

GCE 2001

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Report on the Examination

Information and Communications Technology

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- Unit ICT1 Information: Nature, Role and Context
 - Unit ICT2 Information: Management and Manipulation

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Publications Department, Stag Hill House, Guildford, Surrey, GU2 7XJ
Tel: 01483 302302

or

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

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Kathleen Tattersall, Director General

CONTENTS

	<i>Page No.</i>
Unit ICT1 Information: Nature, Role and Context.....	5
Unit ICT2 Information: Management and Manipulation	8
Mark Ranges and Award of Grades.....	11

Information and Communication Technology

Unit ICT1 Information: Nature, Role and Context

General Comments

This first paper to the new specifications 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 seemed to have learnt their answers from previous A level papers.

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

There was also concern 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. It should be noted that the specification concerns Information Technology and not Control Technology and examples should be concerned with systems where the output is passed to a human being or to another ICT system. Some allowance has been made on this occasion but it is expected that centres will learn from these comments.

Many candidates exhibited poor examination technique. This included failing to read the question carefully and simply spotting odd words and writing about those. Answers to Question 9 showed this problem particularly clearly. 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 did not seem to appreciate that question 10 was not an essay question and wrote answers in continuous prose that must have affected the time that they had available for checking their answers through, as well as making their answers much less clear to question 10.

Some candidates exhibited a poor understanding and ability to use English. This did not help these candidates to understand or 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 answers. There were a lot of scripts where the examiners struggled to make sense of the handwriting.

Question One

This should have been a good introductory question for all candidates studying the subject of ICT. Unfortunately the standard of answers varied from the extremely good to the very poor with candidates gaining anything from 0 to full marks. It is a matter of concern that candidates do not seem to have learnt basic definitions or were not able to put their knowledge into a real life context. Candidates talked about input of “data and information” and output of data. Definitions of processing included the term processing itself. These are basic subject specific terms that must be taught thoroughly and which the students should understand from their own usage of ICT. If they have not

grasped these basic concepts then they will surely struggle with more complex ideas. Examples were often trivial and included ones that had nothing whatsoever to do with ICT.

Question Two

Again, a simple straightforward question concerning the fact that if input is incorrect then the 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.

Far too many candidates seemed to have ignored the fact that the question asked for an explanation **using an example** and some candidates who did use examples described situations that bore no resemblance to the idea of incorrect bills. Some of the best answers described where till operators in a supermarket had to type in a bar code number when the scanner didn't work and accidentally entered the wrong code in error, this then resulted in the wrong item and price being added to the bill so that when the total was calculated it was incorrect.

Credit was given for answers that described the effect of incorrect formulae in a spreadsheet or poorly tested software.

Question Three

A very similar question to ones that have appeared on old syllabus papers. It should have been straightforward. Studying past papers and mark schemes should enable staff teaching the subject to have a good knowledge of the skills necessary to be successful working with ICT in industry. Candidates gave many general skills that any good employee would be expected to have, for example smart appearance and punctuality. Even when candidates included skills that were appropriate they failed to explain why they were appropriate in the context of working on an IT support desk.

Centres should not ignore the importance of this topic. It is important that candidates have the knowledge and understanding of what makes someone successful in the field of ICT. If they have the knowledge and understanding then they can use it to assess their own suitability for work in this area and the advisability of continuing with the subject at a higher level or as part of a job.

Question Four

A question where many candidates gained three marks for listing three factors affecting the value of information, but failed to gain the other three marks because they could not give examples that showed clearly how each factor affected the information's value. Some candidates did give good answers and scored well but others used inappropriate examples or only explained partly how the factor affected the value of the information. A good candidate stated, "How up to date the information is will affect its value. For example a company launching a new product based on the preferences of people which have been obtained from a survey conducted 10 years ago, may well find that the product is not successful. This is because the information that they based their decision on was out of date and people's preferences change over time. The survey information has a low value after 10 years."

Question Five

Part a) of this question allowed candidates to gain two marks by stating that this was a legal requirement of the Data Protection Act. This meant that even those candidates who could not remember the name of the Act or didn't realise that this meant it was a legal requirement should have gained at least one mark. Unfortunately some candidates wrote half a page and never really made a point.

In part b) the majority of candidates gave good answers and gained both marks. Those that did not often simply paraphrased the question.

Question Six

The standard of answers to this question were very poor. In some cases none of the candidates from a centre gained any marks on the question. It is a subject that does not seem to be adequately covered in institutions. Candidates cannot simply be left to discover the functions of email on their own. In some cases this can be positively divisive when candidates perhaps do not have access to email facilities at home. It is also important that candidates are shown the most efficient uses of a piece of software, and in the case of email this can often have considerable benefits for the school or college in terms of the usage of network resources!

Question Seven

Most candidates answered this question based on their own experiences at school rather than on any particular understanding or knowledge of the general problems of Internet usage. Often answers were about visiting pornographic sites or chat rooms and the accidental downloading of viruses. Many candidates gained three or four marks for giving two problems and suggesting measures that could be taken to prevent the problem. Few gained full marks because they failed to explain how the measure would actually work or they only included one problem or measure. Terminology was badly used with few candidates actually understanding some of the preventative measures they were trying to describe.

Question Eight

For candidates who were well prepared this was a chance to gain full marks and some candidates did score full marks on part a) of the question. In part b) candidates were not clear on what exemptions meant - the Act does not cover certain items such as email, they are not an exemption. Some exemptions were quoted from the 1984 Act and these were not accepted. Often candidates gained the first mark but failed to include sufficient description to gain the second, simply listing research and home use is not enough for four marks.

Question Nine

This question was generally very badly answered. There were whole centres where candidates scored 0 on this question. Candidates seemed to think that simply because the words “health problems” appeared in the question that they could just repeat an answer from a previous paper concerning hardware.

There is a very real issue concerning software features and health problems and guidelines exist for the good design of software to prevent such problems occurring. The specification includes “Recognise that health and safety guidelines cover the design and introduction of new software”.

Good answers described features such as the use of bright colours causing eye strain, the use of complex menu systems and lack of short cuts causing stress, excessive or annoying use of sound leading to headaches or even the use of flashing images in some games software leading to epileptic attacks.

There were many possible answers to the question that would have been acceptable but vague sweeping statements were not given credit. Simply stating that software that crashed frequently caused stress did not gain marks. Candidates need to be aware of what is meant by a feature of a piece of software. Any work done by students on this is relevant not just to the issues involved in this module but modules 2 and 3 as well.

Question Ten

As mentioned previously, some candidates continued as if the last question on the paper was an essay question despite the fact that the specification states the type of questions that will be on the paper.

Candidates often scored at least half marks on this question. They could give a use of ICT in a particular area but many candidates failed to describe the benefit to the area. There was also a worrying lack of knowledge displayed of ICT itself and correct terminology. It is important that candidates understand the terms that they are using. A simple example is that of the term database, which is not a piece of software.

Candidates lost marks where their answers were vague, included no benefits or were repetitions of examples already given. The question stated explicitly that examples should be different for each area.

Again there was the tendency of candidates to make sweeping generalisations that they failed to describe sufficiently.

Candidates were not well prepared for this type of question and appeared to be answering more from their general knowledge than any detailed understanding of the uses of ICT in the areas mentioned.

ICT2 Information: Management and Manipulation

General Comments

This was the first time that the ICT2 Unit had been examined at AS level. Most candidates provided responses to all the questions set. 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.

The better candidates adhered to the following principles when answering ICT2 examination questions.

- (a) It is important in an Information and Communication Technology paper that candidates in their answers use the appropriate technical language.
- (b) All examples were related to Information and Communication Technology.
- (c) Better candidates carefully read the question and took full account of any scenario set when framing their responses. Unfortunately, failure to take account of the context required by the question, in this examination, prevented many candidates from gaining full marks for their answers.
- (d) Better candidates took the time to read the whole question before framing their answers to individual parts. Where candidates failed to do this, answers to subsequent parts were given in the first part answered which meant that marks were missed.
- (e) Most candidates took into account the number of marks allocated for a question or part of it as this gave a clear indication to the level of detail required in the answer.

- (f) Candidates, who numbered their answers clearly and showed where their answers to one question finished and the subsequent one started by ruling a line, provided a clear script for the examiners to read.
- (g) Those candidates who left space to complete their response to a question rather than writing their answer to one question in several discontinuous parts found their answers much easier to check and their responses appeared to be less repetitious.

Question One

The majority of candidates were able to obtain one mark here for stating an editing facility. Few, however, were able to provide more than one editing facility and many examples of formatting instead of editing were provided.

Question Two

The differences between Local Area Networks (LANs) and Wide Area Networks (WANs) were clearly understood by most candidates.

Question Three

This question was generally poorly answered with candidates not understanding that the medium for the transfer of files was required e.g. CD-ROM, CD-R/W. Either the format of the sound files was stated e. g. 'wav' or a method of transfer e. g. e-mail.

Question Four

Only the better candidates described the characteristics of a macro. Many candidates could only provide examples of system-provided macros rather than user-defined macros. Few examples of macros were related to a spreadsheet package.

Question Five

Few candidates could clearly identify benefits to be gained by the company in converting from a flat file system to a relational database system. Many answers contained appropriate words e. g. data independence, consistency. Only a small number of candidates fully explained the advantages and related them to benefits that could be expected by the company.

Question Six

Few candidates read this question carefully enough, and did not realise that the advantages required referred to the 'Common User Interface' shared by the packages and gave answers about ease of transfer of data between the packages or about being able to use different computers within the office. Those candidates who realised the question was about the user interface were able to identify several specific features.

Question Seven

From the responses received concerning checking the identification and/or address of customers using driving licences etc., it appeared that some candidates had no idea that validation can be programmed into a computer application. However, many candidates could name and describe suitable validation checks but a few did not read the question and repeated the same checks for different fields.

Question Eight

Most candidates could provide some information about batch processing but a clear understanding of why it was used and the advantages and disadvantages of the system eluded all except the best candidates. These candidates explained that the batch processing could be done when the computer system was quiet and required less supervision by staff. But there could be problems because information could be out of date for up to a week as the master files were only updated weekly at certain times of the year and if the batch-processing run failed at night errors could not be corrected immediately.

Transaction processing was a term not recognised by many candidates. Those who provided an answer could identify that each set of data was dealt with as it was submitted but few candidates realised that each transaction was completed before the next transaction was begun.

Question Nine

- (a) Most candidates identified the prevention of data loss but fewer candidates identified the need to preserve the integrity of the data.
- (b) Appropriate factors were identified by nearly all candidates but very few provided examples that related to the Internet sales company mentioned in the question.

Question Ten

This question was frequently poorly answered for the following reasons.

- (a) Candidates needed to relate their answer to the features provided by automatic data entry and recording of sales rather than using general terms e. g. quicker, easier, less queuing....
- (a) Candidates frequently gave disadvantages related to the installation rather than the use of the bar code system.

Question Eleven

Although candidates appeared to be able to identify some ways to prevent employees from causing loss or damage to their company's data, few candidates could correctly relate them to hardware measures, software features or company procedures.

Mark Ranges and Award of Grades

Unit ICT1 Information: Nature, Role and Context

	A	B	C	D	E	U
UMS	72	63	54	45	36	0
Boundary Mark	44	38	32	25	18	0

Component	Maximum Mark (Raw)	Maximum Mark (Scaled)	Mean Mark (Scaled)	Standard Deviation (Scaled)
Written paper	69	69	30.0	9.7

Unit ICT2 Information: Management and Manipulation

	A	B	C	D	E	U
UMS	72	63	54	45	36	0
Boundary Mark	43	37	31	24	18	0

Component	Maximum Mark (Raw)	Maximum Mark (Scaled)	Mean Mark (Scaled)	Standard Deviation (Scaled)
Written paper	73	73	27.5	10.9

Definitions

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

Mean Mark: the sum of all candidates' marks divided by the number of candidates. The mean (or average) mark measures a central tendency of a mark distribution (provided that the distribution is not skewed).

Standard Deviation: a measure of how widely candidates' marks are spread about the mean mark. When expressed as a percentage of the Maximum mark (scaled), small standard deviations indicate that the marks are "bunched" and large standard deviations indicate a wide spread of marks. In general, the marks of approximately two-thirds of all candidates lie in a range of plus or minus one standard deviation about the mean mark.