

**C - Anatomy and Physiology Division C - Nov 7 Country-wide SO Practice - 11-07-2020**

Welcome to the Nov 7 Country-wide SO Practice Tournament! This is the Division C Anatomy and Physiology event.

You will be given a 93 question test consisting of multiple choice and short answer questions. You and your partner will be given 50 minutes to complete the test.

**1. (1.00 pts) Integumentary System**

Which bundles' pattern in the skin establish lines of cleavage?

- A) Collagen
- B) Keratin
- C) Nerve
- D) Tendon
- E) Venule

**2. (1.00 pts) What is the Merkel cell's function?**

- A) Produces pigments
- B) Serves as a touch receptor
- C) Acts as antigen-presenting cells
- D) Secretes inhibitory cytokines

**3. (1.00 pts) What are Cathelicidins?**

- A) Proteins that regulate the dryness of skin
- B) Pigments which, in excess, cause freckles
- C) Proteins that can prevent Strep. A infection in wounded skin
- D) Lipids that diffuse from the bloodstream into the hypodermis

**4. (1.00 pts) Which amino acid synthesizes melanin**

- A) Serine
- B) Methionine
- C) Glycine
- D) Tyrosine

**5. (1.00 pts) Which layer of the skin should be cut in order for it to bleed?**

- A) Stratum germinativum
- B) Stratum lucidum
- C) Papillary dermis

D) Stratum Spinosum

6. (1.00 pts) Which number for the vertebrae is correct?

- A) 12 thoracic
- B) 7 lumbar
- C) 4 sacrum
- D) 5 cervical

7. (1.00 pts) Which of the following is most often caused by osteoporosis

- A) Lateral curvature of spine
- B) Bone infection
- C) Brittle bones
- D) Inflammation of bone marrow

8. (1.00 pts) For questions 8-13, match the description of the skin cancer type to its matching letter.  
Most common type of skin cancer

- A) Malignant melanoma
- B) Squamous cell carcinoma
- C) Basal cell carcinoma

9. (1.00 pts) Develops in cells that produce skin pigment

- A) Malignant melanoma
- B) Squamous cell carcinoma
- C) Basal cell carcinoma

10. (1.00 pts) Often develops with a mole

- A) Malignant melanoma
- B) Squamous cell carcinoma
- C) Basal cell carcinoma

11. (1.00 pts) Unlikely to be fatal

- A) Malignant melanoma
- B) Squamous cell carcinoma
- C) Basal cell carcinoma

12. (1.00 pts) Red, scaling, thickened patch of skin

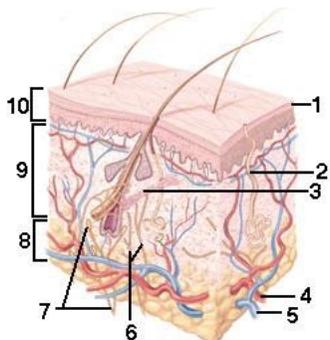
- A) Malignant melanoma

- B) Squamous cell carcinoma
- C) Basal cell carcinoma

13. (1.00 pts) Sometimes starts as a shiny or pearly bump

- A) Malignant melanoma
- B) Squamous cell carcinoma
- C) Basal cell carcinoma

14. (1.00 pts)



For questions 14-23, label the numbers on the picture above.

(1). \_\_\_\_\_

Stratum corneum

15. (1.00 pts) (2). \_\_\_\_\_

Sweat gland

16. (1.00 pts) (3). \_\_\_\_\_

Arrector pili muscle

17. (1.00 pts) (4). \_\_\_\_\_

Arteriole

18. (1.00 pts) (5). \_\_\_\_\_

Venule

19. (1.00 pts) (6). \_\_\_\_\_

Motor nerve

20. (1.00 pts) (7). \_\_\_\_\_

Sensory nerve

21. (1.00 pts) (8). \_\_\_\_\_

Hypodermis

22. (1.00 pts) (9). \_\_\_\_\_

Dermis

23. (1.00 pts) (10). \_\_\_\_\_

Epidermis

24. (1.00 pts) The order of hair growth is \_\_\_\_, \_\_\_\_, and \_\_\_\_.

Anagen

Catagen

Telogen

25. (1.00 pts) Thin skin has a number of \_\_\_\_ layers.

four

26. (1.00 pts) The two layers of the dermis are called the \_\_\_\_ layer and the \_\_\_\_ layer.

Papillary

Reticular

27. (1.00 pts) Thickening of the outer layer of the skin due to prolonged friction is called \_\_\_\_.

Callus

28. (1.00 pts) What layer of epidermis composes the nail mostly, which contains hard keratin \_\_\_\_.

Stratum corneum

29. (1.00 pts) The three major parts in the structure of hair are the A. \_\_\_\_\_, B. \_\_\_\_\_, and C. \_\_\_\_\_.

Follicle

Root

Shaft

**30. (1.00 pts)** A man that has burned his head and both upper limbs has burnt \_\_\_% of the body.(Rule of nines)

27%

**31. (1.00 pts) Skeletal System**

Which suture separates the parietal bones from the occipital bone?

- A) Coronal suture
- B) Lambdoid suture
- C) sagittal suture
- D) Squamous suture

**32. (1.00 pts)** Which bone supports your weight when sitting down?

- A) Pubis
- B) Ilium
- C) Coccyx
- D) Ischium

**33. (1.00 pts)** Where do the walls between cartilage lacunae break down?

- A) Calcification
- B) Reserve cartilage
- C) Cell proliferation
- D) Bone deposition

**34. (1.00 pts)** What kind of bones are the hyoid and vertebrae?

- A) Short bones
- B) Irregular bones
- C) Flat bones
- D) Long bones

35. (1.00 pts) The most abundant type of bone in the body is:

- A) Short bone
- B) Flat bone
- C) Long bone
- D) Sesamoid bone

36. (1.00 pts) Which of the following is a function of flat bones?

- A) Provide stability
- B) Act as attachment point for muscles
- C) Provide leverage
- D) Allow motion

37. (1.00 pts) The patellar ligament attaches to:

- A) Tibia
- B) Fibula
- C) Talus
- D) Femur

38. (1.00 pts) The secondary ossification center begins at:

- A) Diaphysis
- B) Epiphysis
- C) Metaphysis
- D) Epiphyseal line

39. (1.00 pts) What is the wrist bone that is directly adjacent to the metacarpal bone of the thumb?

- A) Scaphoid
- B) Trapezium
- C) Triquetrum
- D) Trapezium

40. (1.00 pts) What part of a long bone is between the epiphysis and diaphysis?

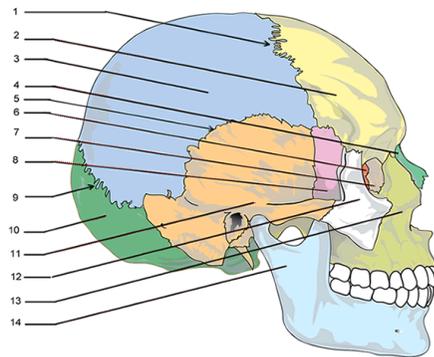
- A) Epiphysis
- B) Diaphysis

- C) Metaphysis
- D) Articular cartilage

41. (1.00 pts) Which kind of bone cell starts calcification?

- A) Osteoblasts
- B) Osteocytes
- C) Osteoclasts
- D) Osteoprogenitors

42. (1.00 pts)



For questions 42-55, label the parts of the skull above.

42(1).

Coronal Suture

43. (1.00 pts) (2).

Frontal bone

44. (1.00 pts) (3).

Parietal bone

45. (1.00 pts) (4).

Nasal bone

46. (1.00 pts) (5).

Squamosal Suture

47. (1.00 pts) (6).

Ethmoid bone

48. (1.00 pts) (7).

Lacrimal bone

49. (1.00 pts) (8).

Sphenoid bone

50. (1.00 pts) (9).

Lambdoidal Suture

51. (1.00 pts) (10).

Occipital bone

52. (1.00 pts) (11).

Temporal bone

53. (1.00 pts) (12).

Zygomatic bone

54. (1.00 pts) (13).

Maxilla

55. (1.00 pts) (14).

Mandible

56. (1.00 pts) Cervical vertebrae are the biggest type of vertebrae.

True  False

57. (1.00 pts) The last cervical vertebrae has a large, non-bifid spinous process.

True  False

58. (1.00 pts) The axial skeleton has 69 bones.

True  False

59. (1.00 pts) The lumbar vertebrae have the thinnest vertebral discs.

True  False

60. (1.00 pts) The thoracic vertebrae do not have articular facets for ribs.

True  False

61. (1.00 pts) **Muscular System**

Which of the following is true about smooth muscle?

- A) Its contraction is voluntary
- B) It is striated
- C) It can be found in the bladder
- D) The muscle fibers are arranged in a parallel fashion, forming thick ropes

62. (1.00 pts) Hypocalcemia(low calcium levels) can cause what?

A) Muscle strain

- B) Muscle tension
- C) Muscle spasms
- D) Muscle cramps

63. (1.00 pts) At the start of excitation-contraction coupling:

- A) The muscle action potential propagates along the sarcolemma and down the transverse tubules.
- B) Ca<sup>2+</sup> released from the sarcoplasmic reticulum binds to tropomyosin.
- C) Troponin blocks the binding of myosin heads to actin filaments.
- D) Relaxation occurs when Ca<sup>2+</sup> is excreted from the muscle fiber.

64. (1.00 pts) On which point is the gastrocnemius originated at?

- A) Femur
- B) Patella
- C) Fibula
- D) Tibia

65. (1.00 pts) For questions 5-11, match the letters to the corresponding muscles.

- A. Flexion
- B. Extension
- C. Abduction
- D. Adduction

\_\_\_ Triceps brachii

B

66. (1.00 pts) \_\_\_ Deltoid

C

67. (1.00 pts) \_\_\_ Vastus lateralis

B

68. (1.00 pts) \_\_\_ Sternocleidomastoid

A

69. (1.00 pts) \_\_\_ Rectus abdominis

A

70. (1.00 pts) \_\_\_ Gluteus maximus

B

71. (1.00 pts) \_\_\_ Gluteus medius

C

72. (1.00 pts) \_\_\_\_\_ binds to troponin to induce muscle relaxation.

Adenosine triphosphate

73. (1.00 pts) The three main types of joints are \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_, joints.

Fibrous

Synovial

cartilaginous

74. (1.00 pts) The less movable end of a muscle that is usually located proximally is called the \_\_\_\_\_.

Origin

75. (1.00 pts) The more moveable end of a muscle that is usually located distally is called the \_\_\_\_\_.

Insertion

76. (1.00 pts)

The serious bacterial disease that causes painful muscle spasms mostly in the neck and jaw muscles, affects the nervous system, and can eventually lead to death is called \_\_\_\_\_.

Tetanus

77. (1.00 pts) 50% of muscle mass is lost by the age of 80.

True  False

**78. (1.00 pts)** A sarcomere consists of an array of thick and thin filaments between two Z discs.

True  False

**79. (1.00 pts)** Muscle contraction generates about 50% of the body's heat.

True  False

**80. (1.00 pts)** During movement of a muscle, the origin remains stationary and the insertion moves.

True  False

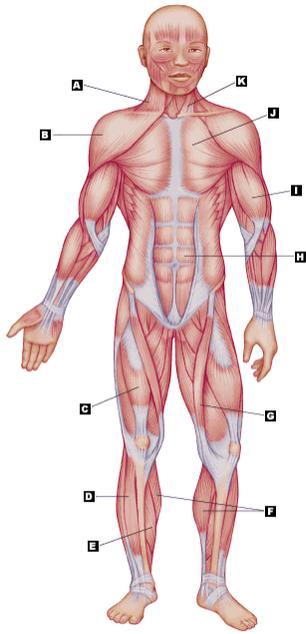
**81. (1.00 pts)** Cardiac and smooth muscles are involuntary muscle tissues.

True  False

**82. (1.00 pts)** Thick filaments are composed of actin while thin filaments are composed of myosin.

True  False

**83. (1.00 pts)** For questions 83-93, label the muscles corresponding to the letters in the picture below.



83(A).

Trapezius

84. (1.00 pts) (B).

Deltoid

85. (1.00 pts) (C).

Rectus femoris

86. (1.00 pts) (D).

Tibialis anterior

87. (1.00 pts) (E).

Soleus

88. (1.00 pts) (F).

Gastrocnemius

89. (1.00 pts) (G).

Sartorius

90. (1.00 pts) (H).

Rectus abdominis

91. (1.00 pts) (I).

Biceps brachii

92. (1.00 pts) (J).

Pectoralis major

93. (1.00 pts) (K).

Sternocleidomastoid

You have finished the test. Bye!