

Protein Modeling Division C - Answer Sheet

Northview Science Olympiad Invitational

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Authored by:

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Team Number: _____

Team Name: _____

Exam Points: _____/189 **Computer Exploration Points:** _____/63

Rank: _____

Instructions and Clarifications:

- You have **50** minutes to finish this exam and the computer exploration of protein structure. The **Exam** portion is composed of Section **I** and **II** and is worth **30%** of the overall score. The **Computer Exploration** portion is composed of Section **III** and is worth **30%** of the overall score.
- Each **participant** may bring **one** 8.5" x 11" sheet of paper that contains information about this event without any annotations or labels affixed along with writing utensils for each participant.
- You **may** split the exam but you are responsible for placing them in the correct order afterwards.
- Write your team number in **every** page of the answer sheet.
- There are **5** tiebreakers in this exam. They are marked as **TB#**.
- Anything written on the exam will **not** be graded. Only the **answer sheet** will be graded.
- If you have any comments or questions about this exam, feel free to contact us at the emails below. **Happy testing!**

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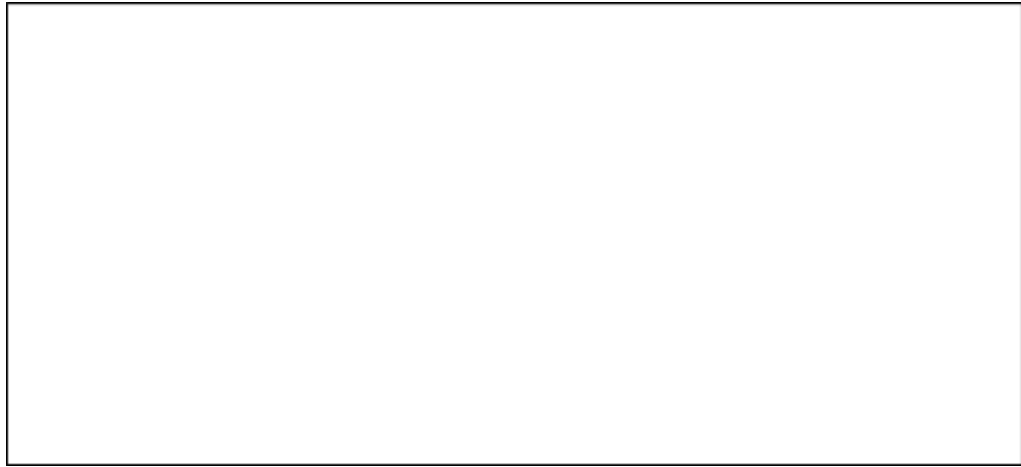
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I. General Biochemistry and CRISPR-Cas Systems¹

Multiple Choice: Each question is worth **two** points.

- | | | |
|----------|----------|----------|
| 1. _____ | 4. _____ | 7. _____ |
| 2. _____ | 5. _____ | 8. _____ |
| 3. _____ | 6. _____ | 9. _____ |
- 10.
- a. _____
 - b. _____

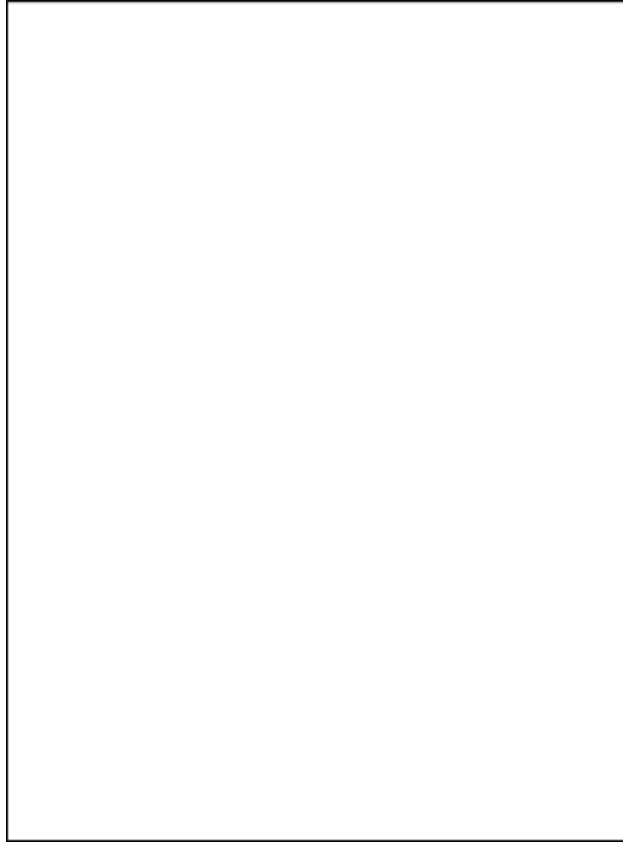
c.



Each question is worth **one** point.

- 11. _____
- 12. _____
- 13. _____
- 14. _____
- 15. _____
- 16. _____

17. (4 points)



Extra credit: 3 points. TB#1.

18. _____

II. DNA, RNA, and CRISPR-Cas Systems²

Multiple Choice: Each question is worth **two** points.

- | | | |
|----------------------|-----------|-----------|
| 1. _____ | 6. _____ | 11. _____ |
| 2. _____ | 7. _____ | 12. _____ |
| 3. _____ | 8. _____ | 13. _____ |
| 4. _____ | 9. _____ | |
| 5. _____ TB#2 | 10. _____ | |

Identification: Each letter is worth **two** points. **TB#3 (30)**

- | | |
|----------|----------|
| A. _____ | I. _____ |
| B. _____ | J. _____ |
| C. _____ | K. _____ |
| D. _____ | L. _____ |
| E. _____ | M. _____ |
| F. _____ | N. _____ |
| G. _____ | O. _____ |
| H. _____ | |

Short Answer: Point values are addressed in each answer.

1.

a. _____

b. _____

c. _____

d. _____

e. _____

2.

a. _____

b. _____

c. _____

d. _____

e. _____

3. TB#4

a.

i. _____

ii. _____

b.

i. _____

ii. _____

iii. _____

c.

i. _____

ii. _____

iii. _____

d.

i.

e.

i. _____

ii. _____

iii. _____

- f.
 - i. _____
 - ii. _____
 - iii. _____

Diagram-based Questions: Point values are addressed in each question. Question **9** is **TB#5**.

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

III. Computer Exploration²

1.

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____

2.

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____

3.

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____

4.

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____

5.

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____

6. _____

7. _____

8. _____

9. _____

10.

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____

11.

a. 

b. 

c. 

d. 

e. 