Scholarship

2011 Assessment Report

Physics

COMMENTARY

Most candidates made a serious attempt at this examination. In general, candidate performance was of a very good standard.

Candidates had ample time to complete the examination, and a number of high-performing candidates finished well within the three-hour period.

The focus in an examination of this nature is the quality of the responses rather than the volume. Candidates are strongly advised to spend a small amount of time at the beginning of the examination reading through the entire paper to ensure they answer every question in a succinct, logical fashion. Successful candidates clearly had appropriate knowledge of physics and were able to apply their knowledge in a range of contexts.

Most candidates showed good understanding of:

- the mathematical treatment of interference
- gravitation
- how harmonics are produced in pipes
- the underlying physics behind the pendulum
- simple momentum and energy calculations.

Many candidates had difficulty with:

- understanding the motion of particles in a standing wave
- the concept of capacitance and the underlying physics behind the behaviour of a capacitor
- applying Newton's Second Law, especially in relation to correctly identifying the unbalanced force.

SCHOLARSHIP WITH OUTSTANDING PERFORMANCE

Candidates who were awarded Scholarship with Outstanding Performance typically:

- demonstrated all the skills listed in the Physics Scholarship performance standard
- displayed an excellent all-around knowledge of the physics curriculum
- demonstrated physics knowledge that went beyond the basic curriculum
- provided well-structured answers with a logical progression of ideas
- showed a strong grasp of mathematics
- 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.

SCHOLARSHIP

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

- analysed everyday use of physics ideas and determined their correctness
- showed some evidence of reading around the subject

- displayed a wide range of relevant physical understanding
- showed reasonable understanding of the concept of capacitance
- approached mechanics problems in a consistent manner
- showed understanding of interference in a novel context
- showed reasonable understanding of standing waves
- provided only answers that were consistent with the laws of physics.

OTHER CANDIDATES

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

- displayed gaps in their physics knowledge and left portions of the paper unanswered
- used overly complicated answers to questions that require explanations
- made basic mathematical errors
- did not answer the question and instead provided irrelevant details
- when unsure of the correct answer, appeared to invent answers that clearly contradicted basic laws of physics
- provided poorly structured answers, including the use of incomplete mathematical expressions
- had difficulty in interpreting what was required in response to a question.