

Principal Assessor Report 2006

Assessment Panel:

Technical Education

Qualification area

**Subject(s) and Level(s)
Included in this report**

Technological Studies Advanced Higher Level

Comments on candidate performance

General comments

The overall response of candidates this year was somewhat poorer than last year, with noticeable gaps in answers in virtually all areas of the paper. Anecdotal evidence seemed to point to a paper that was perceived to be less accessible, especially for the mid-range (lower B or C) candidate.

There was a reduced candidature, and a reduction in the number of presenting centres – down from 37 in 2005 to 32 in 2006, and this latter number included 11 centres that did not present in 2005; these variations imply that many centres are unable to present candidates year-on-year, and that there is a significant number of centres involved in bi-level teaching of small Advanced Higher candidate-groups. Small presentation groups generally fared less well than larger groups.

Areas in which candidates performed well

There was an excellent performance in Systems and Control, particularly in assembly code programming (question 8 was the best attempted in the whole paper, with an average score across the candidature of 79% of available marks; question 3 on microcontrollers was also answered well.

It was pleasing to see a very good response to the Method of Sections question (question 2), which provided an average score of 64%. This was the second-best answered question in Section A.

In Section B the best question turned out to be Q10, which was attempted by roughly 60% of candidates, and which yielded an average 13.8 marks (69%).

Areas which candidates found demanding

Question 1. Very few candidates were able to draw an S-R bistable constructed from cross-coupled NAND gates; the average score was 3.2 marks (40%). Question 7 (integrator and Schmitt trigger) also produced a low average mark of 47%.

In Section B, question 9 proved to be the most popular, with some 80% of candidates attempting the question, though the average score was only 9.6 marks (48%). Question 11 was attempted by only 40% of candidates, who produced an average score of 7 marks (35%).

In general, a significant number of candidates seemed to have difficulty in interpreting questions correctly, so that they were unsure of what was actually being asked, though no pattern emerged, and no particular questions were obviously difficult to interpret.

Advice to centres for preparation of future candidates

Centres should pay particular attention to the following areas:

- Basic theory and construction of bistable devices.
- 555 timer circuits: differences in circuitry and operation for *astable* and *monostable* modes were not clearly understood by candidates.
- Op-amp applications, especially Schmitt trigger, integrator, VCO.
- 'Explain' questions: Centres should give candidates practice in answering such questions using appropriate technological terminology.

Statistical information: update on Courses

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|------------------------------------|-----|
| Number of resulted entries in 2005 | 141 |
|------------------------------------|-----|

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| Number of resulted entries in 2006 | 128 |
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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 - 100 | - | - | - | - |
| A | 28.1 | 28.1 | 36 | 67 |
| B | 15.6 | 43.8 | 20 | 58 |
| C | 17.2 | 60.9 | 22 | 49 |
| D | 11.7 | 72.7 | 15 | 44 |
| No award | 27.3 | 100.0 | 35 | - |

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.