

Principal Assessor Report 2004

Assessment Panel:

Technical Education

Qualification area

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

Technological Studies Intermediate 2

Statistical information: update

Number of entries in 2003 (Pre Appeal)	337
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Number of entries in 2004 (Pre Appeal)	247
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General comments re entry numbers

It is disappointing to note the drop of 90 candidates this year which is in part due to a reduction in the number of overseas students taking the subject as part of the Engineering SGA.

Statistical Information: Performance of candidates

Distribution of awards

A	29.6%
B	14.6%
C	21.9%
D	5.7%
No Award	28.3%

Comments on any significant changes in percentages or distribution of awards

There has been a very slight drop in the number of candidates who achieved an Upper A award. However, the overall percentage of A passes has increased by 4.9% to 29.6%.

It is encouraging to see an increase in the number of candidates passing Intermediate 2 this year.

Grade boundaries for each subject area included in the report

Distribution of awards	%	Cum %	Number of candidates	Lowest mark
A	29.6	29.6	73	72
B	14.6	44.2	36	61
C	21.9	66.1	54	51
D	5.7	71.8	14	46
No award	28.3	100	70	

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.

Comments on grade boundaries for each subject area

The boundary marks for 2004 reflect the fact that the standard of examination is unchanged and that the analysis of the data, including centre estimates, shows that there has been an overall improvement in the ability of the candidates although with slightly fewer Upper A students.

It is worth noting that over the last few years centres have slightly overestimated the percentage of C awards and are perhaps setting their internal C pass mark too low.

Comments on candidate performance

General comments

The feedback from the markers indicates that the examination was of a similar standard to 2003 and that the questions were fair, balanced and accessible. The full range of marks was awarded in each question.

Once again it was evident that those candidates taught in a discrete class significantly outperformed those from a bi-level group.

Areas of external assessment in which candidates performed well

Q1 (a) completing the truth table.

Q6 Pneumatics was well answered although many candidates did not restrict the air before it entered the reservoir.

Q9 was consistently well answered particularly (c) where candidates scored highly in the description of the pneumatic circuit.

Areas of external assessment in which candidates had difficulty

Q2(c) calculation involving the conservation of energy.

Q3 closed loop control was poorly answered.

Q4 for...next loop continues to be poorly answered and a small but significant number of candidates are still making fundamental errors with PBASIC commands for example "high pin7" and "if pin1=1 then goto test".

Q5 (d) few candidates knew the symbol for a buzzer or how to wire it in parallel with the motor.

Q7 many candidates did not know that the clock synchronised the microcontroller sub-systems and the description of the difference between RAM and EEPROM was often poorly answered.

Q10 few candidates used the correct sub-procedure flowchart symbol and many used "goto mix" rather than "gosub mix" in the PBASIC program.

Recommendations

Feedback to centres

As indicated above there are a number of areas that centres may wish to address:

- The correct use of PBASIC commands in order to avoid simple mistakes such as “pin 7 high” “if pin1=1 then goto main” or using “let dirs =%11000000” to switch on pin 7 and 6.
- For...next loops and the use of sub-procedures.
- Microcontroller architecture including the function of the sub-systems.
- Systems theory including the explanation of closed loop control featuring error detection.
- Calculations involving the conservation of energy.
- Review the C pass mark used in centre estimates in order to better reflect actual candidate performance in the external examination.