



External Assessment Report 2010

Subject	Physics
Level	Intermediate 1

The statistics used in this report are pre-appeal.

This report provides information on the performance of candidates which it is hoped will be useful to teachers/lecturers in their preparation of candidates for future examinations. It is intended to be constructive and informative and to promote better understanding. It would be helpful to read this report in conjunction with the published question papers and marking instructions for the Examination.

Comments on candidate performance

General comments

This year, the average percentage mark gained for Section A (multiple choice) was almost the same as that for Section B (written).

There was a welcome continuation of the position whereby very few candidates displayed a poor knowledge of basic Physics. Many well prepared candidates were seen who showed good Knowledge and Understanding and Problem Solving skills.

Both the mean mark for the whole paper and the pass rate were slightly lower than in 2009.

Areas in which candidates performed well

The following multiple-choice questions had high facility values: 1, 5, 8, 10, 11, 17 and 19.

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

- 21 (a) Satellite communication
- 22 (c) (i) Voltage gain
- 23 (a), (b) (i) Use of electrical circuit symbols
- 24 Use of electrical formulae (except some units)
- 26 (a) (i) Recognition of eye defect
- 27 (b) (ii), (c) Sound safety levels and calculation of the speed of sound
- 29 (a) Calculation of average speed
- 29 (b) (ii) Calculation of weight (except some units)
- 30 (b) Readings and interpretation of graph
- 31 (a), (b) Recognition and logic states of NOT gate

Areas which candidates found demanding

The following multiple-choice questions had low facility values: 3, 6, 7, 14, 16 and 18.

Candidates had difficulty with the following questions:

- 21 (c) (ii) Explanation of increased energy received by larger dish

- 22 (c) (ii) Frequency not changed by amplifier
- 23 (c) Effect on circuit current of altering one component
- 26 (a) (ii) Choice of lens and ray diagram to show correction of eye defect
- 27 (a) Changes to guitar string to change frequency of note played
- 28 (b) (ii) Effect on collision of reduced mass
- 29 (b) (i) Greater time of fall due to greater air resistance
- 31 (d) Explanation using logic states for a combination of gates

Advice to centres for preparation of future candidates

Specific topics are listed under the heading 'Areas which candidates found demanding'.

There are also some general areas of concern:

Units

Some candidates are getting better at quoting the correct units. Many others, however, are losing marks due to incorrect or missing units. Abbreviations such as 'mps' or 'secs' are unacceptable.

Formulae

Not all candidates are quoting correctly the formulae provided in the formula booklet. Marks are also still being lost due to incorrect substitution or calculation.

Explanations

A number of questions at Intermediate 1 level require candidates to make a statement or make a choice of given statements and then (separately) explain the statement. See Question 21 (c) parts (i) and (ii) as an example. Too many candidates are simply restating the first answer rather than giving a Physics explanation which is required for the second answer.

Statistical information: update on Courses

Number of resulted entries in 2009	2557
Number of resulted entries in 2010	2608

Statistical information: performance of candidates

Distribution of Course awards including grade boundaries

Distribution of Course awards	%	Cum. %	Number of candidates	Lowest mark
Maximum mark — 80				
A	27.5%	27.5%	717	54
B	22.7%	50.2%	591	46
C	20.0%	70.2%	522	39
D	7.6%	77.7%	197	35
No award	22.3%	100.0%	581	—

General commentary on grade boundaries

While SQA aims to set examinations and create marking instructions which will allow a competent candidate to score a minimum of 50% of the available marks (the notional C boundary) and a well prepared, very competent candidate to score at least 70% of the available marks (the notional A boundary), it is very challenging to get the standard on target every year, in every subject at every level.

Each year, therefore, SQA holds a grade boundary meeting for each subject at each level where it brings together all the information available (statistical and judgemental). The Principal Assessor and SQA Qualifications Manager meet with the relevant SQA Head of Service and Statistician to discuss the evidence and make decisions. The meetings are chaired by members of the management team at SQA.

The grade boundaries can be adjusted downwards if there is evidence that the exam is more challenging than usual, allowing the pass rate to be unaffected by this circumstance.

The grade boundaries can be adjusted upwards if there is evidence that the exam is less challenging than usual, allowing the pass rate to be unaffected by this circumstance.

Where standards are comparable to previous years, similar grade boundaries are maintained.

An exam paper at a particular level in a subject in one year tends to have a marginally different set of grade boundaries from exam papers in that subject at that level in other years. This is because the particular questions, and the mix of questions are different. This is also the case for exams set in centres. If SQA has already altered a boundary in a particular year in say Higher Chemistry this does not mean that centres should necessarily alter boundaries in their prelim exam in Higher Chemistry. The two are not that closely related as they do not contain identical questions.

SQA's main aim is to be fair to candidates across all subjects and all levels and maintain comparable standards across the years, even as Arrangements evolve and change.