# External Assessment Report 2010

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| 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

Feedback from the Markers and the quantitive data provided by SQA showed that the 2010 question paper was fair, balanced, accessible, and set at a similar level to previous years. As a result the grade boundaries were retained at the same level as applied in 2009. This produced a slight overall reduction in the number of A–C awards; however, this decrease was predicted by centres in their estimates and reflected a change within this year's cohort.

## Areas in which candidates performed well

In general, calculation-based questions were better attempted than those which required candidates to demonstrate knowledge and understanding.

Question 9(e): Principle of moments. Whilst still a challenging area for many candidates, there was a better overall response than in previous years.

Question 11(d): IC wiring diagram.

## Areas which candidates found demanding

- Question 1(a): Logic diagram from a truth table.
- Question 2(a): Pneumatic valve actuators.
- Question 3(c): Energy conservation.
- Question 4(e): Applications for a transistor.
- Question 6 and Question 9: PBASIC commands.
- Question 8(a): Compound gear systems.
- Question 9(b): Advantages in the use of Pulse Width Modulation (PWM).

## Advice to centres for preparation of future candidates

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

- Developing a logic diagram and Boolean statement from a truth table.
- IC logic families and their characteristics.
- PBASIC programming and the use of *for…next* loops and *if…then* decisions.
- The principles and advantages in the use of PWM for motor speed control.
- Pneumatic actuators and symbols.
- Knowledge of mechanical drive systems and associated calculations.

## Statistical information: update on Courses

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|---|---|
| **Number of resulted entries in 2009** | 213 |
| **Number of resulted entries in 2010** | 173 |

## 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 | 18.5% | 18.5% | 32 | 72 |
| B | 19.1% | 37.6% | 33 | 61 |
| C | 20.8% | 58.4% | 36 | 51 |
| D | 5.2% | 63.6% | 9 | 46 |
| No award | 36.4% | 100.0% | 63 | — |

### 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.