



External Assessment Report 2009

Subject	Information Systems
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

Overall, candidate performance improved significantly with far fewer 'No Awards' being awarded. Although candidate's performance in the external exam has remained steady, their performance in the Coursework project has improved.

It was very pleasing to see a large number of new centres successfully presenting candidates for the first time. Although the entry numbers are generally small, it is encouraging to see that there is a continued interest in the subject at Advanced Higher level.

The attainment of candidates across the optional Units was very similar – the average mark gained in the Interfaces option was 25 and the average mark for the Online Databases unit was 27. The average marks gained by all candidates in Section I was 28.

Areas in which candidates performed well

In Section I, candidates performed well in Question 4, correctly identifying most of the events described and recording them accurately in an entity/event matrix. Candidates also coped well with Question 5, accurately representing the processes described as data flow diagrams.

In the Interfaces option of Section II, candidates performed well in Questions 6 and 7, demonstrating their knowledge of specialist terminology from all areas of the Unit content.

In the Online Databases option of Section II, candidates performed well in questions that required them to demonstrate their knowledge of CMS, CRM and transaction standardisation. There was a marked improvement in candidates' ability to cope with the SQL content of Question 13.

Areas which candidates found demanding

Section I - Core

In Question 3, many candidates were unable to accurately represent the 6 relationships between the entities – in some cases, incorrectly linking unrelated entities. Few candidates were able to identify the cardinality of the relationships correctly and even fewer were able to indicate whether or not each relationship was mandatory or optional.

Section II - Core

In both optional sections, candidates were expected to create a data dictionary and an entity life history diagram (Questions 9 and 14). Despite being provided with all necessary information, the data dictionaries produced by many candidates failed to indicate the correct data type for each attribute with some even managing to state a size that was inappropriate for the sample data provided; few candidates indicated the validation required for latitude and longitude and even fewer managed to identify the correct primary key – even though this had been clearly stated in the question stem. Later in the question, the entity life history diagrams created by many candidates were inaccurate – due largely to the careless use of symbols to represent repeated (*) and optional (°) events.

Section II – Interfaces Option

Many candidates had difficulty in Question 8. Although most candidates correctly represented the 7 screens in their state transition diagrams, many lost marks due to careless omission or labelling of transitions – several

candidates simply drew lines from one screen to another without bothering to indicate the direction of the transition or event that triggered it.

Section II – Online Databases Option

In Question 11, candidate's knowledge of HTML was disappointing, with many being unable to describe the purpose of the action and method attributes of the form element.

Very few candidates seemed to recognise the term *server based database management tools* in Question 12. As a result, candidates were unable to provide a description of how the tools would be used to perform the tasks described.

Questions 13(e) and 14(b) both required candidates to demonstrate knowledge of a server-side scripting language and how it could be used to perform the tasks described. Many candidates had difficulty with this.

Advice to centres for preparation of future candidates

Centres should encourage candidates to learn technically accurate descriptions of key terminology and so maximise the number of marks that are gained from straightforward questions that simply demand recall of knowledge. It was disappointing that over 70% of candidates failed to gain half marks or more in Question 1 with straightforward terms such as *systematic testing* and *systems testing* being confused.

When attempting a normalisation question, candidates should be reminded to clearly indicate both the primary key and the repeating group(s) at UNF; at 1NF, candidates should remove only repeating groups; at 2NF candidates should remove only partial dependencies; at 3NF, candidates should only remove transitive dependencies. Since very few candidates produce the correct 3NF solution, it is important that all stages in the normalisation process are followed correctly so that partial credit can be given where appropriate.

Candidates studying the Interfaces option must be prepared to create an interface design in the form of a storyboard or a state transition diagram – this work has been poorly done in recent years and yet is an essential requirement of the Unit. Candidates must also have a sound knowledge of qualitative techniques as opposed to quantitative techniques, inspection methods or inquiry methods – many candidates lose careless marks by incorrectly categorising the techniques and methods.

Candidates studying the Online Databases option must be prepared to demonstrate the use of the HTML form, input and button elements (and their associated attributes) to perform a particular task. In addition, candidates must be prepared to demonstrate the use of a server-side scripting language to connect to a server, select a database and execute an SQL query. The exact requirements are stated in the Application Development content statements of the Arrangements document.

Statistical information: update on Courses

Number of resulted entries in 2008	47
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Number of resulted entries in 2009	67
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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 - 200				
A	14.9%	14.9%	10	140
B	28.4%	43.3%	19	120
C	32.8%	76.1%	22	100
D	7.5%	83.6%	5	90
No award	16.4%	100.0%	11	-

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.