External Assessment Report 2012

Subject(s)	**Information Systems**
Level(s)	**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

The majority of Markers reported that the performance of the 2012 cohort was better than last year. This increase in candidate performance is also backed up by centre estimates with an increase in 2012 of 4% at grade A and 4.5% at Grades A–C.

Uptake for the optional Units shows that Applied Multimedia continues to be the most popular and has increased significantly from 52% last year to 63% this year, The Internet has dropped from 28% to 21% and Expert Systems continues to decrease from 21% to 16%. This year, there was a significant increase in candidates' performance in the three optional Units.

Section 1

The standard of candidates' responses in Section 1 was, again, encouraging this year. The average mark for this section was 18.1 out of 30. Most candidates scored well in this section although, surprisingly, there were still a significant number of candidates who struggled with the very first question on the data insertion problem. It was also very surprising that a significant number of candidates could not explain what was meant by a 'real' data type and could not state the purpose of a footer in a document.

Section 2

The responses to the normalisation question were significantly better than last year (11.1 out of 17 compared to 9.1 in 2011). Markers reported that most candidates knew what they were doing with the process of normalisation and demonstrated a much clearer understanding of the technique involved in going from UNF to 3NF. The E/R diagram question continues to be very well done. Candidates had some difficulty with the entity integrity question even although the problem solving approach to this type of question was introduced last year. The same can be said for the referential integrity question even though a similar type of problem solving question on this featured in the 2010 paper.

Question 14 on characteristics was reasonably well answered. The table approach worked well but candidates still need to link their answer to the scenario in order to gain the marks. The question on archive, recovery and backup was not well answered as candidates tended to write down everything they knew about backup systems, particularly the grandfather-father-son method. They did not structure their answers under the three headings of archive, recovery and backup, which was what the question stated. The question on spreadsheets was reasonably well attempted with most candidates able to state the formulae involved.

The question on the class of information management software, however, was poorly answered as candidates did not seem to know the other classes as stated in the Arrangements. A large majority of candidates thought that databases was one of the classes while others got confused with the terms from the organisational information systems section eg decision support systems, etc. The social implication question continues to prove to be challenging as candidates tended not to think about the particular social implications relating to the question, ie increasingly implementing an IS-driven business model. They tended to give more generic responses rather than relating their answers to the context of the question.

Section 3

In the Applied Multimedia section, candidates have struggled in the past with some of the more technical aspects and the ability to convey this across in the exam, eg asking candidates to write about the features and properties of graphic file types. In order to alleviate this problem the setters decided to make this type of question more straightforward by giving candidates the features and then asking them to assign each of these to a particular graphic file type (Question 21 (c)). A similar approach was taken with The Internet (Question 28 (b) (i)) but, surprisingly, this was still not done very well by candidates.

Candidates still have difficulty with some of the Arrangements terms. For example, in Question 21 (a), candidates were given two criteria to evaluate web pages for good user interface design and then had to identify two other relevant criteria to evaluate the web pages. Some candidates struggled to state these two criteria which, in some cases, resulted in a loss of up to 6 marks as they had to use these criteria to evaluate the web pages that were presented to them. Candidates, generally, are managing to answer questions on project briefs and requirements specifications very well.

In Expert Systems, candidates continue to do well in questions on rules, identifying rules in the conflict set and the calculation of certainty factors but they found it more challenging to describe a drawback of creating an expert system and to evaluate the user interface.

Although Markers noted an increase in performance of candidates, in The Internet section there were still questions that caused some difficulty, eg the question on HTML tags and the question on Class A, B and C IP addresses. The question that was found to be the most challenging was the question on characteristics of site design as many candidates did not know these terms from the Arrangements and consequently lost on average 3.75 marks out of 4. Candidates did, however, perform better on sketching the output from HTML code and in their understanding of the TCP/IP suite of protocols.

Areas in which candidates performed well

Section 1

Question 2 (b): Most candidates could define a foreign key.

Question 3 (b): Most candidates could identify the Boolean data type.

Question 5 (a): Most candidates could identify the one-to-many cardinality in this question.

Section 2

Question 13 (a): The E/R diagram question continues to be very well answered as this is a well-established question.

Section 3

Applied Multimedia

Question 20 (a) (i): The project brief and requirements specification question is now well-established and candidates did not have trouble describing the difference between them.

Question 20 (a) (ii): Similarly, candidates did not have any major problems identifying two other items in a requirements specification and relating them to the scenario provided.

Expert Systems

Question 22 (b): Candidates are very familiar with the rules question.

Question 24 (a): Candidates were able to identify the rules in the knowledge base which would be included in the conflict set. This is a marked improvement in this type of question.

Question 25 (c): Candidates continue to be good at calculating certainty factors.

The Internet

Question 27 (c): Sketching output from HTML code, introduced in 2011, continues to be done well.

Question 29 (b): Candidates are very familiar with the structure of a URL.

Question 30 (b) (ii) and (iii): Candidates could describe a use for a commercial web page and a personal web page.

Areas which candidates found demanding

Section 1

Question 1 (a): Despite this type of question featuring as the first question in every past paper, candidates still struggled with the concept of data insertion problems.

Section 2

Question 12 (c): The problem-solving approach to the referential integrity question continues to prove challenging to candidates.

Question 15 (b) (ii): A number of candidates could not describe a client-server network, even though this is the type of network they would be using in their centres.

Question 15 (b) (iii): Some candidates did not structure their answers under the three main headings of archive, recovery and backup; instead they wrote everything they knew about backup systems which tended to focus mainly on the grandfather-father-son method.

Question 16 (b): Some candidates couldn't identify another class of information management software, some wrote 'databases' or a term from the organisational information systems. They did not seem to know the classes as stated in the Arrangements.

Question 16 (c): Questions on social implications continue to be problematic with some candidates as they do not seem to be able to relate the implication to the scenario in the question.

Section 3

Applied Multimedia

Question 17 (b): Although most candidates knew what a hybrid system was, some had difficulty in finding an appropriate example of how this system could be used in education.

Question 19: Some candidates seemed to get confused with the term kerning and a number of them illustrated the process of kerning by just squeezing the characters together.

Question 21 (a): Some candidates did not know the criteria to evaluate good user interface design as described in the Arrangements. Consequently, they lost up to 6 marks as candidates needed to know these terms in order to use them to evaluate the web pages.

Question 21 (d): A number of candidates had problems explaining the use of digital watermarks. They did not seem to know that digital watermarks are invisible or undetectable.

Expert Systems

Question 22 (d): Some candidates had difficulty describing a drawback of creating an expert system.

Question 25 (b): A few candidates had problems evaluating the user interface. Their answers seemed to focus on the appearance rather than the clear conclusion and justification shown.

The Internet

Question 29 (e): Some candidates did not know the characteristics of site design as described in the Arrangements. Consequently, they lost 4 marks as candidates needed to know these terms in order to use them to evaluate the web page.

Advice to centres for preparation of future candidates

General

Candidates must become more familiar with the Arrangements documents, particularly with some of the technical terms. Candidates are often asked for terms that come straight from the Arrangements.

Candidates must relate their answers to the scenario presented to them if asked to do so in the question.

Candidates must improve their knowledge of social and ethical implications relating to using information. They should have a clear understanding of the difference between these two types of implications and be able to apply this knowledge to the context of the question.

Candidates must improve their knowledge of the main strategies in the Using Information Unit and become familiar with all aspects of each strategy.

Statistical information: update on Courses

Number of resulted entries in 2011	1,407

Number of resulted entries in 2012	1,208

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	21.6%	21.6%	261	144
B	26.7%	48.3%	323	124
C	27.4%	75.7%	331	104
D	10.5%	86.3%	127	94
No award	13.7%	100.0%	166	-

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.