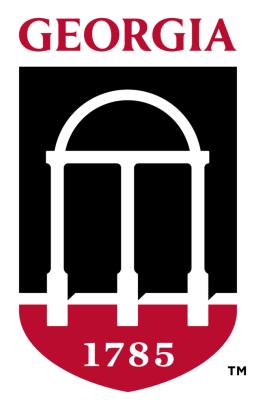
Anatomy and Physiology - Division C Condensed Key

University of Georgia Science Olympiad Regional Competition February 22th, 2020



Written by Sophia Velasco, University of Florida, B.S. Biochemistry 2023

Total Points: 222/222

Instructions and Clarifications:

- You have **50** minutes to finish this exam.
- You **may** split the exam but you are responsible for placing the pages back in order at the end of the testing session.
- Tiebreakers are considered in the following order: #6, #18, #33, #57, #76
- Write your **team number** on every page of the answer sheet.
- Anything written on the exam will **not** be graded. Only the **answer sheet** will be graded.
- If you have any questions or comments about the exam, feel free to email me at *velasco.scienceolympiad@gmail.com*. Happy testing!



I. Integumentary System

Multiple Choice: Choose the most appropriate answer for the questions below. Each question is worth **one** point. **(20)**

- 1. B
- 2. D 3. C
- 4. E
- 5. C
- 6. D7. A

- 8. E
- 9. D
- 10. A
- 11. B
- 12. A
- 13. A 14. D

- 15. D
- 16. B
- 17. E
- 18. B
- 19. A
- 20. C

Labeling: Label Figure 1 and Figure 2 in the image packet. Each letter is worth one point. (14)

21. **Figure 1**

- A. Connective tissue root sheath
- B. Epithelial root sheath
- C. Medulla
- D. Cortex

- E. Matrix
- F. Bulb
- G. Dermal papilla

22. **Figure 2**

- A. Stratum corneum
- B. Stratum lucidum
- C. Stratum granulosum
- D. Stratum spinosum

- E. Stratum basale
- F. Epidermal ridge
- G. Corpuscle of touch in dermal papilla

Pathology: Answer the following questions below about pathology in the most concise and specific way possible. Each question is worth **two** points. **(26)**

- 23. superficial partial thickness/second-degree
- 24. 3
- 25. full thickness/third-degree
- 26. Fourth-degree
- 27. Tinea pedis
- 28. Fungi
- 29. Th1

- 30. Boil
- 31. Staphylococcus aureus (accept S. aureus)
- 32. Carbuncle
- 33. Dermatitis
- 34. Atopic dermatitis
- 35. Basal cell carcinoma/BCC



II. Skeletal System

Multiple Choice: Choose the most appropriate answer for the questions below. Each question is worth **one** point. **(20)**

36.	В	43. D	50. B
37.	D	44. A	51. D
38.	. C	45. D	52. B
39.	. A	46. D	53. E
40.	. A	47. E	54. B
41.	Α	48. A	55. C
42.	Α	49. C	

Labeling: Label Figure 3 and Figure 4 in the image packet. Each letter is worth one point. (26)

56. **Figure 3**

Λ	Lamina	١.
м.		1

- B. Vertebral foramen
- C. Superior articular facet
- D. Spinous process
- E. Inferior articular process
- F. Dens
- G. Lamina
- H. Transverse process

57. **Figure 4**

- A. Transverse process of vertebrae
- B. Facet for tubercle of rib
- C. Body
- D. Intercostal space
- E. Costal angle
- F. Costal groove

- I. Spinous process
- J. Vertebral body
- K. Articular surface for anterior arch of atlas
- L. Superior articular facet
- M. Transverse foramen
- N. Vertebral body
- O. Inferior articular facet
- G. Superior facet
- H. Inferior facet
- I. Spinous process of vertebra (shortened)
- J. Sternum
- K. Costal cartilage



Pathology: Determine what disease or injury is shown in the given images. Each image is worth three points. (18)

58. disc herniation 61. medial collateral ligament (MCL) tear

59. osteoarthritis 62. anterior cruciate ligament (ACL) tear

60. Fracture 63. scoliosis

III. **Muscular System**

Multiple Choice: Choose the most appropriate answer for the questions below. Each question is worth one point. (20)

64. B 71. D 78. D

65. E 72. C 79. A

66. B 80. E 73. D 74. B 81. E

67. D 68. A 75. B 82. D

69. C 76. D 83. D 77. B

Labeling: Label Figure 5 and Figure 6 in the image packet. Each letter is worth one point. (28)

84. **Figure 5**

B. Z disc

70. A

A. I band H. Z disc O. M line I. I band

C. Hzone J. Sarcomere Q. Zone of overlap

P. Sarcomere

D. M line K. Z disc R. Hzone

E. A band L. Titin filament/titin S. I band T. A band F. Thick filament/myosin M. Thin filament/actin

G. Thin filament/actin N. Thick filament/myosin

85. Figure 6

A. Blood capillary E. Synaptic end bulbs

B. Axon collateral/branch F. Axon terminal

C. Somatic motor neuron G. Synaptic end bulbs

D. Axon collateral/branch H. Skeletal muscle fiber



Pathology: Determine if the following statements about the muscular diseases are true or false. If the statement is true, write "**T**" on your answer sheet. If the answer is false, write "**F**" on your answer sheet. Each question is worth **two** points. **(30)**

86. T	94. T
87. T	95. T
88. F	96. F
89. T	97. T
90. F	98. F
91. T	99. F
92. T	100.F
93. F	

Matching: Match the following muscles to their corresponding origin. Each question is worth **two** points. **(20)**

- 101. H
- 102.C
- 103.A
- 104.D
- 105.B
- 106.F
- 107. I
- 108.J
- 109.G
- 110. E