of our skin. If you cut yourself and bleed, it means you've torn through the epidermis and left the dermis exposed.

21. How are wrinkles produced? Explain the process in detail. **Answers may vary**

Wrinkles are a natural part of the aging process. As people get older, their skin gets thinner, drier, and less elastic, and less able to protect itself from damage. This leads to wrinkles, creases, and lines on the skin. This is because with the passage of time decreased collagen fibers and hyaluronic acid tend to disappear. These pillars maintain the structure of the skin in the dermis-epidermis junction and provide smooth and dense appearance of youthful skin. Environmental factors such as smoking can accelerate the development of wrinkles as well.

Use the following diagram for #22-#26 to match the letter of the joint to its description



22. The elbow joint is an example of this **D**
23. The joint of the wrist that allows the palm of the hand to be turned up and down is an example of this **E**
24. Shoulder and hip joints are an example of this **A**
25. Also called a condyloid joint. The wrist is an example of this. **B**
26. The thumb joint is an example of this **C**
27. Yellow bone marrow consists mainly of **adipose** cells, which stores triglycerides.
28. The long, cylindrical, main portion of the bone is called the
- a. epiphyses
 - b. periosteum
 - c. metaphyses
 - d. diaphysis**
29. What is the most abundant mineral salt in the extracellular matrix?
- a. calcium oxalate
 - b. sulfate
 - c. calcium phosphate**
 - d. calcium carbonate
30. Spongy bone tissue is the strongest bone tissue in the human body
- a. True
 - b. False**

31. Name the two methods of bone formation **intramembranous ossification and endochondral ossification**

32. Which of the following options correctly depicts the layers of a bone in order?

- a. epimysium, endomysium, perimysium
- b. perimysium, epimysium, endomysium**
- c. endomysium, perimysium, epimysium
- d. perimysium, endomysium, epimysium

33. The areas between neighboring osteons are called interstitial **lamellae**

Label the diagram

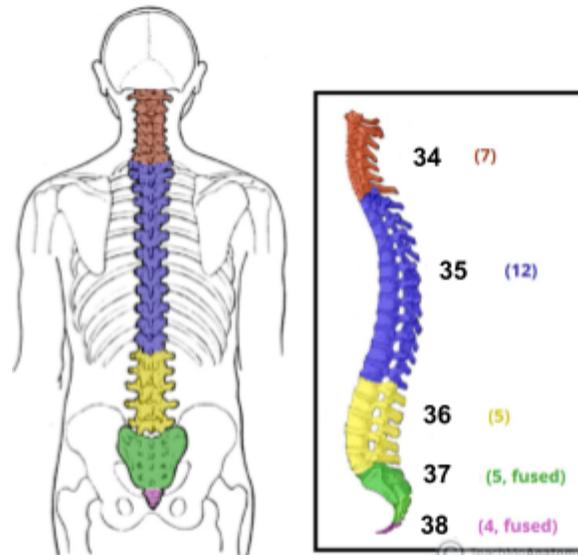
34. **Cervical**

35. **Thoracic**

36. **Lumbar**

37. **Sacrum**

38. **Coccyx**



39. Why is bone reabsorption important?

Bone reabsorption is the reabsorption of bone tissue, that is, the process by which osteoclasts break down the tissue in bones and release the minerals, resulting in a transfer of calcium from bone tissue to the blood. Calcium is an essential mineral to sustain life and enables the blood to clot during injuries.

40. What structures pass through the hypoglossal canal?

It transmits the hypoglossal nerve from its point of entry near the medulla oblongata to its exit from the base of the skull near the jugular foramen.

41. Using the Salter-Harris fracture system, order the following statements from type I to type V

I. fracture through the metaphysis and physis (most common; up to 75% of all physeal fractures)

II. fracture through the metaphysis, physis and epiphysis

III. fracture through the physeal plate (often not detected radiographically)

IV. crush injury involving part or all of the physis

V. fracture through the epiphysis and physis

a. I, II, III, IV, V

b. II, IV, I, V, III

c. III, I, V, II, IV

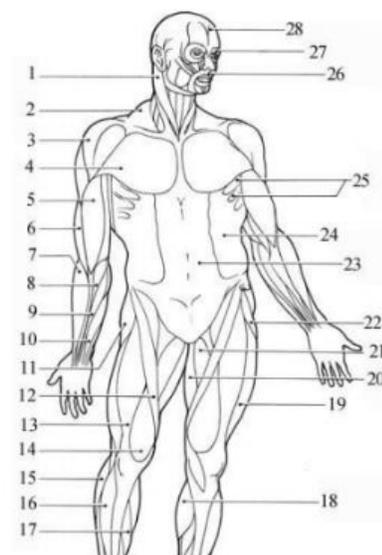
d. IV, II, III, V, I

42. Give the name of #4 **Pectoralis major**

43. Give the name of #24 **External oblique**

44. Give the name of #12 **Sartorius**

45. Give the name of #1 **Sternocleidomastoid**



46. This description depicts which of the following disorders?

viral infection of the nerves that control skeletal muscle movement

- a. tetanus
- b. muscular dystrophy
- c. Myasthenia gravis
- d. Poliomyelitis**

47. What's the difference between a muscle strain and muscle sprain?

The difference between a sprain and a strain is that a sprain injures the bands of tissue that connect two bones together, while a strain involves an injury to a muscle or to the band of tissue that attaches a muscle to a bone.

48. Which of the following carries only motor output information?

- a. Cervical Spinal nerves
- b. Dorsal root
- c. Spinal cord**
- d. Ventral root

49. Joints that allow the most movement (Synovial)?

- a. Amphiarthrosis
- b. Diarthrosis**
- c. Synarthrosis
- d. Sarithrosis

50. Joints that are present between the ribs and the sternum (Cartilaginous)?

a. **Amphiarthrosis**

b. Diarthrosis

c. Synarthrosis

d. Sarithrosis

51. Joints that are present between the cranial bones (Sutures)?

a. Amphiarthrosis

b. Diarthrosis

c. **Synarthrosis**

d. Sarithrosis

52. The muscle tissue type that consists of a single, very long, cylindrical, multinucleated cells with very obvious striations is:

a. cardiac muscle only

b. **skeletal muscle only**

c. cardiac and smooth muscle

d. cardiac and skeletal muscle

53. What is the name of the neurons that stimulate skeletal muscle fibers to contract? **motor neurons**

54. How does sarcomere length influence the maximum tension that is possible during muscle contractions?

Maximum tension during contraction occurs when the resting sarcomere length is 2.0-2.4 a muscle fiber develops its greatest tension when there is an optimal zone of overlap between thick and thin filaments.

55. How is the motor end plate different from other parts of the sarcolemma?

The sarcolemma is the thin, transparent cell membrane of striated muscle cell, consisting of a plasma membrane and an outer coat. The motor end plate is a specific part of the sarcolemma that contains acetylcholine (ACH) receptors and helps form the neuromuscular junction (the region of the muscle cell where a motor neuron stimulates the cell to contract).

56. What factors contribute to muscle fatigue?

Muscle fatigue refers to the decline in muscle force generated over sustained periods of activity or due to pathological issues. Muscle fatigue has a number of possible causes including impaired blood flow, ion imbalance within the muscle, nervous fatigue, loss of desire to continue, and most importantly, the accumulation of lactic acid in the muscle.



57. Name this skin disorder:

Athlete's Foot

58. Describe its treatment:

topical antifungal medications, soaking in warm water, and antibacterial soap. For future prevention, regularly cleanse and protect the foot.

Match the name of the disorder with its description

59. Loss or absence of hair, especially on the scalp; a result of heredity, aging process, systemic illness, or dermatitis; aka baldness. **C**
60. An inflammatory disease of the sebaceous glands and hair follicles. **B**
61. Common benign skin growths found mainly on the axilla (armpit), neck, and inguinal areas of the body; aka - skin tag. **D**
62. A common, contagious, superficial skin infection; manifests with early vesicular or pustular lesions that rupture and form thick yellow crusts. **A**
63. Localized redness and swelling caused by an irritant or allergen. **E**
64. The normal loss of bone that occurs with aging is called
- a. osteoporosis**
 - b. osteopenia
 - c. osteogenesis
 - d. osteo inflammation
65. An autoimmune disease where the immune system attacks its own joints often leading to deformities is called
- a. Osteoporosis
- a. impetigo
- b. acne vulgaris
- c. alopecia
- d. acrochordon
- e. contact dermatitis

- b. Rickets
- c. Gout

d. Rheumatoid Arthritis

66. Exaggerated thoracic curvature of the spine is called

a. Lordosis

b. Kyphosis

c. Scoliosis

d. Lumbarosis

67. Identify the disorder given the following description:

Chronic and progressive inflammatory disease of the spine. It is characterized by early sacroiliac joint involvement followed by hardening of the annulus fibrosus and surrounding connective tissue along with arthritic changes in the facet joints. The disease may cause the spine to gradually lose flexibility and stiffen. The disease is hereditary.

a. Rheumatoid spondylitis

b. Myasthenia gravis

c. Osteoarthritis

d. muscular dystrophies