External Assessment Report 2011

Subject	**Information Systems**
Level	**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 2011 cohort was similar to last year, although the statistics show a significant improvement in candidates' performance (an increase of 5 marks on the question paper and 0.6 marks on the coursework). They also reported that a significant number of candidates were still not able to use the necessary technical language in their responses. A few Markers also reported on the poor standard of handwriting across a large number of scripts, where deciphering what was written was almost impossible.

Uptake for the optional Units shows that Applied Multimedia continues to be the most popular and has increased from last year (52%), Internet has remained more or less the same at 28% but Expert Systems continues to decrease at 21%. This year, there was more uniformity in candidates' performance across the three optional Units. The average mark for Applied Multimedia was 20.85 out of 50 (22.4 in 2010), for Expert Systems it was 20.12 (20.1 in 2010) and for the Internet it was 19.4 (18.95 in 2010).

Section 1

The standard of candidates' responses in Section 1 was encouraging this year. The usual database update anomaly question (Question 1) was much better answered this year, although Question 2 seemed to cause some difficulty. Although candidates are well used to normalisation, they seemed to have difficulty in identifying the normal form of this data, perhaps because they were only given one entity. Cardinality questions continue to be well answered, although the actor and film question was not nearly as well answered as the national team and footballer question. The majority of candidates were able to draw diagrams of the topologies and most were able to describe a macro. Questions on ethics, however, still prove difficult for candidates who tend to comment on legal rather than ethical issues.

Section 2

The responses to the normalisation question were in line with last year (9.07 out of 17) although Markers did report that the slightly different layout and context seemed to confuse the candidates. The E/R diagram question continues to be very well done. The problem solving approach to the entity integrity-type question which was introduced last year was much better answered this year. The missing items in the data dictionary question continue to be well answered, although this year very few candidates failed to spot that missing value C was not unique as it forms part of the compound key. Candidates obviously just looked at the table and noticed that it was a PK and therefore had to be unique without looking at the entities above the table which show it as part of a compound key. Question 19 was a very straightforward question, with 6 marks for naming and describing the purpose of three Acts which apply to information systems. A significant number of candidates could not name the Acts accurately, let alone give a description of their purpose. In Question 20, the majority of candidates were able to explain the difference between knowledge, information and data but struggled to give a correct example of knowledge in the context provided.

Section 3

In the Applied Multimedia section, some of the more technical questions continue to cause difficulty with candidates. An example of this is Question 21 (e)(iii) on object linking, which was very poorly answered. Also, recall questions that come straight from the Arrangements were poorly answered. An example of this is Question 22 (b)(ii) on documentation.

In the Expert Systems section, candidates continue to score well in the rules question, Question 25 (b)(ii), although the majority struggled with describing the structure of the knowledge base in Question 26 (a).

In the Internet section, because a large number of candidates have difficulty in writing the code in the HTML question, we decided to alter it this year so that candidates just had to state suitable entries for a number of missing values in a section of HTML code. This worked very well, with an average mark of 4.11 out of 7. Again, some of the more technical questions caused problems — particularly Question 29 (b) on span and div tags and Question 30 (b) on uploading web pages. Also, like the other optional sections, candidates had difficulty with straight recall questions from the Arrangements, eg Question 29 (d). Surprisingly, very few candidates knew about the W3C and the IETF, when these should be well known.

Areas in which candidates performed well

Section 1

Question 3: most candidates could identify the calculated attribute.

Question 5 (a): most candidates are now very familiar with cardinality questions.

Question 12: most candidates could draw ring and bus topologies although, not surprisingly, ring was much better answered than bus.

Section 2

Question 17 (a): the E/R diagram question continues to be very well answered as this is a well established question.

Section 3

Applied Multimedia

Question 21 (a): the requirements specification question is now well established, and candidates did not have trouble identifying three items and relating them to the scenario provided.

Question 23 (b)(ii): most candidates knew the terms ‘kerning’ and ‘anti-aliasing’ although they scored considerably better on the kerning question.

Expert Systems

Question 25 (b)(ii): creating rules continues to be very well done by candidates.

Question 27 (a)(i): candidates continue to answer questions on propositional logic very well.

Question 27 (a)(ii): as in previous years, calculation of certainty factors is well answered.

The Internet

Question 30 (b)(ii): candidates were able to determine the difference between HTML coding and web authoring packages.

Areas which candidates found demanding

Section 1

Question 2: candidates seemed to find the layout of this question difficult. Despite being very familiar in determining normal form of data, they found it difficult to determine this normal form, perhaps due to the fact they had to deal with only one entity.

Question 8: most candidates did not seem to know their organisational information systems. The clue in the question of 'what-if scenarios' should have steered them towards a decision support system. Also, abbreviating this to DSS was not acceptable.

Question 9: similar difficulties to Question 8, but also most candidates did not know the key aspect, which was 'vast amounts of data'.

Question 13: candidates got confused with portability, giving the meaning as 'being able to carry around with you', which is not a criteria for evaluating software. Candidates need to be more specific here and state that it relates to software that can run on different platforms or operating systems. Stating that it was software that could run on different computers got 0 marks, as this was too vague in the sense that it could be different computers on a network but having exactly the same specification.

Section 2

Question 16: although Markers reported that the normalisation question seemed to cause some difficulty with candidates, perhaps due to the slightly different layout, the average mark (9.07) was very much the same as in 2010 (9.02).

Question 18 (a): by far the question most poorly answered in Section 2. This was quite a tricky question which had not been previously asked in this way. The majority of candidates found it difficult to explain the difference between the two terms; many managed to explain security but had great difficulty in explaining privacy.

Section 3

Applied Multimedia

Question 21 (d): one of the more technical questions, which was not well answered. Some candidates had an idea of what was meant by a progressive display but could not relate this to the photograph on the home page.

Question 21 (e)(i): another technical question not well answered. This is a standard question, and questions of this type have been in several past papers, so it should have been better answered.

Question 21 (e)(ii): a significant number of candidates were not familiar with the personnel within a multimedia team, and consequently were not able to identify the person responsible for editing photographs.

Question 21 (e)(iii): this question was the worst answered question in the whole paper. Candidates did not know that photographs altered in a graphics package will automatically reflect these changes in the webpage if they are linked.

Question 22 (b)(i): a straight recall question from the Arrangements on documentation but very poorly answered.

Question 22 (b)(ii): consequently, if they did not know the answer to Part (i), they would have difficulty with Part (ii).

Question 22 (c): again, straight recall question but very poorly answered.

Expert Systems

Question 25 (e): many candidates did not state the stage of development, although they managed to give some indication of Mark's role. Mentioning the role without the stage, however, got 0 marks.

Question 26 (a): by far the most poorly answered question in this section. Candidates had great difficulty in relating the structure of the knowledge base in terms of facts and rules to the scenario provided. Some managed to get the facts but very few managed to give any rules from the scenario.

Question 26 (b): many candidates did not evaluate the quality of the user interface by saying whether it was good or clear, but many did notice that it included explanation facilities.

Question 28 (a): a question that has become well established and featured in several past papers but still causes problems. Candidates tended to write features of an expert system followed by features of a decision support system without comparing them at all.

Question 28 (b): it was obvious that a large number of candidates had not studied the OPS5 KRL, despite the fact that a question comes from this section of the Arrangements every year.

Question 28 (c)(ii): again, a well established technical question, but continues to cause difficulty.

The Internet

Question 29 (b): most candidates did not know the difference between a span tag and a div tag.

Question 29 (d): although a small number of candidates managed to state a difference between the W3C and the IETF, very few knew that both deal with standards.

Question 30 (b)(i): this was the most poorly answered question in this section. The majority of candidates really struggled with the whole concept of FTP.

Question 30 (e)(i): although some candidates managed to identify types of information that might be collected, they had considerable difficulty in describing how this information could be used to make changes to the website.

Question 30 (e)(ii): most candidates did not know any privacy issues, perhaps because the data was not of a personal nature. Had they written this, they would have got full marks.

Question 31 (b)(ii): a technical question on packet switching that should be well known and well learned but still continues to cause problems.

Question 31 (b)(iii): a technical question on routing tables that was obviously not well studied by candidates.

Question 32 (b): this question reinforces the point that ethical questions always seem to cause problems with candidates.

Advice to centres for preparation of future candidates

General

Candidates must improve their technical knowledge, particularly in their chosen optional Unit. Too many candidates did not have sufficient depth of technical knowledge to answer the technical questions in the detail required to achieve high marks.

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 the main strategies in the Using Information Unit and become familiar with all aspects of each strategy.

Candidates must refrain from covering all alternatives in an answer by giving multiple possible answers, eg written or visual or aural. This type of answer does not attract any marks.

Statistical information: update on Courses

Number of resulted entries in 2010	1,432

Number of resulted entries in 2011	1,407

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	17.2%	17.2%	242	144
B	26.4%	43.6%	372	124
C	31.1%	74.7%	437	104
D	11.9%	86.6%	167	94
No award	13.4%	100.0%	189	-

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.