Assessment Report

Scholarship, 2008

Physics

COMMENTARY

Successful candidates were extremely well prepared and had an excellent grasp of the physics required at this level. Some candidates, however, were not sufficiently prepared for this examination. The statistical results for the examination were similar to those of previous years.

The average mark was similar to 2007, with only 4% of candidates (43 candidates) gaining more than 30 marks. Eleven candidates gained more than 35 marks, a significant increase from 2007. Approximately 17% of the level 3 Physics cohort for 2008 sat this examination

Most candidates made a serious attempt at the examination, although many candidates showed poor examination technique with regard to reading the questions. Candidates require considerable exposure to various physical situations throughout their course work to enable them to demonstrate sufficient maturity of thought to achieve success in Scholarship. They need practice in modelling everyday problems with physics principles and applying appropriate mathematical skills.

In 2008 most candidates showed good understanding of:

- wave/particle duality
- physical estimation
- simple use of moments
- using the Doppler effect relationship in both familiar and unfamiliar contexts
- time constants in R-C circuits.

Many candidates had difficulty with:

- understanding equilibrium conditions in an unfamiliar context
- applying conservation of angular momentum and energy
- understanding the asymmetry of the Doppler effect
- applying Kirchhoff's laws in a familiar context
- understanding the behaviour of capacitors.

The best performing candidates most commonly demonstrated the following skills and/or knowledge:

- ability to correctly interpret the question
- significant physical insight across a wide variety of situations
- ability to provide full but concise explanations
- coherent and structured mathematical approaches to calculations
- depth and breadth of conceptual understanding
- sound algebraic skills.

Candidates who did NOT achieve scholarship lacked some or all of the skills and knowledge above and in addition they:

- had difficulties with calculations involving exponents
- were satisfied with single-idea answers expressed at length
- spent too much time writing and not enough time thinking
- possessed poor understanding of basic concepts.