Principal Assessor Report 2002

Assessment Panel:	**Physics**
Qualification area	
Subject(s) and Level(s) included in this report	**Physics Intermediate 2**

Statistical information: update

Number of entries in 2001	
Pre appeal	1828
Post appeal	

Number of entries in 2002	
Pre appeal	1881
Post appeal	

General comments re entry numbers

The total number of candidates remained virtually unchanged.

General comments

There was a repeat of the situation of 2000 and 2001 in that there were some well-prepared candidates but, disappointingly, a large number of candidates performing very badly in the examination. These candidates showed a real lack of understanding of basic Physics.

Grade boundaries at C, B and A

Year	Lowest mark out of 100		
	A	B	C
2002	69	59	49

General commentary on grade boundaries

Notional percentage cut-offs for each grade

Question papers and their associated marking schemes are designed to be of the required standard and to meet the assessment specification for the subject/level concerned.
For National courses the examination paper(s) are set in order that a score of approximately 50% of the total marks for all components merits a grade C (based on the grade descriptions for that grade), and similarly a score of 70 % for a grade A. The lowest mark for a grade B is set by the computer software as half way between the C and A grade boundaries.

Comments on grade boundaries for each subject area

The grade boundaries set are very close to the notional values: 50, 60 and 70%.

It was felt that the paper contained one or two parts of questions that were less accessible to the candidates than had been intended. Consequently, the grade boundaries were set slightly below the notional values.

Comments on candidate performance

Areas of external assessment in which candidates performed well

The following multiple-choice questions had high facility values: 1, 2, 8, 9, 11, 13, 19 and 20.

In the written part of the paper, responses to the following questions were reasonably good:

Q 21	potential energy, work and power
Q 24	turns ratio, energy and specific heat capacity
Q 30 (b) (c)	half-life and safety precautions when handling radioactive sources

Areas of external assessment in which candidates had difficulty

The following multiple-choice questions had low facility values: 4, 12, 15, 17 and 18.

Many candidates performed poorly in the following written questions:

Q 22 (a)	poor explanations of curved projectile path
(b) (ii)	incorrect method of measuring **instantaneous** speed
(iii)	inability to recognise that the calculation of distance travelled vertically required readings from the graph
Q 23 (b)	little recognition of the concept of balanced forces
(c)	poor attempts at problem solving involving frictional forces
Q 25	inability to calculate voltages across resistors in a voltage divider circuit inability to describe the Physics involved in a transistor switching circuit
Q 26 (d)	very few correct answers to the calculation of the value of the series resistor
Q 27 (a)	few attempts to explain the induction of **a.c.**
Q 29	very poor responses to this problem solving question involving different sized angles of incidence for light rays incident on a glass/air boundary not set horizontally.

Areas of common misunderstanding

As in previous years the following were of concern throughout the paper:

- incorrect unit prefix conversion,
- incorrect rounding,
- use of incorrect units and the
- use of too many figures in final answers to calculations.

Recommendations

Feedback to centres

The responses given by some candidates were good.
There were too many candidates, however, who displayed a lack of basic Physics knowledge. There were also too many whose attempts at Problem Solving were very weak.
Many candidates continue to have difficulty with units, prefixes, rounding and significant figures. It is recommended that attention should be paid to these aspects of the course as well as to the knowledge in the Content Statements.