

Principal Assessor Report 2006

Assessment Panel:

Technical Education

Qualification area

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

Technological Studies Higher Level

Comments on candidate performance

General comments

The general standard of response was slightly poorer than last year.

There was a reduction in the number of Centres presenting candidates (down from 93 in 2005 to 87 in 2006, and this number included 14 'new' Centres (i.e. who had not presented candidates in 2005). Some of these latter Centres presented very small candidate-groups, and in some cases the overall performance was poor.

The question paper this year placed a greater emphasis on the understanding of course concepts than in previous years: there were several 'explain' questions, which were generally not well answered. Though this approach is perfectly acceptable, it was clear that candidates were not well prepared for such questions, and so the question paper was deemed to be slightly less accessible than in the previous two years.

Areas in which candidates performed well

Candidates performed well in the usual areas: combinational logic (questions 4 and 11) was the best-answered topic in the whole paper, with PBASIC programming (questions 2 and 9) being generally of a good standard, along with the materials calculations in question 1.

Areas which candidates found demanding

Again the usual topics of moments and nodal analysis were poorly done; despite attempts to provide accessible questions on these topics, candidate performance remains poor. Centres should pay particular attention to these areas, as significant numbers of marks were lost here.

Neither of the applied electronics questions (transistors – question 5; op-amps – question 6) were well answered, whilst question 7 (control systems and diagrams) elicited the poorest level of response in the whole paper.

Advice to centres for preparation of future candidates

Centres should give attention to the following areas:

- MOSFETs require further clarification, as compared with bipolar transistors.
- Control: clarification of open-loop and closed-loop systems.
- PBASIC programming: some candidates used invalid instructions (e.g. 'if...then *goto...else goto...*'; 'high *pin 3*'; etc). The new version Data Booklet should be consulted for a list of correct commands.
- Principle of Moments and Nodal Analysis – candidates often confuse sine and cosine when taking components of forces: some candidates had difficulty when a vertical reference angle was used.
- Nodal analysis – some of the forces acting at a node were omitted, or forces acting at different node were included when analysing a node: further clarification of the concept of nodal equilibrium is required.
- 'Explain' questions: it is important that candidates be adequately prepared to demonstrate their understanding of the operation of circuits or systems, and be able to express themselves in clear terms, using appropriate technical terminology.

Statistical information: update on Courses

Number of resulted entries in 2005	848
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Number of resulted entries in 2006	769
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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	21.6	21.6	166	66
B	17.2	38.8	132	55
C	21.5	60.2	165	44
D	11.2	71.4	86	38
No award	28.6	100.0	220	-

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.