External Assessment Report 2011

Subject	**Computing**
Level	**Advanced Higher**

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

Candidates are skilled in answering problem solving questions on frequently assessed areas of the Course, such as the use of records, binary search or sorting algorithms.

Object-oriented languages have improved, with candidates demonstrating knowledge of this subject area. However, applying this knowledge to unfamiliar situations in a problem solving context continues to be challenging.

Candidates tend not to develop their answers in relation to the context of questions and should improve the level of technical language in their responses. They should be careful to fully develop their response to a question beyond the information given in the stem.

Underlying the study of the Advanced Higher Computing Course are a number of **unifying themes.** These themes are:

- technological development and progress
- factors affecting system performance
- objects and operations
- syntax and semantics
- social, professional, ethical and legal implications
- the relationship between software and hardware
- computing terminology
- the development process as it applies to both software and hardware systems

Theme-based questions are integrated across the examination. Candidates' answers to theme-based questions are still poor.

Areas in which candidates performed well

Question 1 (a)(i): nearly all candidates knew the different types of feasibility.

Questions 2 (a)(ii) and (iii): many candidates could define a suitable record structure and declare a variable using an array based on that record.

Question 2 (b)(ii): most candidates could describe suitable debugging techniques but tended not to relate their answer to the question.

Question 3 (a): many candidates demonstrated a good understanding of the simple sort.

Question 4: most candidates gained full marks.

Question 7 (a): most candidates could represent the information in a semantic net.

Question 7 (c)(i): most candidates could represent the facts in Prolog but unfortunately some candidates used capital letters and spaces inappropriately in Prolog.

Question 11 (a)(i): most candidates could identify logical and data transfer instructions.

Areas which candidates found demanding

Question 1 (b): a significant number of candidates confused elements of project planning with the contents of the ORD.

Question 3 (b)(ii): most candidates had difficulty with this challenging question and failed to recognise how to amend the algorithm so that it would function correctly, as described in the stem of (b). A significant number of candidates focused on correcting the last pass of the loop.

Question 5 (a): candidates have a tendency to describe everything they know about object-oriented languages for this type of question. More attention should have been paid to how classes are used.

Question 5 (b)(i): although candidates tended to understand that a stack requires a pointer (to the top of the stack) very few candidates identified where the data items would be held, eg an array.

Question 5 (c): candidates ignored context and tended to repeat answers from part (a).

Question 6 (b)(ii): most candidates were unfamiliar with the ‘planning techniques’ area of the Course.

Question 8 (a)(iii): candidates struggled to describe the use of recursion in context.

Question 8 (b): a significant number of candidates failed to initially split the sentence into a noun part and a verb part. This was often because these candidates did not identify ‘is’ as a verb.

Question 11 (b)(i): most candidates could not identify addressing modes.

Question 15 (b): candidates struggled with the terms ‘syntax’ and ‘semantics’ from the unifying themes in the arrangements.

Question 17 (c): candidates struggled to get marks, having difficulty applying their knowledge to the scenario of the question.

Advice to centres for preparation of future candidates

General

Candidates should be encouraged to consider the scenario of the question and refer to the scenario when constructing their responses.

Candidates should use project planning techniques such as Gantt charts for the project part of the Course. Centres should encourage candidates to consider the different elements involved and how they benefit the developer.

Many candidates know and can state the characteristics of stacks and queues but have difficulty with questions involving the implementation of these data structures. A deeper understanding of these data structures would result if candidates implemented them in a language of their choice.

Centres should continue to develop candidates' understanding of the comparison of object-oriented languages with other types of programming language.

Centres should ensure candidates are aware of the unifying themes.

Statistical information: update on Courses

Number of resulted entries in 2010	414

Number of resulted entries in 2011	461

Statistical information: performance of candidates

Distribution of Course awards including grade boundaries

Distribution of Course awards	%	Cum. %	Number of candidates	Lowest mark
Maximum Mark 200				
A	22.8%	22.8%	105	140
B	29.1%	51.8%	134	120
C	23.0%	74.8%	106	100
D	10.6%	85.5%	49	90
No award	14.5%	100.0%	67	-

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.