



External Assessment Report 2009

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

As in the previous two years, the average mark gained for Section A (multiple choice) was slightly higher than that for Section B (written).

There continue to be very few candidates displaying a poor knowledge of basics Physics and there were many candidates displaying excellent knowledge and understanding and problem solving skills.

Both the mean mark for the whole paper and the pass rate were higher than in 2008.

Areas in which candidates performed well

The following multiple choice questions had high facility values: 2, 6, 12, 15, 17, 20.

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

22 a, b	mobile phone energy changes and voltage gain
24	calculation of current and comparison with fuse values
25 d	calculation of resistance
27	properties and uses of X-rays
28 b	speed of sound calculation
29 a	identification of which mediums sound can or cannot travel through
30	speed of car calculation and the meaning of streamlining
31 b	weight calculation and problem solving comparison with machine lifting force
32	electronic components and cost of running equipment
33 a i,iii	identification of gate symbols

Areas which candidates found demanding

The following multiple choice questions had low facility values: 7, 10, 11, 13, 18.

Candidates had some difficulty with the following written questions:

21	properties of optical fibres and comparison with metal wires
22 c	giving Physics explanations to poor mobile phone reception
23 b, c	role of ultraviolet radiation in damage to eyes and skin
25 b, c	identification of variable resistor as a component and its inclusion in a circuit diagram
26 a, bii	ray drawing for converging and diverging lenses and choice of spectacle lenses for long sight correction
28 a, c	speed of light compared to speed of sound and the effect of greater force and change of angle on the range of a ball
29 b	equipment, measurements and calculation for experimental method of finding the speed of sound
31 a	friction force in opposition to movement
33 aii, b	function of NOT gate and 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	Candidates are getting better at using correct units but many are still losing marks by either giving the wrong unit or using unacceptable abbreviations such as mps.
Formulae	Better use is being made of the relationships printed in the formula booklet issued to candidates. Marks are still being lost, however, because of incorrect substitution or calculation.
Explanations	These are difficult skills. Candidates should be encouraged to give more Physics in their explanations and avoid very vague answers.
Experiments	These are still causing problems for some candidates. They should be able to differentiate between method, equipment and calculation. They should also avoid phrases such as “how far” (instead of distance) or “how long” (instead of time).

Statistical information: update on Courses

Number of resulted entries in 2008	2379
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Number of resulted entries in 2009	2557
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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	33.8%	33.8%	863	56
B	24.6%	58.3%	629	48
C	17.4%	75.8%	446	40
D	5.2%	81.0%	134	36
No award	19.0%	100.0%	485	-

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 SQA therefore 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 Business Manager 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.