

# New Zealand Scholarship Assessment Specifications

**Performance Standard**

Physics

**Mode of Assessment**

Written Examination

**For Year**

2013

## **Format for the assessment**

The maximum number of questions is six. Individual questions may cover the content of more than one Level 3 Physics achievement standard.

## **Equipment to bring**

A calculator and a ruler

## **Resources or information supplied**

All necessary formulae, constants, and data will be provided.

All working should be shown in calculations. Numerical answers should be rounded to an appropriate number of significant figures. Correct units must be included. Explanations and calculations are expected to be well set out and concise.

## **Content/context details**

Questions may be asked within a variety of appropriate contexts, some of which may be unfamiliar to the candidates. Some questions may involve extended discussion, where the candidate needs to judge what is required.

Questions relating to practical work may include discussions of sources of error, reliability of data collected, and validity of conclusions drawn.

Assessment will be limited to a selection of the content given in the Level 3 physics achievement standards. In relation to P3.5 *Demonstrate understanding of Modern Physics* – the following content knowledge will be required:

- the Bohr model of the hydrogen atom: the photon; the quantisation of energy; discrete atomic energy levels; electron transition between energy levels; ionisation; atomic line spectra, the electron volt
- the photoelectric effect
- wave / particle duality
- qualitative description of the effects of the strong interaction and Coulombic repulsion, binding energy and mass deficit; conservation of mass-energy for nuclear reactions

Content knowledge from curriculum Levels 6 and 7, relevant to the above standards, will be assumed.