Scholarship

2012 Assessment Report

Physics

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COMMENTARY

SCHOLARSHIP WITH OUTSTANDING PERFORMANCE

Candidates who were awarded Scholarship with Outstanding Performance typically:

- demonstrated all the skills shown by candidates awarded Scholarship
- displayed an excellent all-around knowledge of the physics curriculum
- demonstrated physics knowledge that went beyond the basic curriculum
- applied mathematical formulations to complex physical contexts to solve problems
- provided well-structured answers with a logical progression of ideas
- correctly applied the basic laws of physics, including where problems required application of more than one concept
- were concise in their description of their solution
- used diagrams, graphs and formula characteristics to help solve and describe their solutions
- were able to use multiple physics concepts correctly to answer questions
- were able to answer abstract questions
- showed an ability to plan their answer to difficult problems that required multiple steps
- identified and used relevant information (constraints), to solve problems
- interpreted and applied unfamiliar information and concepts to familiar contexts.

SCHOLARSHIP

Candidates who were awarded Scholarship but not Scholarship with Outstanding Performance typically:

- displayed a wide range of relevant physical understanding
- knew how to use basic physics concepts correctly
- were able to provide answers that required multi-step reasoning or application of more than one physics concept
- showed good ability to manipulate algebraic expressions
- approached mechanics problems in a consistent manner
- showed good understanding of the Doppler effect
- showed sound understanding of the photoelectric effect.

OTHER CANDIDATES

Candidates who were not awarded Scholarship typically:

- displayed gaps in their physics knowledge and hence left significant portions of the paper unanswered
- incorrectly applied basic physics concepts
- were unable to apply more than one physics concept to a single question
- used overly complicated answers to questions that require explanations
- made basic mathematical errors
- provided incomplete explanations, or provided incoherent answers that could not be followed by a reader seeking a clear explanation
- showed a particular lack of understanding in the areas of electromagnetism and mechanics.

OTHER COMMENTS

Most candidates made a serious attempt at this examination but many found a number of the questions challenging. For example, many candidates found Question Four particularly demanding. In contrast, Questions One and Three were generally answered well.

There was substantial evidence that candidates had ample time to complete the examination.

Successful candidates clearly had appropriate knowledge of physics and were able to apply their knowledge in a range of contexts. The less successful candidates had significant gaps in their conceptual understanding and were unable to provide adequate responses to all questions. The top ten candidates showed considerable physical understanding, writing clear and insightful answers.