2020 Golden Gate Science Olympiad Invitational Anatomy and Physiology Answer Sheet

Author: Sophia Velasco, University of Florida

Time limit: 50 minutes

Instructions and Clarifications:

- Each **team** may bring **one** 8.5" x 11" sheet of paper, which may be in a sheet protector sealed by tape or laminated, that may contain information on both sides in any form and from any source without any annotations or labels affixed along with **two** stand-alone non-programmable, non-graphing calculators.
- Anything written on the exam will **not** be graded. Only the **answer sheet** will be graded.
- Write your **team number** on every page of the answer sheet.
- There are **five** tiebreakers in this exam. They are denoted as **TB#**.
- If you have any questions or comments about this exam, contact me at **velasco.scienceolympiad@gmail.com. Happy testing!**

Names:_____

Team Number:_____

School:_____

Score: /343

Rank:

I. Integumentary System

Multiple Choice: Each question is worth **one** point. **(20)**

1. (1) _____
2. (1) _____
3. (1) _____
4. (1) _____
5. (1) _____
6. (1) _____ **TB#1**
7. (1) _____
8. (1) _____
9. (1) _____
10. (1) _____

11. (1) _____
12. (1) _____
13. (1) _____
14. (1) _____
15. (1) _____
16. (1) _____
17. (1) _____
18. (1) _____
19. (1) _____
20. (1) _____

True or False: Each question is worth **one** point. You may write **"T"** for True and **"F"** for False. **(10)**

1. (1) _____
2. (1) _____
3. (1) _____
4. (1) _____ **TB#2**
5. (1) _____

6. (1) _____
7. (1) _____
8. (1) _____
9. (1) _____
10. (1) _____

Diagram-based Questions: Each image is worth **three** points. **(12)**

Figure 1.1:

      ID: (1) _____

      INFO: (1) _____

      RATE: (1) _____

Figure 1.2

      ID: (1) _____

      INFO: (1) _____

      RATE: (1) _____

Figure 1.3

      ID: (1) _____

      INFO: (1) _____

      RATE: (1) _____

Figure 1.4

      ID: (1) _____

      INFO: (1) _____

      RATE: (1) _____

Labeling: Each letter is worth **one** point. **(14)**

Figure 1.5

A. (1) _____   E. (1) _____

B. (1) _____   F. (1) _____

C. (1) _____   G. (1) _____

D. (1) _____   H. (1) _____

Figure 1.6

A. (1) _____   D. (1) _____

B. (1) _____   E. (1) _____

C. (1) _____   F. (1) _____

Short Answer: Read and answer the questions below in the most concise way possible.

Complete sentences are **not** required for this section. **(21)**

1. **(5 total)**

   _____

   _____

   _____

   _____

   _____

2. **(11 total)**

   _____

   _____

   _____

   _____

   _____

   _____

   _____

   _____

   _____

   _____

   _____

3. **(5 total)**

   _____

   _____

   _____

   _____

Pathology: Each image is worth **one** point. **(10)**

Figure 1.7: (1) _____

Figure 1.8: (1) _____

Figure 1.9: (1) _____

Figure 1.10: (1) _____

Figure 1.11: (1) _____

Figure 1.12: (1) _____

Figure 1.13: (1) _____

Figure 1.14: (1) _____

Figure 1.15: (1) _____

Figure 1.16: (1) _____

II. Skeletal System

Multiple Choice: Each question is worth **one** point. **(20)**

1. (1) _____
2. (1) _____
3. (1) _____
4. (1) _____
5. (1) _____
6. (1) _____
7. (1) _____
8. (1) _____
9. (1) _____
10. (1) _____

11. (1) _____
12. (1) _____
13. (1) _____
14. (1) _____
15. (1) _____
16. (1) _____
17. (1) _____
18. (1) _____
19. (1) _____
20. (1) _____

Classification: Each question is worth **one** point. **(10)**

1. (1) _____
2. (1) _____
3. (1) _____
4. (1) _____
5. (1) _____

6. (1) _____
7. (1) _____
8. (1) _____
9. (1) _____
10. (1) _____

Identification: You **may** write AX for axial and AP for appendicular. Each question is worth **two** points. **(10) TB#3**

1. (2) _____
2. (2) _____
3. (2) _____
4. (2) _____
5. (2) _____

Labeling: Each letter is worth **one** point. **(36)**

Figure 2.1

A. (1) _____

B. (1) _____

C. (1) _____

D. (1) _____

E. (1) _____

F. (1) _____

G. (1) _____

H. (1) _____

I. (1) _____

J. (1) _____

K. (1) _____

L. (1) _____

M. (1) _____

N. (1) _____

O. (1) _____

P. (1) _____

Q. (1) _____

R. (1) _____

Figure 2.2

A. (1) _____

B. (1) _____

C. (1) _____

D. (1) _____

E. (1) _____

F. (1) _____

G. (1) _____

H. (1) _____

I. (1) _____

J. (1) _____

K. (1) _____

L. (1) _____

M. (1) _____

N. (1) _____

O. (1) _____

P. (1) _____

Q. (1) _____

R. (1) _____

Image-based Questions: Each question is worth **one** point unless stated otherwise. **(12) TB#4**

1. (1) _____
2. (2) _____
3. (2) _____
4. (1) _____

5. (2) _____
6. (1) _____
7. (1) _____
8. (2) _____

Pathology: Each image is worth **three** points. **(18)**

1. (3) _____
2. (3) _____
3. (3) _____
4. (3) _____
5. (3) _____
6. (3) _____

III.   Muscular System

Multiple Choice: Each question is worth **one** point. There is **no** partial credit for the multiple select question. **(20)**

1. (1) _____
2. (1) _____
3. (1) _____
4. (1) _____
5. (1) _____
6. (1) _____
7. (1) _____
8. (1) _____
9. (1) _____
10. (1) _____

11. (1) _____
12. (1) _____
13. (1) _____
14. (1) _____
15. (1) _____
16. (1) _____
17. (1) _____
18. (1) _____
19. (1) _____
20. (1) _____

Identification: Each question is worth **two** points. Be as specific and concise as possible. **(10)**

1. (2) _____
2. (2) _____
3. (2) _____
4. (2) _____
5. (2) _____

Origin, Insertion, and Function: Each letter is worth **two** points. **(16)**

    A. (2) _____

    B. (2) _____

    C. (2) _____

    D. (2) _____

    E. (2) _____

    F. (2) _____

    G. (2) _____

    H. (2) _____

Image-based Questions: Each question is worth **one** point unless stated otherwise. **(12)**

1. (1) _____	6. (1) _____
2. (2) _____	7. (1) _____
3. (1) _____	8. (1) _____
4. (1) _____	9. (1) _____
5. (2) _____	10. (1) _____

Identification: Each question is worth **one** point. Complete sentences are **not** required for this section. **Question 8** is **TB#5**. **(10)**

1. (1) _____	6. (1) _____
2. (1) _____	7. (1) _____
3. (1) _____	8. (1) _____
4. (1) _____	9. (1) _____
5. (1) _____	10. (1) _____

Labeling: Each letter is worth **one** point. **(33)**

Figure 3.1

A. (1) _____   H. (1) _____
B. (1) _____   I. (1) _____
C. (1) _____   J. (1) _____
D. (1) _____   K. (1) _____
E. (1) _____   L. (1) _____
F. (1) _____
G. (1) _____

Figure 3.2

A. (1) _____   H. (1) _____   O. (1) _____
B. (1) _____   I. (1) _____   P. (1) _____
C. (1) _____   J. (1) _____   Q. (1) _____
D. (1) _____   K. (1) _____   R. (1) _____
E. (1) _____   L. (1) _____   S. (1) _____
F. (1) _____   M. (1) _____   T. (1) _____
G. (1) _____   N. (1) _____   U. (1) _____

Pathology: Each image is worth **three** points. **No** partial credit will be awarded for this section.

(18)

1. (3) _____
2. (3) _____
3. (3) _____
4. (3) _____
5. (3) _____
6. (3) _____

IV. Case Study

Based on the case study and the diagrams in the appendix, answer the following questions. **(31)**

1. (3) _____
2. (2) _____
3. (2) _____
4. **(6 total)**

_____

_____

_____

5. (2) _____
6. (2) _____
7. **(8 total)**

_____

_____

_____

_____

8. (2) _____
9. (2) _____
10. (2) _____