Principal Assessor Report 2006

Assessment Panel:	**Physics**

Qualification area

Subject(s) and Level(s) Included in this report	**Physics Intermediate 2**

Comments on candidate performance

General comments

There were again some excellent scripts seen this year but there were also a considerable number of candidates presenting poor physics. This was particularly noticeable in the descriptive parts of questions – when asked to comment on a preceding piece of physics, many candidates simply could not offer a sensible explanation. The mean mark and the pass rate are lower than in 2005.

Areas in which candidates performed well

The following multiple choice questions had high facility values: 1, 10, 12, 15, 17, and 19.

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

Q 21(a), (b)	potential and kinetic energy
Q 22(b)	force, mass and acceleration
Q 23(c)	projectile motion
Q 25(a), (b)	turns ratio and power calculation
Q 28(a), (b)	ray diagrams
Q 31(a), (b)	half-life calculations

Areas which candidates found demanding

The following multiple choice questions had low facility values: 3, 5, 7, 9, and 11.

In the written part of the paper, the following questions caused difficulty:

Q 21(c), (d)	explanations of energy differences and forces
Q 24	use of the heat energy equation for mixtures
Q 26	voltages in a series circuit and the operation of LEDs.
Q 27(d)	operation of an NPN transistor
Q 29	calculation of angle of incidence, angle of reflection and critical angle
Q 30	nature of alpha and beta particles and Problem Solving on ionisation

Advice to centres for preparation of future candidates

Apart from the specific topics outlined under the heading “Areas which candidates found demanding” it is recommended that the following receive attention:

Units and prefixes

Scientific notation

Explanations of Physics phenomena – in general, descriptive questions were very much less well done than numerical questions. In question 21, for example, many candidates could correctly calculate potential and kinetic energy but could give no sensible explanation as to why one was bigger than the other.
It is recommended that attention should be given to drawing conclusions in Problem Solving situations.

Statistical information: update on Courses

Number of resulted entries in 2005	2,354

Number of resulted entries in 2006	2,630

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	23.8	23.8	625	67
B	12.1	35.9	318	56
C	19.6	55.4	515	45
D	11.6	67.0	305	39
No award	33.0	100.0	867	-

General commentary on passmarks and grade boundaries

- While SQA aims to set examinations and create mark schemes which will allow a competent candidate to score a minimum 50% of the available marks (notional passmark) and a very well-prepared, very competent candidate to score at least 70%, it is almost impossible to get the standard absolutely on target every year, in every subject and level
- Each year we therefore hold a passmark meeting for each subject at each level where we bring together all the information available (statistical and judgmental). 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 senior management team at SQA
- We adjust the passmark downwards if there is evidence that we have set a slightly more demanding exam than usual, allowing the pass rate to be unaffected by this circumstance
- We adjust the passmark upwards if there is evidence that we have set a slightly less demanding exam than usual, allowing the pass rate to be unaffected by this circumstance
- Where the standard appears to be very similar to previous years, we maintain similar grade boundaries
- 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 are different. This is also the case for exams set in centres. And just because SQA has altered a boundary in a particular year in say Higher Chemistry 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
- Our main aim is to be fair to candidates across all subjects and all levels and maintain standards across the years, even as arrangements evolve and change.