Physics Intermediate 2

External Assessment Report 2008

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

The paper was considered to be balanced and fair in terms of curricular content and academic demand. Candidates seem to have been well-prepared generally across all topics. There was no evidence to suggest a lack of time and most candidates attempted all of the questions. The responses involving calculations were good however answers requiring explanations, definitions and the drawing of diagrams were at a lower standard.

Areas in which candidates performed well

In the Multiple Choice Section, most questions were well done. In the written part of the paper, responses to the following questions were particularly good:

21 – acceleration, unbalanced force and speed/time graph.

23 – work done and specific heat capacity.

24 – kinetic and potential energy.

25 – resistances in parallel and electrical power.

31(b) – half-life calculation.

Areas which candidates found demanding

In the multiple-choice section, many candidates had difficulties with the following questions:

3 – displacement
16 – sight correction and lenses
19 – definition of the gray
20 – processes in nuclear reactors

In Section B, the following questions were poorly answered:

22(a) – There was a lack of proper Physics and understanding in the addition of the vectors.

22(b) – Many candidates used the incorrect unbalanced force in calculating the acceleration.
No28 (a) (ii) posed a similar problem where many candidates did not substitute the correct voltage.

23(b) (ii) – The explanations for lower temperature rise tended to be scant and insufficient. Many candidates stated that ‘energy was lost’ without qualification.

26(d) – Very few candidates managed to draw the ray diagram properly and even less defined the term ’critical angle’ correctly.

27(a) – The explanation of the operation of the MOSFET was poorly described.
(b) – Many candidates found the voltage-divider calculation difficult.

29(b) – Diagrams of the paths of rays through the lens and the location of the image were attempted badly.

Advice to centres for preparation of future candidates

Centres should encourage candidates to:

- be more careful in reading the questions thoroughly and in selecting the correct data – particularly from graphs and diagrams.
- select the correct formula and use it appropriately.
- show full working and avoid the temptation to simply quote an answer.
- use correct units and apply correct unit conversions. (Weight was often quoted in kg or N/kg). Units were often missing in the final answer.
- describe explanations and definitions accurately and fully.
- take care with the number of significant figures given in an answer.
- re-read their answers and check that they are commensurate with the marks allocated to the question.

Statistical information: update on Courses

Number of resulted entries in 2007	3,350

Number of resulted entries in 2008	3,488

Statistical information: Performance of candidates

Distribution of Course awards including grade boundaries

Distribution of Course awards	%	Cum %	Number of candidates	Lowest mark
Maximum Mark - 100	-	-	-	-
A	39.4%	39.4%	1,376	70
B	20.8%	60.2%	724	60
C	18.2%	78.4%	636	50
D	6.2%	84.7%	217	45
No award	15.3%	100.0%	535	-

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.