

Optics B Answer Sheet

Science Olympiad North Regional
Tournament at the University of Florida

Rank: _____

Points: _____



Name(s): _____

Team Name: _____

School Name: _____

Team Number: _____

Test Description

The following test contains 20 questions evenly divided between 10 *General Body Knowledge* questions and 10 *Application* questions. General Body Knowledge questions are multiple choice and test understanding of general physical principles. Calculations may be helpful but should not be necessary. Application questions are open-ended and contain multiple parts. Application questions test the ability to extend general body knowledge to new and unique contexts. Knowledge of specific formulae is expected, critical thinking is encouraged, and numerical and/or graphical methods of analysis is required.

This test is worth 80 points. Each General Body Knowledge question is worth 3 points and each Application question is worth 5 points. Teams have 40 minutes to complete this test.

Test Instructions

1. Record all answers in the provided answer sheet. Work and answers recorded elsewhere in this test packet will **not** be scored.
2. Submit all test materials when time is called. Teams will be informed twice when five minutes and one minute remain in the examination period. Test materials not submitted by the end of the examination period will **not** be scored.
3. Record all answers to the correct number of significant figures (or otherwise indicated by the problem). Responses within $\pm 2.0\%$ of the correct answer will be marked correct.
 - a. Responses without the correct number of significant figures that are otherwise correct will be **deducted 1 point**.
 - b. Responses missing units that are otherwise correct will be **deducted 1 point**. Likewise, responses that are otherwise correct which include units to describe unitless quantities will be **deducted 1 point**.
 - c. For multiple choice questions, select the **single** most appropriate answer choice.
4. One open-response tiebreaker question is included at the end of this test packet. This tiebreaker will **only** be scored in the event of a tie.

SCORES: TS MS AS BS FS

ANSWER SHEET

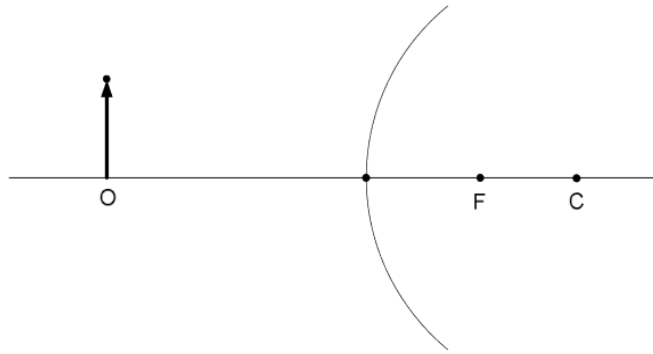
Part I

- | | | | |
|---|-------|----|-------|
| 1 | | 6 | |
| 2 | | 7 | |
| 3 | | 8 | |
| 4 | | 9 | |
| 5 | | 10 | |

Part II

- 11 (a)
- (b)
- (c)
-
-
- (d)

12 (a)



12 (b)

(c)

13 (a)

(b)

(c)

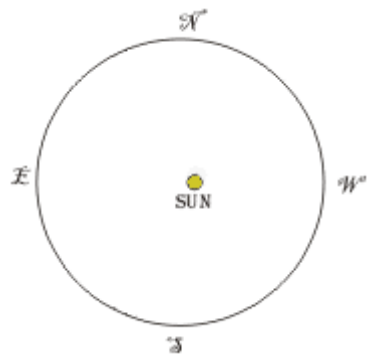
14 (a)

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(b)

(c)



15 (a)

(b)

16 (a)

16 (b)

(c)

17 (a)

(b)

18 (a)

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(b)

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19 (a)

(b)

(c)

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