



## External Assessment Report 2009

---

Subject	Technological Studies
Level	Intermediate 2

**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's examination was found to be fair, balanced and equally accessible as previous years and as a result the grade boundaries remained unchanged.

It was encouraging to note that the fall in numbers seen in 2008 has been reversed and that the number of centres presenting the subject at this level is the highest since 2004.

## Areas in which candidates performed well

Q3 logic circuit from a given wiring diagram

Q4 energy calculations

Q5 calculation involving resistance in an electrical circuit

Q11 identification of energy types within a system.

## Areas which candidates found demanding

Q1 (a) & (c) identification of a 5/2 valve, the symbol and correct position of a uni-directional restrictor

Q6 (b) & (c) PBASIC decisions, *for.....next* looping, and the advantages of the use of a microcontroller over a hardwired electronic circuit

Q7 (c) negative feedback and how it is used to reduce an error

Q9 (c) transistor calculations

Q9 (d) use of a relay to produce control of rotation in both directions

Q9 (h) torque

Q10 (c) advantage of the use of a sub-procedure when developing a PBASIC program.

## Advice to centres for preparation of future candidates

Centres may wish to address the following areas where poor performance was noted:

- Candidates' knowledge of pneumatics is generally weak and this area would benefit from additional emphasis
- Programming in PBASIC is poor with many candidates making mistakes particularly with *if...then* decisions, *for...next* loops, and in the use of binary
- Calculations involving a transistor in an electronic circuit are poorly attempted
- Many candidates have no understanding of torque or how it can be altered in a mechanical system.

## Statistical information: update on Courses

Number of resulted entries in 2008	155
------------------------------------	-----

Number of resulted entries in 2009	213
------------------------------------	-----

## 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	30.5%	30.5%	65	72
B	18.8%	49.3%	40	61
C	16.9%	66.2%	36	51
D	3.8%	70.0%	8	46
No award	30.0%	100.0%	64	-

## 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.