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ASSESSMENT and QUALIFICATIONS ALLIANCE

General Certificate of Education

Information and Communication Technology 5521/6521

Report on the Examination

2006 examination - June series

- 5521 Advanced Subsidiary
- 6521 Advanced Level

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Contents

GCE in Information and Communication Technology

General Comments

In this June series of the examination both the AS and A2 units showed a good range of marks. There was clear evidence that many candidates were well prepared for the unit they were attempting and it was pleasing to note that nearly all candidates answered all of the questions on the question papers.

As mentioned in previous Examiners' Reports, candidates should be reminded to read the front cover of the question paper before beginning to read the questions themselves. Marks were lost by the use of brand names of specific software packages or items of hardware, whereas candidates should respond to questions with reference to generic types of software. It is clearly stated on the front of all GCE ICT question papers that, '*…the use of brand names will not gain credit.'*

Candidates must to frame their answers within an ICT context as it is their knowledge and understanding of ICT that is being examined. When answering questions which are set in a context, some candidates appear to quote old mark schemes to make up their entire response or do not answer within the context of the question set. This is a very dangerous practice for two reasons. Firstly, the question may have been asked differently this year so that a quote from a previous year's mark scheme is no longer appropriate. Secondly, if the question is sufficiently similar, inaccurate quotation can be disastrous. Candidates who rely on this technique very often make mistakes and fail to gain marks.

Questions frequently ask for an (emboldened) number of responses: e.g. **four** resources, **three** criteria, **two** examples. Some candidates offer as many responses as they can think of, often giving up to ten or twelve attempts at answers. When a question has asked for so many fewer responses, examiners are not expected to read so many additional answers; they are told to credit any good ones and ignore the rest. This candidate practice should also be discouraged as candidates are disadvantaging themselves by spending a disproportionate amount of time on such questions.

It was pleasing to see the increase in the number of candidates gaining good marks for project work both at AS level (ICT 3) and for the A2 (ICT 6). It was thought that this improvement was due in part to the many centres that have sent representatives to attend teachers' Standardisation Meetings over the past few years. This attendance has enabled teachers to give better advice and guidance to their candidates as to the exact requirements needed to meet the specified assessment criteria. Unfortunately, it is apparent that in both components a large number of candidates are producing projects 'mechanistically' without displaying the necessary skills, knowledge and understanding required of a successful AS and A Level candidate. Candidates must demonstrate both an understanding of the solution they have developed and the ICT tools that they have used in the process. For example, candidates should be able to explain in their project why they have used certain functions of the software and how these allow them to meet the requirements of the solution.

AS Units

Unit 1 - Information: Nature, Role and Context

Question 1

This question was generally well answered. Many candidates identified a laptop as an example of a device, which was allowed in this series, but will not be allowed in future answers to a similar question. The reason for this is that laptops are just one type of computer and the question asked for devices *other than* a computer. Some candidates simply gave brand names which do not gain marks.

Question 2

Better candidates related their answer to their coursework task, but others showed a lack of understanding of an ICT task. There was evidence of candidates not reading the question correctly.

Question 3

This question was generally well answered with good business reasons stated.

Question 4

Many candidates misinterpreted the question and gave incorrect answers relating to telesales or teleconferencing. The candidates who read the question correctly and who understood the term *teleworking* gave good answers

Question 5

Many candidates missed the point that the e-mail addresses may no longer be up to date, suggesting that they had not read the question properly. Many candidates failed to gain the mark for part (c)(ii) by using the old title of Data Registrar or incorrectly stating, 'Data Commissioner.'

It should be noted that this question also linked into the topic 10.2 in the specification, The value and importance of information.

Question 6

Very few candidates related their answer to the context of the question and therefore lost marks by giving incorrect answers.

Question 7

A few candidates showed a lack of understanding of the term *malpractice* and incorrectly differentiated malpractice from crime by identifying the former as accidental and the latter as deliberate. However, many candidates answered this question well.

Question 8

Some candidates did not read the question properly and did not answer in ICT terms. They simply stated the benefit of having the past question papers and mark schemes, rather than the benefit of them being in electronic format.

Question 9

Many candidates answered this question reasonably well. For part (a) some candidates did not read the question thoroughly and missed the 'rules' part and gave answers that related to health issues that were not rules. This was also evident in part (b).

Question 10

There were some very good answers, but on the whole candidates did not show evidence of their understanding of a benefit and just gave a use of ICT.

Unit 2 - Information: Management and Manipulation

Question 1

This question was generally well answered with most candidates gaining full marks.

Question 2

Most candidates heeded the instructions on the question paper and gave one or two word answers for this question. However a small minority of candidates misread the instructions and wrote long descriptions that could gain no extra credit.

Question 3

Most candidates could identify at least one or two advantages of using a database but only the better candidates provided well argued points that showed true understanding of the topic. Also one or two word answers did not provide sufficient information to gain a mark e.g. 'consistency' is not creditworthy but, 'improved consistency of data,' would have gained a mark.

Question 4

Both operating systems and peripheral drivers are examples of systems software that are explicitly mentioned in the specification for Module 2.

(a) Only a minority of candidates could provide a good explanation of the term *operating system*. Most candidates could provide examples of what an operating system does, but this was not sufficient to gain full marks for this part of the question.

(b) A worrying minority of candidates incorrectly stated that a peripheral driver was a piece of hardware. Only very few candidates correctly identified that a peripheral driver is a systems program that enables meaningful communication between a peripheral and another program (applications software or operating system).

Question 5

(a) Most candidates could state two errors, but only the better candidates went on to identify the source of the error. Common sources of error correctly identified were mis-keying by an input operator, a form incorrectly completed or an input document that was misread e.g. crumpled OMR form.

(b) Most candidates correctly identified verification and validation as two methods that could be used. It was pleasing to see many good descriptions of both methods and less confusion between the methods in the candidates' responses for this question.

Question 6

Few candidates could clearly distinguish between the security and privacy of data. Data security ensures the integrity and privacy of data. Security is the application of safeguards to protect data from accidental or malicious modification, destruction or damage. The privacy of data is that only authorised people may be allowed to view some types/items of data and those people have a responsibility not to disclose the content to others who are not authorised.

Question 7

(a) Many candidates gave excellent answers and secured full marks for this part of the question.

(b) Those candidates who wrote about the recovery procedure usually gained good marks. However, a worrying minority of candidates continued to write about backup, for example mentioning testing that the backup works and training staff to take backups correctly. This type of response gained no credit.

Question 8

(a) Applications software is a (computer) program or programs designed to carry out a task that would need to be carried out even if computers did not exist e.g. writing a letter. Many candidates could not distinguish between applications software and systems software.

(b) The terms *generic*, *specific* and *bespoke* software were understood by most of the candidates. They provided good descriptions but some candidates provided incorrect examples that were examples of systems software not applications software.

(c) Candidates were asked to give benefits of having a common user interface so it was not sufficient to give the features of a common user interface e.g. 'similar icons and menus used by the packages' a benefit to the user needed to be given e.g. 'the use of similar icons and menus makes it less stressful for the user when using multiple applications as the user does not need to remember lots of different commands'.

Question 9

(a) Most candidates were aware of the benefits of using a network and many gained full marks for this part of the question.

(b) (i) There were four marks available for explaining the difference between a LAN and a WAN therefore candidates needed to make four distinct points in their answers. Some candidates lost marks by only making two points. Most candidates identified the difference in reach, but some weaker candidates just used the words 'local' and 'wide' which were given in the question to describe the difference in reach. Such answers could not be credited.

(b) (ii) This part of the question asked about the benefits of a WAN connecting a national chain of estate agents. Care needed to be taken by candidates in identifying benefits that did not simply relate to use of the Internet or related to an international chain of estate agents. Candidates should be reminded that there are many WANs in existence and the Internet is only one specific example of a WAN. Good answers that were creditworthy included, 'being able to search for houses nationally,' and, 'having up to date information available for all houses being sold by the chain.'

(c) Better candidates identified the benefits of using a digital camera. Good examples included, 'faster uploading of pictures for use in documents and on web sites because the pictures did not need to be developed or scanned,' and, 'saving money on consumables because there is no need to purchase and develop films.'

Unit 3 - The Use of Generic Application Software for Task Solutions

The majority of coursework seen in this session were either spreadsheet or database implementations. Pleasingly, however, there has been a significant growth in the number of other types of work submitted,

most notably browser-based projects. These have tended to utilise Macromedia's Dreamweaver or Microsoft FrontPage with some additional software e.g. Flash or Fireworks.

The problems selected were generally suitable for the requirements of the specification, which demands only a task-based solution. Some centres had encouraged their candidates to attempt systems at this stage and also to incorporate work from the ICT 6 specification. While candidates are not penalised for this extra work they may not necessarily gain credit for it and the additional complexity can place additional and unnecessary burdens upon the candidate. The resulting solutions were generally appropriate and the candidates should strive to generate a workable solution in the software selected. A few centres are still allowing candidates to select problems that make it very difficult to achieve a realistic solution (for example, payroll and wages). Centres are reminded that the solution must operate in the real working environment so tax and National Insurance, for example, must be handled in a realistic manner.

Overall, the production of candidates' reports has improved with many centres using page numbering and contents lists. Greater use of word processing tools is being made to incorporate well laid out cropped images that clearly communicate the software features used. Ultimately this improves the quality of the documentation and means that all the evidence provided by the candidate can be more easily and accurately evaluated by the Moderator.

Specification

Whilst attempting to satisfy the input, processing and output needs of their project, candidates were still vague about the needs of the Specification criteria, referring to 'keyboard input' and 'screen output'. Overall such candidates failed to consider the correct input, processing and output needs in sufficient detail, particularly with reference to the user requirements stated.

Some sound design work was seen, but problems did exist where there was insufficient evidence to support a third party implementation. Some candidates had produced layout of the appearance of the websites or the spreadsheets or forms. However, the formulae or query designs were incomplete or missing from such work. The use of implemented screen shots as part of the design is not good practice and candidates are expected to produce the design in advance of progressing onto the implementation phase of the solution. Full third party implementation is only feasible if all aspects of the solution are designed in detail, including the macro coding. It was good to see that some candidates who had tackled websites had produced asset listings and showed on their layouts which assets are placed on each page.

It is critical that candidates test the major aspects of the work. For example, if the purpose of the project is to produce a stock value report, then this function needs to be checked for the correct output and the data on which it should act should be clearly defined. Some candidates spent far too much time testing issues such as validation at the expense of the critical tasks the solution was intended to deliver.

It was good to see a greater range of tests this year by some candidates, but candidates should be reminded that it is not necessary to test exhaustively each field/cell, but to just include a sample test of each type. Candidates should establish a range of test data that will clearly test the solutions with normal, extreme and erroneous data in differing ways whilst avoiding repetitive testing.

Implementation

Some excellent solutions were seen with a wide range of software features used. Such projects were awarded the full range of marks for the Implementation section of the criteria. However, there was also a number of implementations seen which lacked the appropriate exploitation of the functionality of the software used and which did not ultimately achieve an appropriate solution.

A commentary is expected in the Implementation section which details all the software features used by the candidate with clear hardcopy / screenshot evidence. It is only necessary to include one sample of each type of feature, rather than repetitively show the same feature many times.

Evidence of the quality of the implementation can be taken from the testing section, but it is critical for the candidate to provide documentary evidence to prove that they have met the assessment criteria. There must be clear proof to establish that the solution described has been built and to show what skills and techniques were deployed, and their appropriateness for the task. For example, spreadsheet solutions must include printouts of the formulae used where the cell references can be clearly identified and checked were necessary.

Testing

It is critical that the fundamental purpose of a project is fully tested and that hard copy evidence of this is included. Candidates should be reminded that annotated screenshot or printouts are required to prove that solutions function as stated. In some cases the images were over cropped and were too small to read (and thus unable to gain credit from the Moderator).

It is the intention that testing should take place as the solution is developed and that candidates should show the problems that occurred, the steps they took to solve these problems and any subsequent retesting to show success. Properly showing corrective action is still too often ignored or attempted very simplistically.

Evaluation

As part of the end user requirements, many candidates now give clear objectives for their solutions, and assess how well their solution functions. This certainly helps candidates to produce well-designed evaluations.

User Documentation

The user documentation is often a very good source of evidence of how the solution is expected to work. The focus for this documentation should be twofold: the main tasks the solution delivers and an explanation of the main tasks. It should all be written in a manner suitable for the prospective end-users. Whilst some candidates tended to give an overview, rather than detail exactly how the solution is to function, many candidates produced sound, good quality user documentation which demonstrated normal use of the system, with some candidates providing forms of on-line help.

One common fault, however, is that candidates write about how to *make* the solution rather than how to use or maintain it. For example, for websites it is essential that the focus in the user documentation is on how to upload the sites, how to maintain the site with updates, or how to handle the data collected by the site; the documentation should not be about how to alter the fundamental design of the individual pages.

A2 Units

Unit 4 - Information Systems within Organisations

Question 1

Most candidates managed to gain one or two marks for this question. Some candidates did not make their answers relevant to projects being sub-divided so that a different team could take each part.

Question 2

Many candidates scored well on this question which was about the management of change. Some candidates repeated the example given in the question, which did not gain them a mark.

Question 3

This question was about ensuring that the Health and Safety legislation (as related to the use of ICT) was being enforced. Most candidates gained some of the available five marks, but few gained all five as some of their answers were repetitious. Many felt that the Health and Safety officer was there solely to catch out the employees, whereas the emphasis is on the organisation's need to provide a safe and ergonomic working environment for their ICT users, whilst making sure that the employees know their rights and responsibilities.

Question 4

Part (a) gave the opportunity to develop the definition of Formal Information flow for a second mark; very few candidates did this. Candidates are still sometimes unsure of the difference between formal and informal, getting the two confused. Many candidates offered 'set procedures' for formal flow, then 'no set procedures' for informal flow – this did not gain another mark as the two definitions are quite different. Most candidates gained 3 or 4 marks of the available 5 for this question.

Question 5

This was a very straightforward question asking for descriptions of User Support and User Training for users of standard packages. Many candidates scored highly on this question, with most gaining at least half of the marks available. Marks were lost generally through 'lazy' answers where the description did no more than restate the method.

Question 6

Most candidates could identify one or two characteristics of good information for the accountant scenario, but found it hard to give a valid reason in context. A good answer would have been, 'One characteristic of good information is that it is accurate, as it is important that any calculations made to produce financial accounts are correct to the penny.' This was a question where the more able candidates could show their knowledge and understanding of the terms associated with information.

Question 7

Some candidates confused the question in 7(a) for the question in 7(c) and failed to gain any marks. Some were confused by the terms *activity* and *deliverable* in 7(b) and found it difficult to express the activity in terms of something other than a repetition of the phase title, or express the deliverable in terms of something tangible. However, many gained marks in most of the four phases, with the analysis and design phases being the better answered of the four. Most candidates gained marks in

7(c), with many gaining all six marks available for showing how each of the three team characteristics was important. A minority gave team-working (given in the question) or some personal characteristics, neither type gaining any marks.

Question 8

Parts 8(a) and 8(c) were fairly straightforward, and most prepared candidates scored well on these questions. Part 8(b) required the candidates to stop and consider a real-life application of ICT. Only the better candidates understood the different levels of staff and their likely information requirements. Most gave only one or two of the three items asked for; sometimes what was described was at the wrong level and sometimes it was out of context, with examples about supermarkets or stores.

Question 9

Many candidates gained at least half marks for this essay question. Those who knew the definition of *risk analysis* got off to a flying start, and there were many good explanations of both security policies and disaster recovery management. There were one or two extensive explanations about hot, warm and cold sites that unfortunately got only the pair of marks that could be allowed for that aspect of disaster recovery management. Auditing was an area less well covered, but the mark scheme made allowances for some areas to be better covered than others.

Candidates had ample opportunity to show their understanding of the whole issue of security and a good proportion gained maximum content marks well before the end of their essay. Some ran out of time and a small minority seemed to have little knowledge about anything but a few security issues.

The quality of written communication this time was mostly reasonable, although a lot of incorrect spellings and many grammatical errors were seen. To gain the higher language marks, the essay must have structure and relevance, as well as good use of English. Also, paragraphs must be logically and smoothly linked. In this session there were a few instances of paragraphs not being used at all, or lists of items being written down. Proper essay planning would improve this. Well-structured essays, with good use of English spelling and grammar, gained three or four quality of language marks.

Unit 5 Information: Policy, Strategy and Systems

Question 1

Many candidates gained good marks for this question. However, too many offered one word or short phrase answers. Some of these answers gained a ‘benefit of the doubt’ mark, but some gained no credit. Candidates should be made aware that they risk losing credit in this way.

Question 2

Many candidates gained good marks here. Most could name evaluation criteria, which are enshrined not only in the AQA module specification, but also in the International Standard for Software Evaluation. Fewer were able to explain them well. The difference between portability of the software and the transferability of data is widely misunderstood.

Question 3

The section of the specification examined in part (a) seemed to be very well understood; that examined in part (b) less well so. Many candidates’ understanding of both routers and web

servers seems to owe much to their own view of the ICT world and little to any teaching they may have had about the wider roles which these two classes of device play in the working of the Internet. Many candidates described what their router at home did for them, and many thought that the role of a web server was to supply them with access to the Internet, or confused it with an Internet Service Provider, or with a web browser.

Question 4

In each part of the question, many candidates were able to offer a benefit of the way by which an organisation may obtain a software solution. But in offering to explain any one such benefit, fewer candidates gained credit for a description of a benefit that was peculiar to that way of providing the software. Many resorted to offering a second benefit. In each part, only one benefit could be credited. In part (b), some candidates read the word *licence* and proceeded to forget about leasing and to describe licensing issues. But from stronger candidates, a number of good answers were credited with high marks.

Question 5

Weaker candidates struggled for marks here. No credit was given in part (a) for saying that testing was inadequate. In order to gain marks, candidates needed to say in what way the testing failed, or what it is about the operating system's environment or its use that might be different from testing. However, stronger candidates were awarded most or all of the marks. Some of these candidates seemed in part (b) to have experience of maintenance releases for operating systems, and gained high marks for well-informed and original answers.

Question 6

Part (a) was well answered by many, who seemed well prepared for the question. Some weaker candidates seemed to be harking towards a creditable answer, but were unable to express themselves. An example of this was that, 'a PDF file is able to display formatting.' This and other features equally offered by a word processed document were not credited.

Part (b) was less well answered. Many candidates described the role of the Internet Protocol – some of them very well! But no credit was given for that. Many said that an IP address related to a website, rather than to the device which hosts it.

Part (c) was better answered. Many candidates gained up to three marks, but few all four. Many were able to say that a URL was understandable and memorable, but few were able to come up with two different reasons why.

Question 7

Only the weakest candidates scored very low marks here. Numbers of candidates scored many marks, but some of the ways in which marks were lost led examiners to wonder to what extent this very technical part of the Module 5 specification is truly understood by many candidates.

Question 8

Weaker candidates were unable to name as many as four factors that should be considered in a backup strategy, and were unable to supply the full quota of appropriate discussion. But, setting aside the best candidates, the better candidates from among the remainder were able to name four factors, and to expand well on those, discussing appropriate alternatives for backup media, for example. These candidates had up to 8 of the available 12 marks. However, only the

strongest candidates were able additionally to give any appropriate examples as requested, setting them in the context of a chain of clothes shops.

Question 9

In general, there were many weak candidates who did not understand the question, and supplied without thought the totality of their knowledge on subjects of their choice with little relevance to the issues that had been asked for, and none to the given context. However, many better candidates found the question very answerable. They applied their knowledge to each part of the question as well as to the context, and supplied excellent reports that were a pleasure to read. Some candidates made no attempt to gain 'quality of written communication' marks. Of course, if all wrote in sentences and paragraphs, some would get all four marks and some would not. But some candidates still supply only extended notes, frequently bulleted, and should be made aware that they are penalised for not writing connected prose.

Better candidates wrote well in context about an array of system requirements issues and scored well. Some weaker candidates confined themselves to what appeared to be a list of the hardware components of their dream computer. This failed to attract so many marks, however long the list.

Many candidates had been prepared to answer questions about the psychological factors affecting human/computer interaction, and about the resource implications of the use of GUIs. Marks were scored for this if appropriately presented, although more marks were available for appropriate reference to the context. Some really good answers were seen which discussed the relevant advantages and disadvantages of GUIs and of menu-driven interfaces for differing levels of staff within the hotel. Few candidates failed to score in this section.

Generally, weak candidates failed to score in the final section about the reliability of the system. Better candidates scored well, with good answers about appropriate system testing, maintenance and support.

Unit 6 - The Use of Information Systems for Problem Solving

Centres continue to build on their previous experience with this module and often facilitate the production of high standards of work from their candidates, mainly implemented in Microsoft Office using Access, that were usually accurately and consistently marked within the supplied criteria.

Candidates should be reminded, however, that work for this module is expected to reflect a realistic situation where data will change over time. Some candidates are still producing 'one-off' solutions that either solve a single problem with no need for reusability or trivialise the solution so that it cannot be operated over time. Genuine interaction between the candidate and the end-user is an essential for this module and has a critical effect upon the assessment, particularly within the testing section. The specification states that the candidate may not act as their own end user for this work and it is recommended that if possible the teacher should also not act as the end user.

Analysis

The purpose of this section is to explain fully to a third party the precise operation of the current system, and the constraints upon it, so that the design effort could be initiated by a third party. All too often candidates do not have an adequate understanding of the problem they are solving and this too often then leads on to a simplistic or inappropriate solution.

It is expected that candidates make appropriate and sensible use of appropriate systems analysis tools and techniques. Some form of data analysis is essential and, without doubt a data dictionary or equivalent, is expected to summarise that analysis, particularly if a database design is to be considered later.

Please note that high marks were sometimes given for superficial attempts at the analysis. For example, the inclusion of a data flow diagram without other essential written descriptive work is unlikely to ensure that the information flows and data dynamics have been fully identified.

Without a full understanding of a problem and how the system currently operates, candidates will be limited in the solutions they are able to develop and how well those solutions solve the problems set. To achieve this, a comprehensive document is expected with a high degree of detail.

Design

Centres are reminded that to allocate high marks for this section a competent third party must be able to implement from the design work presented and that an effective and full testing plan must be present in this section of the documentation.

Good design work featured candidates attempting normalisation when a database solution was selected, good form and report designs with adequate detail about the underlying queries for a third party to implement. It is also expected that candidates document clearly the processing methods that would be applied to their data e.g. the use of action queries such as update or append. A common fault is to find macros documented in the implementation which were completely omitted from the design work.

It is the intention in this phase of the criteria, as it is with ICT3, that a test strategy and plan(s) are produced before the implementation. The candidate must have a clear idea of the desired result, the criteria for success and the nature and scope of the data to test for. The focus for testing must be on whether the solution developed can achieve the main functions of the system. At times candidates focussed on trivial aspects, often repeating themselves, at the expense of the main testing issues. Candidates should also address at this stage how the user will be involved in the testing phase.

Implementation

High marks can be awarded here for a solution that is a full and effective solution to the problem posed. Given the nature of the problems as open ended and dynamic we can expect to see here solutions which fully exploit the software. In particular when database management software is used we should expect to see the full and effective use of the appropriate software functions, which manipulate the data in the system not just simple use of the storage and visual presentation aspects.

Centres are asked to ensure that candidates have included adequate technical documentation within this section to support the marks that the centre has awarded.

Testing

Certainly the approach to testing has continued to improve with often good attempts at presenting the results and cross-referencing the evidence. More widespread use of data sets is needed, however, as it is especially difficult to test a select query, for example, if the data to be searched is not known.

The specification states that end-user involvement must be 'clearly evidenced and reflects full participation' to attain the highest mark boundary. Too often high marks continue to be allocated based on a simple letter stating the end-user has seen the system. It is expected that end-user acceptance testing will be planned for, carried out and fully documented.

User Guide

The user guides are often a very good source of evidence of how the solution is expected to work. As for the ICT 3 user documentation, the focus for the guide should be twofold: the main tasks the solution delivers and an explanation of the main tasks. It should all be written in a manner suitable for the prospective end-users. We have continued to see good quality user guides from candidates that demonstrate well the normal use of the system, but as ICT 6 systems deal with problems where there is dynamic change to data, clearly the guides should deal with this issue including issues such as archiving, where necessary.

Evaluation

While any information system will have general criteria that can be applied e.g. how robust is the solution, the candidate must make these criteria specific to the problem in hand. The candidate should by this stage of the course be able to identify suitable performance indicators - both qualitative and quantitative - during the analysis phase, against which they evaluate their solutions referring to evidence within their report as part of their discussion. For example, if a candidate had set a criteria relating to the accuracy of processed data, then it is necessary to state what degree of accuracy is required. In discussion of whether this has been met, the candidate should offer reference to evidence, which should be available within the testing section of the report. The end-user acceptance testing can be a rich source for supporting evidence for the candidate's evaluation work.

Report

The final report (i.e. the write up submitted for assessment) should be clearly delineated, be paginated and have a table of contents. It is pleasing to note that presentation standards continue to improve.

Overall it should be possible for a third party to follow the progress of the solution through its stages, clearly seeing the development of the project. Clear and appropriately sized illustrations should be used whenever appropriate and candidates should be reminded of the need for accurate spelling, punctuation and grammar.

Mark Range and Award of Grades

Unit/Component	Maximum Mark (Raw)	Maximum Mark (Scaled)	Mean Mark (Scaled)	Standard Deviation (Scaled)
Unit 1- Information: Nature, Role and Context	60	60	23.8	8.5
Unit 2 - Information: Management and Manipulation	60	60	26.3	10.4
Unit 3 - The Use of Generic Application Software for Task Solution	60	60	31.2	10.9

For units which contain only one component, scaled marks are the same as raw marks.

Unit 1 - Information: Nature, Role and Context (15535 candidates)

Grade	Max. mark	A	B	C	D	E
Scaled Boundary Mark	60	40	35	30	26	22
Uniform Boundary Mark	90	72	63	54	45	36

Unit 2 - Information: Management and Manipulation (18333 candidates)

Grade	Max. mark	A	B	C	D	E
Scaled Boundary Mark	60	42	38	34	30	26
Uniform Boundary Mark	90	72	63	54	45	36

Unit 3 - The Use of Generic Application Software for Task Solution (17046 candidates)

Grade	Max. mark	A	B	C	D	E
Scaled Boundary Mark	60	42	36	30	24	18
Uniform Boundary Mark	120	96	84	72	60	48

Advanced Subsidiary award

Provisional statistics for the award (15023 candidates)

	A	B	C	D	E
Cumulative %	5.2	16.3	35.2	57.1	78.2

Unit/Component	**Maximum Mark (Raw)**	**Maximum Mark (Scaled)**	**Mean Mark (Scaled)**	**Standard Deviation (Scaled)**
Unit 4- Information Systems within Organisations	90	90	43.7	13.1
Unit 5 - Information: Policy, Strategy and Systems	90	90	44.4	13.1
Unit 6 - The Use of Information Systems for Problem Solving	90	90	43.1	15.0

For units which contain only one component, scaled marks are the same as raw marks.

Unit 4 - Information Systems within Organisations (7730 candidates)

Grade	Max. mark	A	B	C	D	E
Scaled Boundary Mark	90	65	59	53	47	42
Uniform Boundary Mark	90	72	63	54	45	36

Unit 5 - Information: Policy, Strategy and Systems (9563 candidates)

Grade	Max. mark	A	B	C	D	E
Scaled Boundary Mark	90	65	60	55	50	45
Uniform Boundary Mark	90	72	63	54	45	36

Unit 6 - The Use of Information Systems for Problem Solving (10271 candidates)

Grade	Max. mark	A	B	C	D	E
Scaled Boundary Mark	90	59	50	42	34	26
Uniform Boundary Mark	120	96	84	72	60	48

Advanced award

Provisional statistics for the award (10403 candidates)

	A	B	C	D	E
Cumulative %	7.5	23.2	47.6	74.9	93.4

Definitions

Boundary Mark: the minimum mark required by a candidate to qualify for a given grade.

Mean Mark: is the sum of all candidates' marks divided by the number of candidates. In order to compare mean marks for different components, the mean mark (scaled) should be expressed as a percentage of the maximum mark (scaled).

Standard Deviation: a measure of the spread of candidates' marks. In most components, approximately two-thirds of all candidates lie in a range of plus or minus one standard deviation from the mean, and approximately 95% of all candidates lie in a range of plus or minus two standard deviations from the mean. In order to compare the standard deviations for different components, the standard deviation (scaled) should be expressed as a percentage of the maximum mark (scaled).

Uniform Mark: a score on a standard scale which indicates a candidate's performance. The lowest uniform mark for grade A is always 80% of the maximum uniform mark for the unit, similarly grade B is

70%, grade C is 60%, grade D is 50% and grade E is 40%. A candidate's total scaled mark for each unit is converted to a uniform mark and the uniform marks for the units which count towards the AS or A-level qualification are added in order to determine the candidate's overall grade.