

GCE 2004  
*January Series*



Report on the Examination

**Information and  
Communication Technology**

- 
- Advanced Subsidiary
  - Advanced

Further copies of this Report on the Examination are available from:

Publications Department, Aldon House, 39, Heald Grove, Rusholme, Manchester, M14 4NA  
Tel: 0161 953 1170

or

download from the AQA website: [www.aqa.org.uk](http://www.aqa.org.uk)

© Assessment and Qualifications Alliance 2004

#### COPYRIGHT

AQA retains the copyright on all its publications. However, registered centres for AQA are permitted to copy material from this booklet for their own internal use, with the following important exception: AQA cannot give permission to centres to photocopy any material that is acknowledged to a third party even for internal use within the centre.

Set and published by the Assessment and Qualifications Alliance.

# CONTENTS

## *GCE in Information and Communication Technology*

### AS Units

	<i>Page No.</i>
Unit 1	Information: Nature, Role and Context..... 4
Unit 2	Information: Management and Manipulation ..... 7
Unit 3	The Use of Generic Application Software for Task Solution..... 10

### A2 Units

	<i>Page No.</i>
Unit 4	Information Systems within Organisations..... 11
Unit 5	Information: Policy, Strategy and Systems ..... 14
Unit 6	The Use of Information Systems for Problem Solving..... 16
Mark Ranges and Award of Grade ..... 18	

# ***Information and Communication Technology***

## **AS Units**

### **Unit 1 Information: Nature, Role and Context**

#### **General Comments**

This module requires candidates to have a good understanding of basic concepts and a wide knowledge of the use of ICT but there was a large number of entries for this paper in January who did not seem to have the necessary knowledge and understanding of the subject areas to gain good marks and, as a result, a large number of poor scripts were seen.

There were centres where candidates did produce good quality answers although, even in these cases, there were some areas of the subject content where candidates did not seem to have a good enough knowledge of the subject to enable them to gain high marks. One such area was the Computer Misuse legislation.

The standard of the candidates' English and their poor vocabulary affected not only their ability to write coherent logical answers, but also their ability to read and understand the questions. The answers to some questions, for example Questions 2, 7 and 8, indicated that candidates had not read and understood the whole question and, as a result, they gave the same points in answer to different parts of the question. Similarly, some candidates answered with advantages when disadvantages were required.

#### ***Question 1***

This was a question that has appeared on several past question papers and some candidates had clearly learnt their definitions well. The data definitions were particularly well expressed, although many of the examples of data were given single values such as *a* telephone number or *a* date of birth. In some cases, no example was given at all.

In part (b) information was sometimes described as, "data that was labelled to give it meaning." These answers were unacceptable, as were examples that showed labelling. In an ICT question paper the answers must show an appreciation that data is processed in some way using ICT to provide information.

Candidates seemed to find part (c) difficult with some describing knowledge as the interpretation of information, rather than what allows people to interpret information and its use when making decisions. Many candidates defined it simply as a set of rules. Examples frequently had no relevance to ICT.

#### ***Question 2***

This question illustrated the problem of candidates learning answers to previous question papers and then trying to fit them to this examination session's questions. Several phrases from past mark schemes were seen in answers to part (a) and (b). The other feature of answers to part (a) and part (b) were that they were "business studies" answers concerned with marketing and sales, rather than ICT references.

Many of the wrong answers to this question arose from candidates not reading the question properly. In part (a) many candidates gave answers indicating the advantages of using the mailing list, rather than purchasing it.

In part (b) many candidates gained one mark for recognising that the data would now be out of date, but failed to explain the disadvantage that the company now has of using the list. Some candidates wrote about the problems of keeping the data up to date and the need to fulfil the requirements of the Data Protection Act.

In part (c) the range of answers was quite wide. Some candidates answered both parts well and gained two marks. Others gave the same two answers for both sections of (c) and some clearly did not know what an Act is, as in Data Protection Act. It is expected that candidates will use correct subject specific terminology. This part of the question was addressing the difference between the fact that data subjects must give permission for their data to be used in different ways, whilst the Information Commissioner has to be informed of a company's intentions.

### **Question 3**

Good candidates gained full marks on this question and most candidates gained some marks, either by giving examples, or by giving the benefits and no examples. Some candidates did not appreciate the question asked for *benefits to a company*. There was some use of trade names - which should be avoided as they cannot be given credit as stated on the front of all ICT papers. Candidates often wrote about the use of robots which, as has been mentioned in several previous Examination Reports, is not an acceptable answer as the GCE ICT specification is not concerned with control technology. This was another question where learning answers from a past mark schemes clearly disadvantaged candidates. There has been a past question about the use companies could make of the Internet and the benefits this use would give to the company. As a result, some candidates answered entirely with reference to the benefit of communications and failed to gain marks by not considering other benefits that the use of ICT can bring.

Candidates should be advised to avoid the “faster”, “easier” type of answer i.e. the use of a comparative. Their answers must, for example, state that, “ $\chi$  is faster than  $\gamma$ ,” or that, “ $\gamma$  is easier than  $\chi$ .”

### **Question 4**

There were responses to Question 4 that ranged from very good to very poor answers. Some candidates had ignored the context of the question.

Answers to part (a) of this question showed some interesting concerns by candidates about universities. Many candidates described how Internet use could help improve a student's grades and thus the reputation of the university or its position in league tables. Some also described that the use of the Internet meant that the university would be able to charge higher fees! These answers were added to the mark scheme during the standardisation process and, as long as the candidates went on to describe that the improved reputation would lead to more funding or more students being attracted to go there, the marks were awarded. Many candidates gave student benefits rather than benefits to the university. The typical answers expected were those that described benefits such as being able to contact all students by e-mail and thus cutting costs of duplication of letters, or saving staff time.

In answer to part (b) candidates gave a very wide range of responses, and most candidates gained at least one mark. Marks were lost by simply stating a fact rather than describing why this was an advantage to the student. The same was true with answers to parts (a) and (c) where again there was no description of why the statement made was an advantage or disadvantage.

Part (c) answers seemed to concentrate on the problems of students getting distracted and looking at unsavoury sites. Neither of these were acceptable answers.

### **Question 5**

This was the first time that the word “webcam” had been used in a question and so it was defined in the question for the candidates. Some candidates gave excellent answers as they described the use for videoconferencing or for the monitoring of activities. There were candidates who thought teleconferencing and video conferencing were the same thing. Other answers referred to putting still images or video clips on the Internet, rather than the idea of interactive or live video. Candidates need to be clear about the differences between “live”, pre-recorded video and static images.

### **Question 6**

Many candidates produced good answers to this question, reflecting the scenario. However, marks were lost where candidates failed to take notice of the context described in the question and, therefore, failed to give explanations of why they were needed. Some candidates gave inappropriate skills for the context, whilst others described technical skills.

### **Question 7**

The biggest problem that candidates experienced in answering this question was that they did not understand what is meant by malpractice. The difference between malpractice and crime is clearly included in the specification for this unit and candidates should be aware of the measures that organisations need to put in place to reduce the occurrence of malpractice caused by their own staff. This is an important issue for all organisations. Few candidates gained full marks on this question and some gained no marks. Many candidates wrote about preventing hackers accessing data, hardware or a network and this, of course, is a criminal activity.

A common misconception evidenced in answer to all parts of Question 7 was that monitoring or auditing actually “prevents” malpractice; these activities are merely deterrents.

In answer to part (a) many candidates gained two marks by describing one measure but few managed to gain all four marks.

Answers to part (b) concentrated on preventing any access to hardware or preventing people from getting in from outside and stealing hardware. Few candidates appreciated the problems that malpractice can cause for hardware. Some of the better answers referred to the need for training to encourage correct usage of equipment or to procedures to cover such things as fault reporting and the usage of laptops.

Responses to part (c) indicated that many candidates are unclear about the differences between firewalls, virus checkers, filters and monitoring software. Firewalls were accepted if the candidate then described that they would help to prevent outsiders entering the internal networks whilst employees were using external networks.

### **Question 8**

Parts (a) and (b) of this question have occurred on previous question papers and therefore some candidates understood how to answer the question correctly.

Many candidates gained one mark for part (a) and realised the fact that copyright and licensing agreements are made between the purchaser and the producer of the software. Some candidates made no reference to software and described issues of trademarks such as Nike.

Part (b) showed the misconception on the part of many candidates that a law “prevents” people from doing things (in this case copying software). The law does not prevent copying but it makes it illegal so that – as expected in answer to part (c) - companies commit a criminal offence if they break agreements and can be prosecuted for so doing.

In part (c) the examiner was looking for the recognition by the candidates that the use of unlicensed software is a criminal offence and that the company was liable for the actions of its employees.

### **Question 9**

A very straightforward question concerning the Computer Misuse Act **but** surprisingly few candidates gained full marks.

In answer to part (a) the lack of precision in some answers meant that candidates lost marks. The words “without authorisation” were given in the question and so candidates were expected to give more detail than, for example, “to gain unauthorised access to a computer,” for one of the sections of the Act. Candidates must understand the significance of the exact wording of the different sections of the Act. A lot of candidates thought that planting viruses and changing data or software were examples of different sections of the Act, rather than both examples of the unauthorised modification of data or software.

Many candidates gave correct answers to part (b) and thus recognised that the question did not ask why more people are not caught breaking the Act, but rather why prosecutions do not take place. Many candidates wrote about the difficulty of proving that a system had been hacked into and therefore that it would cost a lot of money to prosecute suspects.

## **Unit 2 Information: Management and Manipulation**

### **General Comments**

This was the seventh question paper for the current specification and it was pleasing to note that nearly all candidates attempted to answer every question on the paper and most responses were of a satisfactory standard. There were very few scripts with questions not attempted. Most candidates provided answers using full sentences and only used single word answers where the question stated that it was acceptable so to do.

However in this session, there was a rise, not the usual small decline, in the use of brand names instead of generic terms. It is clearly stated on the front of the paper that **“the use of brand names will not gain credit”**. This was a change from previous examinations when the statement was included at the end of individual questions. Perhaps candidates need to be reminded about the need to read the front of the paper before beginning the examination.

Unit ICT 2 requires candidates to identify appropriate hardware, software and storage media for use in given situations. Candidates should be able to use correct technical terminology and clearly relate their answers to the context of the question. However, some candidates still used inaccurate terminology in their responses and lost marks as a consequence. Candidates should be advised to read the whole of each question very carefully before answering it, as some of the responses to questions did not relate to the question as set.

**Question 1**

This question was generally well answered with the majority of candidates identifying two types of printer. A small minority of candidates lost marks by quoting “Laser-Jet” as a type of printer but this is a brand of printer rather than a specific type. Other candidates provided very general responses which could not be credited e.g. “colour printer” and “black and white printer” gained no marks.

**Question 2**

This question was generally well answered with many candidates obtaining three or four marks out of a total of four. Marks were lost on part (b) by the inaccurate use of terminology e.g. CD instead of CD-R/W or CD/R, or by quoting a non-writable medium such as CD-ROM.

**Question 3**

Only a minority of candidates succeeded in gaining full marks for this question. The vast majority of candidates overlooked the fact that this question clearly referred to data.

For part (a), encoding of data is the conversion of data into a machine-readable form that a computer can understand. Candidates who provided an example of a suitable format e.g. ASCII, bitmap, jpeg and other file formats were credited with one mark out of the two available.

In part (b), for encryption, few candidates correctly identified that the data needed to be scrambled and referred to the use of passwords. A common misconception was that once the data was encrypted no-one would be able to understand the data. Only the best candidates realised that authorised viewers would have a decryption key.

**Question 4**

In part (a), many candidates could describe a generic package but, quoting Microsoft specific examples e.g. “Word” rather than word-processing package, failed to gain marks.

For part (b), candidates needed to be clearer about the differences between a suite of programs (independent set) and an integrated package (only one program). Better candidates stated that an integrated package can be used in a variety of different ways e.g. as a word-processor and a spreadsheet. Again quoting Microsoft specific examples, e.g. “Word” and “Excel”, often lost marks.

**Question 5**

For part (a), there was a range of acceptable answers to this part of the question. The better answers included an explanation of the technical implications. For example, “The company’s existing hardware may need to be upgraded, for example the software could require more memory to run efficiently,” is a response that includes a brief explanation.

For part (b), most candidates identified the need for the employees to be trained, but there were few candidates who could clearly link this to the upgraded software. An appropriate answer would have been “...staff may be unfamiliar with new features or “old” sets of keystrokes may not now work.”

**Question 6**

For part (a), many candidates gained full marks, as this was a very straightforward part of the question.

For part (b), candidates needed to answer this part of the question in context and not just by identifying general advantages of using a WAN. Good responses included, “the full range of software

could be available at all of the college’s sites,” and, “the college can easily backup files to different locations.”

For part (c), again not all candidates answered this part of the question in context. A vague statement about WANs being prone to viruses would gain no credit, but identifying that viruses could spread more easily between the three sites as a problem that could occur when using this WAN would have been an acceptable answer.

### ***Question 7***

It was again clear from the poor answers to this question that some candidates were not well prepared to discuss the use of any interfaces other than a standard graphical user interface on a personal computer. Many candidates were unclear about what a *type* of Human/Computer Interface is and incorrectly identified pieces of hardware such as mice and touch screens. An example of a response that would have been acceptable is given below.

“A menu driven interface is used by an automated teller machine (ATM) in order to provide a clear set of choices at each stage of the transaction.”

### ***Question 8***

For part (a) there was a very good response to this part of the question with many candidates gaining full marks.

For part (b) candidates needed to use the flight control scenario given in the question to explain real-time processing. Many candidates wrongly tried to use the booking example and gained few marks. Better candidates identified the immediacy of the system response to external conditions and gave good examples such as changes in wind speed or air pressure.

### ***Question 9***

This question tested candidates’ knowledge of suitable output formats and ordering. Candidates generally scored high marks on all parts of this question.

For part (a), most candidates could identify another field and explain why it was needed. A common wrong answer was Customer Id, this was not allowed since it was specified in the question that customers could only have one account.

Part (b) was well answered.

For part (c), candidates who followed the advice given in the question and drew a diagram for Susan Smith’s entries usually gained good marks. The candidates who tried to describe the process without a diagram struggled to score more than one or two marks.

## Unit 3 The Use of Generic Application Software for Task Solution

### General Comments

The most popular choice of software was spreadsheet and database software, however it was pleasing to see a small number of centres submitting work in other packages e.g. web-based software.

#### *Specification*

The majority of projects related to a task based problem that was suitable for AS level, although some work centred on producing a system and so offered too much scope. Whilst requirements were often detailed, this was not always the case with the input, processing and output needs and candidates were often unable to identify these clearly. Designs were rarely truly complete and all too often lacked the precise formatting, validation and formulae, or macro designs expected from the task descriptions. Thorough design was often a deficiency with database tasks where some candidates provided only a data dictionary or offered implementation screen shots as design.

#### *Implementation*

The implementation work seen was generally to an appropriate standard for the module and operable solutions were produced with candidates placing more emphasis on the user environment than perhaps had been seen in the past. Some good quality work was seen with clear documentation that offered an accurate explanation of how the solution had been developed. Weaker candidates offered only partial solutions that tended to lack the essential functionality of the task described e.g. a solution which required an invoice but with no evidence in the report of a hard copy invoice being produced.

#### *Testing*

Testing was generally ineffective in the work seen in this series. Indeed some candidates had omitted a test plan altogether whilst others offered no data. A feature of weak test plans was to focus too much on validation or navigation tests without truly testing whether the described task or tasks could be completed using the solution produced. The testing itself was not always fully evidenced, some candidates offering no hard-copy evidence in support of their testing. In particular, corrective action was not always clearly indicated.

#### *Evaluation*

Evaluations were often incorrectly based on a candidate's own performance and time management, rather than a relevant range of criteria.

#### *User Documentation*

A good attempt was generally made at user documentation, although some was constrained by the limited scope of the solutions developed, and common problems likely to be experienced by the user were not fully anticipated.

## A2 Units

### Unit 4 Information Systems within Organisations

#### General Comments

The aim of this module is to focus on the use of Information Systems within Organisations. The majority of candidates were being externally assessed in their knowledge and understanding of this topic for the first time after 18 months of study. The overall level of responses to questions demonstrated a good understanding of the subject matter, bringing together knowledge gained at AS level and from the other modules.

The standard of communication was generally satisfactory, although many candidates' presentation, spelling and handwriting made it difficult for examiners to interpret their scripts.

There were many questions in which candidates demonstrated some shortcomings in examination technique or where the candidates appeared not to have used the specification for topic revision. In particular, poor technique in reading questions was especially noticeable in questions that had not previously been examined. Candidates appeared to have failed to read such questions fully and did not read past the part of the question that they recognised. Past papers and mark schemes are intended to provide a *guide* to the style and types of questions candidates may be asked; candidates should use these resources in this context and should not simply learn answers to past questions.

Candidates who had prepared well for the examination performed very well on Questions 2, 3, 8a and 9. Questions 1 and 4 covered topics which candidates found more difficult. Question 7, in which examiners asked for reasons for the success of a system, was poorly answered almost universally for no apparent reason other than candidates' lack of basic understanding of the subject matter. Question 5 generated generally poor responses and were a source of disappointment.

#### *Question 1*

Some well-prepared candidates immediately recognised this topic from the specification as asking for classifications of information (Source, Nature, Time, Level etc) and easily gained full marks. However, the majority of candidates thought that describing two sources (internal and external) or two levels (Strategic and Operational) was required. Positive marking meant that these candidates could score some of the available marks.

#### *Question 2*

Generally this question was well answered, with the majority of candidates scoring at least half of the available marks.

#### *Question 3*

Again, this question was generally a fairly well answered question, although some candidates offered personal characteristics as answers, rather than characteristics of teams. Some candidates appeared not to have read the question properly and described the well-balanced team in their answers, even though the question required candidates to describe characteristics *other than* well-balanced!

#### **Question 4**

Many candidates appeared to have little knowledge of the factors that might be considered when producing a corporate information system strategy, even though there is a list in the specification. Many candidates gave factors that related to the introduction of a new system *per se*, rather than a new *corporate information* system. Again, positive marking meant that these candidates could score some of the available marks for the valid strategy consideration that was offered in this context.

#### **Question 5**

The Code of Practice topic, more than most, was often answered without reference to ICT, but is present in the specification only in relation to ICT professionalism.

When marking part (a) it was decided to show some leniency towards candidates as they may have used the question paper from June 2003 for revision. In the Standardisation Meeting for Examiners for the 2004 examination it was therefore agreed that *for this paper only*, the Code of Conduct definition as published on the AQA web site since September 2003 be allowed, as well as two alternatives for the Code of Practice question actually asked. In future series of the examination, only the interpretations of Code of Practice and Code of Conduct as published on the AQA web site will be accepted. These are given below.

“Code of Conduct: how a professional person should conduct himself or herself within an industry in terms of their ethical responsibilities. A Code of Conduct is often established by a professional body for application across the whole of the industry to which that professional belongs.

“Code of Practice: a set of rules which governs the use of ICT systems (hardware, software, data, procedures). These rules, established by an organisation, must be followed by that organisation’s employees and may refer to the responsibilities of employees, set out penalties for misdemeanours, etc. The Code of Practice is separate from any legal or ethical considerations.”

Disappointingly, only a few candidates scored all three marks available for part (a).

Part (b) asked candidates the “why” interrogative for having a code of practice and many candidates managed to gain both marks by offering the simple justification: “so that students know what they should and should not do (on the college’s ICT systems) and what happens if they break the rules.”

The part (c) question is one that has appeared a number of times in previous series of the examination and so it was disappointing that only a minority of candidates answered it well enough to gain all 6 marks. Many candidates take what they know are the rules in their own situation (for example, no personal e-mails, no non-work Internet use) and offer variations on these themes, without showing understanding of each topic as it would appear in a code of practice.

#### **Question 6**

This question gave candidates an opportunity to demonstrate their knowledge and understanding of just one aspect of how ICT is used in various situations. There were excellent descriptions of EPOS, stock control systems, library management, warehousing systems and medical samples/blood donation administration systems. Other candidates offered production based systems or parcel/airport baggage tracking systems. These were all valid applications and many candidates gained high marks, with a significant number gaining all 8 marks.

Some candidates were unable to describe logically the full process, or forgot to mention the application/system name (e.g. “in a shop/supermarket” does not constitute an EPOS/Point-of-sale system). Similarly, “library” does not constitute a “library management system” or “borrowing system” and so on. Many of the advantages quoted were stated merely as being “quicker” or “easier”

without mentioning with what the system was being compared e.g. “quicker than if the data had to be keyed in manually.”

### **Question 7**

Past questions on this topic have asked about what factors cause *failure* of a new system; this question asked for the factors that help to ensure *success*. Too many candidates appeared to have revised using past questions in a limited way and could not present their answers in the way required by *this* question. Many candidates could only give factors for failure and thus gained no marks.

### **Question 8**

Part (a) was well answered and understood by the majority of the candidates who could offer three suitable support options, although a few offered newsletters or articles that were not relevant for a package such as that described. A very small minority of candidates confused support with training and offered three types of training; this was not given credit.

Part (b) proved to be a discriminating question. Candidates were asked to demonstrate their understanding that different users have different support and training needs for the same system. Some candidates fell down on the fact that a *different* method of providing instructions and help was required for each of the users listed and instead offered the same method for two types of user. Many candidates found it hard to justify their choice as to why their suggestion was appropriate and merely repeated their description of the type of support/instruction offered; this was not given credit.

### **Question 9**

Many candidates produced well-structured essays which answered the question and demonstrated good essay writing technique. The proportion of high marks was pleasing, with many candidates scoring 12 marks or more. However, the quality of handwriting, legibility, spelling, grammar and punctuation appears to be decreasing. There was only a handful of candidates who scored the full four marks for the quality of written communication.

Candidates tended to follow the order of the bullet points given in the question. This is perfectly acceptable. Generally, candidates scored very well on Data Protection legislation and Software and Copyright and Licensing legislation. A significant number of candidates also scored well on Computer Misuse legislation, although many others thought that it was about what users could and could not do on the systems, e.g. not using the Internet without permission. Health and Safety legislation issues were the most poorly answered as many candidates simply gave lists of items that they thought employees should have with little reference to the ICT context.

For each type of legislation, up to four marks were awarded for explaining:

- what the legislation covered (i.e. protecting personal data, producers of software, computer systems/networks, and health/safety of people classified as “computer users”);
- any implications of this legislation (e.g. extra security to stop hackers, employing a H&S officer);
- the impact on an organisation’s procedures (e.g. having a code of practice to set out the rules to follow, installing monitoring software, having a procedure for allowing someone to see their personal data etc).

More than one mark could be given in each category. For example some candidates could score four marks for giving four impacts on software licensing, so there were plenty of opportunities for gaining marks. Positive marking meant that credit was given to, for example, one correctly described level of Computer Misuse Act even if the other 2 were confused or incorrect.

## Unit 5 Information: Policy, Strategy and Systems

### General Comments

The standard of responses seen this year was generally of a similar standard to that of candidates from previous years. There was a relatively small entry for this paper, but scripts harboured similar issues to those of previous years.

The two main issues seem to be that candidates failed to note the context of questions and lacked general examination technique.

Candidates should be aware that all parts of the specification may be addressed throughout the paper, and that it is unlikely that one part of the specification will be addressed twice in the same question paper so they should be wary if they find themselves giving the similar answers to two different questions.

#### *Question 1*

This question was well answered by many candidates, with the majority able to gain two or three marks. It was pleasing to see responses that showed knowledge of more than just simplistic methods of offering help to users.

#### *Question 2*

Candidates were generally able to gain at least two marks on this question. Candidates who were not able to state why system resources were required in order to run the Graphical User Interface missed marks. Some of the weaker candidates did not understand the term “resource”, and talked about such things as icons and pointers.

#### *Question 3*

Part (a) was generally well answered with candidates normally able to name at least two items that would appear in a system log.

Part (b) was less well answered with most candidates concentrating on punishment arising from network misuse. Candidates should be aware of the more positive use of network logs, e.g. to manage efficient use of network resources.

#### *Question 4*

This question was generally not well answered. The focus of this question was on areas it is very difficult for developers to test and which therefore cause problems for end users. Even though the question stated that an extensive programme of testing had been followed, many candidates concentrated on the pitfalls of poor testing. Another popular answer was to state that the software did not meet end user requirements, an answer that should be discouraged for questions to do with testing as these issues are more suitably addressed in the design stages of producing software, or whilst establishing client needs when providing software solutions.

#### *Question 5*

Part (a) of this question elicited an interesting range of answers. Stronger candidates were able to talk about several reasons why the examination board would chose the PDF format. Weaker candidates

were not able to relate to the advantages of the format for the examination board, and only described the advantages in general terms.

Part (b) showed that many candidates understood the rôle of a printer driver, and better candidates gained both marks for this part of the question.

Part (c) highlighted that several candidates knew that “http” represents the protocol, however many were not able to relate to IP addresses and many answers were given relating to the use of Uniform Resource Locators. Candidates need to be aware that devices on the Internet have unique addresses that relate to them.

### ***Question 6***

Stronger candidates were able to give responses to part (a) which indicated a good understanding of the subject. Weaker candidates could not give reasons for why managers should be consulted before the standardisation takes place, and assumed that the consultation was to tell the managers that the standardisation was to happen.

In part (b), several candidates simply reworded the bullet points in the question and so gained no marks. Popular answers that did gain credit dealt with minimising the obsolescence of hardware and with allowing documents and staff to be moved between departments. Overall, most candidates gained some marks on this question.

### ***Question 7***

Part (a) asked candidates for a description of the process of normalisation and this allowed almost all candidates to gain some marks, with better candidates able to gain the maximum of four marks. It was noticeable that several candidates were unsure of the difference between second and third normal forms. Weaker candidates could name first, second and third normal forms, but showed a lack of understanding of these concepts, either getting the description of the process completely wrong or confusing the two.

Part (b) was straightforward for candidates and, in general, candidates were able to give strong responses. Misconceptions tended to arise from writing about the advantages of Relational Databases over Flat File Systems, rather than the functions that are made available by Relational Databases Management Systems.

### ***Question 8***

Almost all candidates gained marks from somewhere within this question. There were two main issues with responses to this question. Firstly, candidates found it difficult to give suitable situations for each part of the question. This was especially noticeable between parts (b) and (c) where the need for either internal or external development teams was not sufficiently different to gain marks. This followed through to the rest of the answers for parts (b) and (c) where only the stronger candidates were able to give different reasons for the two different approaches. Candidates need to be careful not to merely use contra-arguments between parts of questions in the hope of gaining marks for both responses. For example, if a candidate wrote, “Internal development teams will keep company information inside the company. External development teams may leak information to competitors,” he/she would gain marks only for one side of this answer.

### ***Question 9***

Stronger candidates were able to give good arguments for and against distributed databases, while weaker candidates relied on discussions more suited to general network concepts.

Generally, parts (c) and (d) were better attempted, with most candidates able to see the advantages and limitations of having a centrally controlled database.

By far the best responses were generated from part (e), indicating that candidates have a good idea of how to ensure the security of data, with most answers referring to how to protect either the network or the transmitted data from unauthorised access.

### **Question 10**

Candidates appeared to be well prepared for this type of question, and generally they attempted to address every bullet point given in the question.

The standard of responses to this question varied greatly. Most candidates could identify at least one method of obtaining information about client need and could relate this to the kind of information that would be gathered. Candidates could either list several evaluation criteria, or name and describe them, however only the stronger candidates could relate these to the given context. Weaker candidates tended to struggle and wrote about how to relate possible solutions to client need, with many examples which simply reworded the question. Nearly all candidates were able to discuss the production and content of the final report.

Candidates again seemed to think that acquiring a software solution equates to the choice between generic, off the shelf, and bespoke software, and using these terms as criteria for the selection of the most appropriate software. Candidates must realise that, regardless of which source of software is used, evaluation criteria must still be identified to decide which solution is the most appropriate, and that these criteria must be appropriate to the context of the solution.

## **Unit 6 The Use of Information Systems for Problem Solving**

### **General Comments**

There were few entries for this module in this session and all of the work was implemented in Microsoft Office using Access.

Standards were sound and generally relevant to the requirements of this module however, some familiar issues still need to be addressed. For instance, candidates should be reminded that, while a task based solution is expected for Unit ICT 3, the key issue for ICT 6 is, "...to produce an information *system* for a real (or realistic) end-user". In addition, genuine interaction between the candidate and the end-user is an *essential* requirement for this unit and has a critical effect on the assessment. Candidates should be specifically reminded that this is essential within the testing section if a high mark is to be considered by supervisors.

Work for ICT 6 is expected to reflect a real or realistic situation where data is expected to change over time. Some candidates' work was inappropriately focussed on "one-off" solutions that solved a single problem with no need for reusability, or trivialised solutions so they could not be operated over time, or implemented a large number of small tasks within a single organisation. None of these were really appropriate for ICT 6 alone, but did not interact to so provide a sound basis for this unit. In addition, some solutions were inappropriate for a database solution because the situations modelled did not reflect a truly relational data model.

A common cause for concern in terms of moderating candidates' work lies in the analysis section. Too often the work is over-marked because insufficient evidence is in the candidates' reports to support the mark ranges selected by the supervisors. For example, inclusion of a single data flow

diagram is relevant, but on its own is inadequate to identify fully the information flow and data dynamics of the problem.

## Mark Ranges 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	23.5	7.5
Unit 2 - Information: Management and Manipulation	60	60	25.7	7.4
Unit 3 - The Use of Generic Application Software for Task Solution	60	60	29.9	10.5

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

### Unit 1 - Information: Nature, Role and Context (15031 candidates)

Grade	Max. mark	A	B	C	D	E
Scaled Boundary Mark	60	35	30	25	21	17
Uniform Boundary Mark	90	72	63	54	45	36

### Unit 2 - Information: Management and Manipulation (7529 candidates)

Grade	Max. mark	A	B	C	D	E
Scaled Boundary Mark	60	35	31	27	23	20
Uniform Boundary Mark	90	72	63	54	45	36

### Unit 3 - The Use of Generic Application Software for Task Solution (1141 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 (1160 candidates)

	A	B	C	D	E
Cumulative %	7.5	23.4	45.6	72.0	91.9

Unit/Component	Maximum Mark (Raw)	Maximum Mark (Scaled)	Mean Mark (Scaled)	Standard Deviation (Scaled)
Unit 4- Information Systems within Organisations	90	90	33.6	11.0
Unit 5 - Information: Policy, Strategy and Systems	90	90	32.1	10.0
Unit 6 - The Use of Information Systems for Problem Solving	90	90	41.6	10.9

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

### Unit 4 – Information Systems within Organisations (5425 candidates)

Grade	Max. mark	A	B	C	D	E
Scaled Boundary Mark	90	47	42	37	32	27
Uniform Boundary Mark	90	72	63	54	45	36

### Unit 5 – Information: Policy, Strategy and Systems (1364 candidates)

Grade	Max. mark	A	B	C	D	E
Scaled Boundary Mark	90	45	40	36	32	28
Uniform Boundary Mark	90	72	63	54	45	36

## Unit 6- The Use of Information Systems for Problem Solving (119 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 (129 candidates)

	A	B	C	D	E
Cumulative %	7.0	24.8	48.8	71.3	92.2

### Definitions

**Boundary Mark:** the minimum (scaled) 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.