External Assessment Report 2014

Subject(s)	Computing
Level(s)	Advanced Higher

The statistics used in this report are prior to the outcome of any Post Results Services requests

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

The performance of candidates in this year's exam was very similar to previous years. Some responses continue to lack technical detail and the level of technical language appropriate at this level. Candidates' problem solving skills tend to be strongest in the context of algorithm development, but responses continue to be formulaic and rehearsed in areas such as object-oriented languages and also in abstract data types such as stacks. More centres should consider implementing stacks and queues, and this should lead to increased understanding.

Areas in which candidates performed well

Question 1(b): Most candidates knew the benefits of sub-tasks for project planning.

Question 1(e): Most candidates were familiar with suitable responses for this relatively frequently sampled area of the arrangements.

Question 1(g)(i): Almost all candidates responded correctly with prerequisite for the binary search of the data being sorted.

Question 2(c): Many candidates correctly used nested loops to traverse the 2D array.

Question 3(a): All candidates should be able to construct a record data type given the frequency with which this area is assessed, and most candidates tackled the question well, but it is disappointing that some candidates still cannot.

Question 3(g): Most candidates could explain the use of both trace tables and breakpoints.

Question 4(d): Nearly all candidates were familiar with the stack overflow issue of pushing to a full stack.

Question 6(a): Many candidates can correctly apply the Waltz algorithm to a shape.

Question 7(a): Many candidates correctly completed the search tree.

Question 9(b): Most candidates understand and explain 'conflict set' although, there remain a few candidates who focus on the term 'conflict' and have inappropriate responses.

Question 14(a)(i): Most candidates understand the concept of SIMD.

Question 19(b)(ii): Most candidates could compare multi-level feedback with round-robin.

Question 21(b)(i) & (ii): Candidates had a good understanding of how a browser uses a plug-in and which plug-in to use for animation.

Areas which candidates found demanding

Question 1(c): Most candidates tended to state laws and not to describe their relevance to the scenario.

Question 1(d)(i): Some candidates gave very low level answers when referring to 'larger writing'.

Question 1(g)(ii): Most candidates were familiar with the principles for the binary search algorithm but many of them compared the search item with the middle index and not with the array item positioned at middle.

Question 3(f): A number of candidates opened and closed the file inside the loop, which is inefficient.

Question 4(c): Very few candidates considered popping from an empty stack in their algorithm. A disappointing number did not decrease the stack pointer, and some seemed to think that deletion of an item for the stack was necessary.

Question 5(a): This question attempted to assess understanding of the construction of classes, subclasses or instances, but was poorly answered.

Question 5(b): Most candidates have prepared responses for the object-oriented content, and those who answered based on subclasses, inheritance and error location tended to do well, but those mentioning encapsulation and polymorphism did not.

Question 7(e)(ii): A number of candidates did not understand how to calculate the correct evaluation function despite the assistance in the stem of the question.

Question 8(e)(ii): Many candidates understood the concept of recursion but tended not to use the rules in the stem of the question to explain their answer.

Question 10(e): Although a significant number of candidates can write rules it remains disappointing that some candidates cannot write a rule even when the semantic net is present.

Question 1(a): Many candidates struggled to exemplify addressing modes.

Question 13(b): A number of candidates did not explain the process of a cache miss in multi-level cache.

Question 18(a): Many candidates did not refer to the **advantages** of contiguous file allocation but only explained non-contiguous file allocation.

Question 19(a): Many candidates lack appropriate technical detail of wireless protocols.

Question 21(a)(i): Some candidates struggled with identifying that the title cannot be formatted to bold.

Question 21(c): Many candidates did not understand the advantages of Java applets.

Advice to centres for preparation of future candidates

Centres are to be commended for the development of candidates with respect to algorithms set in a problem solving context.

Centres should consider improving candidates understanding of records, stacks and queues by implementing them using a suitable software development environment.

Centres should exemplify the difference between best first and A* algorithms using the concept and the nodes under consideration and the appropriate node selected.

Statistical information: update on Courses

Number of resulted entries in 2013	435

Number of resulted entries in 2014	440

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	30.9%	30.9%	136	139
B	28.4%	59.3%	125	119
C	24.8%	84.1%	109	99
D	5.5%	89.5%	24	89
No award	10.5%	-	46	-

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, SQA therefore 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 Business Manager 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.