

GCE 2001
June Series



Report on the Examination

Information and Communications Technology



■ Advanced Subsidiary



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

© Assessment and Qualifications Alliance 2001

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.

The Assessment and Qualifications Alliance (AQA) is a company limited by guarantee, registered in England and Wales 364473 and a registered Charity 1073334.

Registered address Addleshaw Booth & Co., Sovereign House, PO Box 8, Sovereign Street, Leeds LS1 1HQ.

The AQA was formed by the merger of the Associated Examining Board (AEB)/Southern Examining Group (SEG) and the Northern Examinations and Assessment Board (NEAB).

Kathleen Tattersall, Director General

CONTENTS

	<i>Page No.</i>
Unit ICT1 Information: Nature, Role and Context.....	5
Unit ICT2 Information: Management and Manipulation	9
Unit ICT3 General Software for Task Solution.....	11
 Mark Ranges and Award of Grades.....	 14

Information and Communication Technology

Unit ICT1 Information: Nature, Role and Context

General Comments

This paper was the second to the new specification and was designed to enable candidates to show the knowledge and understanding of ICT that they had gained whilst studying this module. The standard expected was as stated in the specification of “a candidate half-way through a full Advanced level course of study”.

Some candidates appeared to have been well prepared and had gained sufficient understanding to be able to answer the questions set to a satisfactory standard. Other candidates struggled to understand what was being asked of them and/or seemed to have learnt their answers from previous A level papers.

Far too many answers were of the “general knowledge” type. ICT is a subject in its own right and as such has a set of terminology and concepts associated with it that should underpin all of the work in all of the modules. It is clear from the answers that students are giving that in many cases they do not understand these concepts and terms. It is hoped that centres will address this area in the future, for, without the basics, the students will struggle to cope with the A2 modules. Some centres had taught their students the basics very well and this was evidenced in the standard of the scripts that these students presented.

The specification content for this module has not changed very much from the old A level IT01 specification. There was, however, clear evidence that centres are not adequately covering some topics. Specific areas are detailed below in the individual analysis of questions.

There are concerns about the examples that candidates were using in their answers to several of the questions. In some cases all of the candidates from a centre used the same examples and they were not appropriate. Often this was the case where an understanding of basic ICT terminology was being tested and it is worrying to see so many candidates who clearly do not understand the fundamental concepts of the subject.

Candidates continue to exhibit poor examination technique. This includes failing to read the question carefully and simply spotting odd words and writing about those. Other faults included wasting time copying out the question in full before answering it, not labelling the answers clearly, not including examples where they were asked for, and not making the answers relevant to the context of the question.

Some candidates exhibited a poor understanding and ability to use English. This did not help these candidates to answer the questions and inevitably affected the marks that they achieved. Many candidates do not help themselves by presenting their answers in an untidy and disorganised manner with many crossings out, insertions of minutely written text and one word or short phrase answers that are not appropriate at this level. There were a lot of scripts where the examiners struggled to make sense of the handwriting and centres need to remember that although coursework should be word processed, examinations still have to be handwritten and that the skill of clear writing is something to be encouraged. In the same way spelling, particularly of subject specific terminology, cannot be left to a spell checker in an examination!

Question 1

This question seemed to have taken a lot of students by surprise. It is a simple straightforward question, if the centres have covered it. This is clearly defined within the specification and there are definitions available in many books and dictionaries. Answers were often vague and did not address the fundamental ideas. The mark scheme shows that a lenient approach to marking was taken on this occasion.

Question 2

This question was very similar to one used in January and clearly illustrated the need for precision in the use of terminology. Candidates used words such as “irrelevant” and “rubbish” in describing data, or went for the blanket approach and described data that was incomplete, irrelevant and out of date. Some candidates talked about “information being input”, displaying a clear lack of understanding of terminology. Other candidates discussed the poor collection of survey data by incorrect sampling etc – this was obviously not appropriate. For the good candidates this was an easy question on which to gain marks. It was in fact a simple straightforward question concerning the fact that if incorrect data is input then the information output will also be incorrect. The biggest problem was that candidates were able to state that input errors caused incorrect data to be entered but they did not seem able to relate this to the fact that the system would just take the incorrect input and process it to give incorrect output.

The use of examples to illustrate the concept was poor. Candidates seemed unable to do much more than paraphrase the wording of the question. A good answer clearly worked through the idea that incorrect data being input would be processed regardless to produce incorrect information being output. The better answers then described a clear example such as the incorrect entering of a bar code meaning that the wrong price and bill would result. Others used word processing examples where the data (e.g. customer name or address) was entered incorrectly and therefore the output (e.g. invoice or letter) produced was incorrect. Candidates from centres that had studied the January paper and mark scheme should have had no difficulty with this question.

Question 3

Part (a) of this question was generally well answered with candidates recognising the fact that the data was out of date because people’s tastes change over time. Part (b) was not answered quite as well as candidates did not seem able to relate the problems of using out of date data to the business, or managed to say it would cause loss of revenue but not explain why.

Some candidates discussed the Data Protection Act. This was not appropriate here as there was no mention of personal data having been collected or stored.

Question 4

This question produced some good answers, particularly to part (a). Candidates did appreciate that the book company may have sold on Mrs Jones’ details but many failed to realise that she had given them to the company when she purchased the book and some even talked about rival companies gaining the details unlawfully. This highlights a problem that occurs in many areas, that is that students tend to have learnt the worse case scenarios and then try to read these in to all of the questions. They need to appreciate that disruption to the normal everyday working of ICT systems and the problems that people can have, are frequently due to very simple occurrences.

A good answer mentioned that when purchasing the book Mrs Jones had freely given her name, address email etc and as a result the company had her details which they had subsequently sold to other companies.

Part (b) highlighted an area that is obviously not well understood by candidates – that of security on the Internet, and certainly very few answers mentioned anything to do with SSL or SHTTP although some did talk about encryption but then failed to show any understanding of what encrypting data meant.

Question 5

Many centres used examples taken from the area of retailing and supermarkets in particular, so this was a question where many candidates gained marks. It was pleasing to see less of the “it is quicker” type of answer, although these did still exist. Part (a) was generally well answered and part (b) slightly less so as the candidates often failed to explain the answer that they had given sufficiently.

A good answer to part (b) included stating that the customer could be certain that the items they required would always be in stock because as soon as the stock level dropped below a minimum the items would be reordered – thus meaning that the store would never run out of an item.

Question 6

This question as a whole was addressing an area with which some candidates are familiar. It must not be forgotten though, that although many students use the Internet they do not necessarily understand it. Also, as mentioned before in reports, centres must not assume knowledge and must ensure that this area is covered adequately for all candidates. Students seemed to know more about search engines than they did about browsers, but the majority did not realise that they were both pieces of software!

In marking part (b) examiners were generous in their interpretation of the mark scheme. This part of the question was trying to elicit the idea that ISPs could provide other services. Unfortunately the ever-increasing number and diversity of ISPs meant that the range of acceptable answers was vast and changing by the minute! The candidate did need to state that the services were ones that the ISP itself provided, not “access to”.

Part (c) showed a tendency for candidates to answer using their general, rather than subject specific knowledge. There were far too many answers that just stated a mobile phone or a television. They needed to state more than this. Laptops were not accepted as they are considered to be simply a portable PC. Candidates should be more specific in their answers. This area of telecommunications technology is one where centres must ensure that they are up to date and are very clear in the descriptions that they use.

For part (d), candidates gave a wide range of answers to this question that showed that some knew precisely what happened to messages, others really had no idea thinking that it was all something to do with analogue and digital or that messages were stored in cables.

In general candidates think that they know more than they do about this area. They often do know how to use facilities and hardware but don’t understand what they are doing. This is an area where candidates would benefit from more specific guidance.

Question 7

In part (a), few candidates showed that they understood the area of software licensing well. They do not seem to realise just what it is that you buy when you “purchase a piece of software”. This again

shows a lack of knowledge of basic principles. The result was that many candidates also failed to gain credit for part (b) – rather worrying from a legal point of view. In answer to this part some candidates covered themselves by answering both no if... and yes if ...

Part (c) again showed up the problem of assuming knowledge on the part of the candidate. Most will use software installed on network systems but quite a large number did not demonstrate that they understood the implications of this.

Part (d) was a straightforward question where students who were well prepared gained high marks. The actual numbering of levels was not necessary to gain the marks. There was, however, evidence of misunderstanding of what the Computer Misuse Act is concerned with and some candidates continued to write about software licensing.

Question 8

This question elicited many answers that simply paraphrased the question, were answers to past questions or talked about advertising. The candidates were expected to be able to explain why a skill was necessary and give an example in context. The context was very broad so the range of acceptable answers was broad. Candidates should know that, for example, good written skills are important so that someone else can understand your instructions, that they are written clearly and simply for novice users. Some candidates addressed the phrase “be able to get on well with a wide variety of people” by using general ethical and social issues as examples, rather than IT specific ones. Some candidates gained very good marks on this question. Ones that struggled were often candidates who had a poor command of the English language.

Question 9

This question was a good example of where candidates had relied on learning answers from past papers and mark schemes. The question concerned workstations and not the working environment. Although there is evidence of fewer students giving generalised answers some are still doing so and the knowledge exhibited was often very superficial and showed little actual understanding of the issues. Given that the candidates are going to be working with ICT for most of their lives, these are clearly important issues for them on a personal level

Question 10

This was a short and easy question for those people who had studied the Data Protection Act. Unfortunately it was not answered well as many candidates had obviously assumed that they would be asked about the principles of the Act and so tried to get these into their answers. A surprisingly small number of candidates realised the legal importance of the Act.

Question 11

This was the question that was most badly answered on the whole paper. It is surprising that given that most candidates will be using systems where levels of access will be set for their use, that they do not understand the idea or know the terms involved. Some candidates managed to get the terms but did not apply them to the context of the question and some gave contextual answers without understanding or using the correct terminology - again a case of assuming knowledge in the students.

A good answer here described, for example, that a salesperson would need to have both read and write access so that they could see details about stock and to change data as they made a sale.

Question 12

This was one of the highest scoring questions on the paper. There was some evidence of confusion between videoconferencing and teleworking. Virtually all candidates gained at least two marks on part (a) but many failed to gain marks on part (b) because they either confused teleworking and videoconferencing, referred to inappropriate alternative non ICT methods or simply stated easier, faster, cheaper etc.

Unit ICT2 Information: Management and Manipulation**General Comments**

Most candidates provided appropriate responses to all the questions set; there were very few scripts with questions not attempted. However, as in January 2001, many candidates were able to quote facts from the subject area relevant to the questions but frequently more care was needed to select the facts appropriate to the question posed

Some areas of the specification attracted very good responses from the majority of candidates. Security of data, Backup system, Network environments and Validation seem to be well-understood sections. Nature and types of software, Human/Computer interface and Organisation of data for effective retrieval were sections where the responses overall were poorer with many candidates providing responses that showed a lack of understanding of the theoretical concepts and the practical application of these concepts.

It was pleasing to note that more candidates carefully read the question and took full account of any scenario set when framing their responses.

Question 1

The majority of candidates were able to identify one or two different types of data. A common mistake made by candidates was not realising that text and numbers are both alphanumeric.

Question 2

As in January, the majority of candidates did not appear to understand the advantages of using a relational database rather than a flat file system. Many candidates used appropriate words but then could not go on to phrase a clear response that showed an understanding of the concept. For example 'redundant data' was identified as a problem but only a minority of better candidates identified that there a reduction in the amount of redundant data stored when using a database because relationships could be made between tables by the use of foreign keys.

Question 3

- (a) The use of a printer driver was not clearly explained with only the best candidates identifying the roles of communication and translation between program and printer.
- (b) It was pleasing to see that most candidates realised that sound files were large in size.
- (c) Most candidates also identified possible uses of the sound files that were related to the printer e.g. installation instructions, error messages, etc., only weaker candidates gave poor out of context responses e.g. playing of music.

Question 4

- (a) The characteristics of a GUI were easily identified and described by good candidates. It was disappointing to find that weaker candidates could not even name Windows, Icons, Menus and Pointing devices.
- (b) Many candidates used loose terms like ‘user friendly’ ‘easy to learn’ rather than looking at the specific advantages that WYSIWYG brings to the task of word-processing. Better candidates described how the user could view and manipulate page layout on the screen without printing out a series of draft documents, very few identified the range of text effects that would be displayed on the screen e.g. Font types, styles etc.

Question 5

- (a) Most candidates identified three distinct methods of data security. However a few candidates described one method e.g. backup in great depth and could only be awarded the one mark.
- (b) If candidates knew what an LCD projector was then they provided excellent responses for this part of the question. A few candidates looked at the content rather than the design of the presentation and could not gain credit for their response.

Question 6

- (a) Operating systems were either clearly understood by candidates with three tasks clearly identified or very poorly understood with a null or very poor response given.
- (b) Few candidates identified that generic package software was an applications package that provided functions appropriate to many areas of day-to-day business operations. Many candidates appeared to be describing the advantages of an integrated package (question from January 2001). However most candidates could identify at least one appropriate type of package but some candidates still lost marks because the software was only identified by a brand name despite the clear warning given in the question.
- (c) The better candidates clearly understood that an application generator automatically generated code to produce a customised application. Common incorrect responses included the description of a compiler or a report generator or the recording of a macro.

Question 7

- (a) Most candidates could identify three appropriate fields; a common response not allowed was age (date of birth was acceptable).
- (b) Many candidates could describe suitable validation checks but a few did not read the question and repeated the same checks for different fields. Many candidates could not provide a name for their validation check or did not correctly match the name to the check; a common mistake was confusing a length check with a range check. A worrying number of candidates just provided an input mask for the field and thought that would be an acceptable response.

Question 8

- (a) Most candidates could identify benefits from networking the computers.

- (b) Very few candidates could identify real advantages of a server-based network and did not mention central control of security, backup, software installation etc. in their response. Some candidates drew diagrams of different network topologies; these responses gained no credit.
- (c) Many candidates could name the items of hardware required but only the better candidates provided a non-trivial reason why the item was required. To join the computers together was a common response for many items. As this was a single network the inclusion of bridges, gateways and routers was not allowed.

Question 9

- (a) (i) Candidates found it difficult to identify a problem that occurred when scanning and interpreting text as the answer to the question needed to focus on this area only, not general scanning problems. Many candidates just wrote about difficulties in interpreting handwriting without further expansion. Better responses identified that the handwriting needed to be clear to allow conversion to stored text to take; some candidates demonstrated this by use of good examples.
- (a) (ii) Advantages were more often identified correctly.
- (b) Other types of material were identified correctly by nearly all candidates.

Unit ICT3: General Software for Task Solution

General Comments

The vast majority of projects submitted for moderation were of an appropriate nature, offering candidates sufficient scope to develop effective solutions, utilising appropriate advanced facilities available within the chosen package. Most of the higher scoring projects had been attempted using spreadsheets and relational database packages, although some very high scoring projects were seen that had been implemented using other types of application package. It was particularly encouraging to see that good project work had been produced by some centres using multi-media authoring tools to produce very effective solutions that really made use of the features available to create visually and aurally exciting presentations. It can be difficult for candidates to document such work on paper and the use of short video sequences to show evidence of testing features such as animations, video editing, sound bites etc. is essential. However, centres should be reminded that careful editing of videos should be undertaken before submission to ensure that the moderator is not faced with viewing repetitive and unnecessary evidence. Although some excellent examples of interactive multi-media work were seen by moderators, many more examples were seen where the candidates produced a simple slide display with little or no consideration given to multiple pathways through the system. It is expected that candidates will provide story-boards to show that they have considered user requirements and that allow multiple pathways through the system. It is also expected that candidates will use a range of facilities such as animations, video, audio that have been produced by themselves and not merely import clip art, video clips from the Internet etc.

There were many candidates whose choice of project severely limited the scope to gain high marks. In particular, centres should advise candidates against producing a word processing project that consists of a menu driven system to create a range of standard documents such as business cards, reminder letters or fliers. Most of these systems do not allow candidates to demonstrate the use of

advanced features and, although the systems produce results to meet user requirements and are well documented, they do not allow candidates to gain high marks. It is essential that word processing projects utilise features that go beyond simple mail merge, using templates and buttons with macros if candidates are to be able to gain higher grades.

Although some candidates did produce very effective projects to create web sites, the vast majority of such projects were too simplistic.

Standards of marking varied considerably between centres, with some centres being extremely generous and others being far too harsh. The vast majority of work seen was marked extremely generously. It is essential that centres only award marks for evidence that has been submitted on paper or video. Moderators are not allowed to look at floppy discs or CD-ROMs provided by candidates. In a number of cases, centres awarded marks on the basis of observation of testing. AQA is unable to support such marking, as candidates are expected to provide paper based (or video in the case of multimedia work) evidence.

Specification

Many centres (used to the legacy syllabus) submitted work containing large quantities of systems analysis that did not gain any marks. Candidates are expected to state the systems specification and do not need to go into full analysis of end-user requirements. It is important that candidates provide designs of their solution and do not submit print-outs from the application package as part of their design. In many cases, designs were superficial and did not provide sufficient detail to allow a competent third party to implement them. Test plans tended to be superficial and little evidence was provided to show that all aspects of testing had been considered. In many cases, candidates only provided a few simple tests to show navigation through their solution worked, but failed to provide any evidence that testing considered the accuracy of results produced. Few candidates provided test data to see how the system coped with extreme and erroneous data.

Implementation

Generally this was the best documented section of candidates' work. Depending upon the chosen problem, work was either extremely detailed or very superficial. Work produced using spreadsheets and database packages was generally much better than work produced using word processing, web creation or presentation packages.

Testing

Much of the testing tended to be superficial. Where candidates identified test data in their specification, testing tended to be much stronger than where it was an after-thought. It is essential that testing is supported by documentary evidence. This can be in paper-based format or as a VHS video, but not on floppy disc or CD-ROM.

Evaluation

Much evaluation tended to be trivial, with large numbers of candidates performing self-evaluation rather than evaluating their system.

User Documentation

Although most candidates provided a guide to their system, few candidates considered common problems or whether the solution was appropriate to their end-user needs. It is essential that candidates provide evidence to show their user how to solve problems they are likely to meet, such as saving a file on a floppy disc that does not have sufficient space.

Mark Ranges and Award of Grades

Unit/Component	Maximum Mark (Raw)	Maximum Mark (Scaled)	Mean Mark (Scaled)	Standard Deviation (Scaled)
ICT1	74	74	35.4	10.5
ICT2	70	70	28.9	9.8
ICT3	60	60	25.9	11.7

ICT1. Information: Nature Role and Context (24553 candidates)

Grade	Max. mark	A	B	C	D	E
Scaled Boundary Mark	74	50	43	37	31	25
Uniform Boundary Mark	90	72	63	54	45	36

ICT2. Information: Management and Manipulation (27184 candidates)

Grade	Max. mark	A	B	C	D	E
Scaled Boundary Mark	70	42	37	32	28	24
Uniform Boundary Mark	90	72	63	54	45	36

ICT3. General Software for Task Solution (26713 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 specification as a whole (20587 candidates)

	A	B	C	D	E
Cumulative %	5.2	16.7	36.1	59.0	78.7

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 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.