GCE 2004
June Series

ASSESSMENT and QUALIFICATIONS ALLIANCE

Mark Scheme

Information and Communication Technology 1
(Subject code 5521)

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this Mark Scheme are available from:

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GENERAL GUIDANCE NOTES FOR EXAMINERS

Overall guidelines

1. All examples accepted should be clearly related to the subject area and should not be "generalised" examples.
2. Attention should be paid to ensure that marks are not awarded for simple restating of the question or the stem, often involving the exact same terms.
3. The answers should be providing evidence of more than "man in the streets" knowledge of ICT.
4. It should be remembered that scripts could be seen after they are marked and so consistency of approach and correct mechanics of marking are essential.
5. Rules on positioning of ticks and marks are to aid in checking and remarking of scripts.
6. Do not expect the candidate to use the exact wording given in the mark scheme. If you are in doubt as to the correctness of an answer given by the candidate, consult your Team Leader.
7. From the examinations for 2003 onwards, where one-word answers are acceptable will be indicated on the question paper. (For 2002 the acceptance or otherwise will be determined at standardisation.)
8. The meaning of ICT-specific words and phrases are as defined by *A Glossary of Computing Terms* (current edition) by the British Computer Society.

Specific marking guidelines

9. The basic rule is one mark one tick. The tick to be positioned at the point where the mark is gained in the answer and definitely not in the margin.
10. The only figures in the margin should be sub-totals for parts of questions and a final ringed total for a whole question.
11. Where questions are divided into parts a, b and so on, and a mark is indicated for each on the paper, a mark should be positioned at the end of the appropriate response in the margin.
12. There should in effect be a mark in the margin at every point there is one on the question paper and a number of ringed totals, which relates directly to the number of questions on the paper.
13. Where a question has only one part, the total for that question should be written once and then again and circled. This allows for easy checking that totalling and transcription of marks is correct.
14. All zero values should be crossed through.
15. All blank spaces should be crossed through with a vertical line through the text space – not in the margin.
16. All writing must be marked as read, either by the presence of ticks or by striking through the script with a vertical line.
17. All blank pages must be crossed through.
18. Where candidates have added extra to their answers later in the script, the total mark should be indicated as including x from Page y. The total mark should be in the position where the answer starts.

19. The use of the following symbols/marks is acceptable:

a. BOD – where the benefit of the doubt is given for the point the candidate is making. This is generally where poor writing or English is an issue. Its widespread use should be avoided.

b. Underlining of subject specific terminology, which is misused or incorrect e.g. encoding rather than encryption, information rather than data.

c. Underlining can also be used to highlight clearly incorrect statements or the use of a generalised phrase such as quicker, user friendly and so on.

d. An omission mark ^ should be used where the candidate has given insufficient information to gain a mark. This is particularly useful when a teacher or student looks at scripts against a mark scheme.

e. It may be appropriate to indicate where the same point has been covered more than once by an arrow or where a point has been covered in several lines of prose by the use of brackets.

f. The use of letters associated with ticks **may** be used to indicate different areas being marked in a question, particularly to indicate the different bullet points in an essay. THIS WILL BE OUTLINED AT STANDARDISATION.

20. **NO** other symbols or comments should be used.

21. Markers are responsible for checking

a. The transposition of marks to the front sheet

b. That all work has been marked on each script

c. That all marks for individual questions are totalled correctly

d. That the script total is transferred to the box at the top right of the script.

e. That they **clearly** initial the script, under the total at the top right, so it is possible for the Principal Examiner to identify each markers work.

Unit 1 Information : Nature, Role and Context

1

Name the following:
(a) legislation used to protect companies and individuals producing software;
(b) an Act introduced to protect the privacy of individuals;
(c) an Act designed to allow companies to prosecute anyone accessing their Information Systems without authorisation;
(d) legislation to protect employees working with ICT systems.

a) Copyright, Designs and Patents Act (1)
Copyright or licensing (BOD) *(1 mark)*
b) Data Protection Act(1) *(1 mark)*
c) Computer Misuse Act (1) *(1 mark)*
d) Health and Safety at work Act(1) or EU Directives (1) *(1 mark)*
NOT Codes of Practice or Conduct

2

Every ICT task involves the input of data, which is then processed and information is output.
Using an example of an ICT task with which you are familiar :
(a) state what the task is;
(b) give one example of data that is input, stating how it is input;
(c) describe one process needed to fulfil the task;
(d) give one example of information output, stating how it is output.

a) One mark for stating a task (look for **Action**)
For example:
The task is to produce invoices for ABC landscapes. *(1 mark)*
b) One mark for data (D), one mark for how input (H)
For example:
The number of hours worked (1) is entered using a keyboard(1). *(2 marks)*
c) One mark for simple description, 2 marks for more complex
For example:
The hours worked have to be multiplied by the rate per hour charged to get the labour total. (This is a 2 mark answer)
Calculate total pay (This is a one mark answer) *(2 marks)*
d) One mark for information output (I), one mark for how output (H)
For example:
The invoice(1) is printed out(1)
The invoice(1) is produced as hardcopy for the customer(1). *(2 marks)*

3 *Explain, using examples, the difference between malpractice and crime as applied to Information Systems.*

Marks are NOT DEPENDENT
Any two of the following for Malpractice
Principle that:

- malpractice is bad practice (1)
- concerned with actions within the company or organisation(1)
- caused by own staff not following procedures (1)
- example (1).

Any two of the following for Crime

- Crime is concerned with illegal activities (1)
- frequently caused by people from outside the organisation (1)
- Crime is actions that are "without permission" or "unauthorised" (1)
- Example (1).

DO NOT ACCEPT NON ICT ANSWERS SUCH AS MEDICAL

Maximum 2 marks for Malpractice
Maximum 2 marks for Crime *(4 marks)*

4 *A report has been produced by an information system for the sales manager of a company. He then complains that he does not know when it was produced, or how up-to-date the contents of the report are.*

(a) Explain why it is important to have the date that it was produced shown on a report.

(b) Explain, using an example for each one:
(i) why up to date information will be important to the sales manager;
(ii) why the age of the data used to produce any graphs included in the report will be important.

(a) Any two from:

- So you know how old it is / how up to date / when produced (1)
- Information or data changes over time (1)
- May not know if the information is out of date (1)
- Wrong decisions can be made if no date/accurate decisions can be made if date present (1)
- Other suitable expansion (1) *(2 marks)*

(b) (i) One mark for example, one mark for explaining why up to date information is important to the sales manager *(2 marks)*

(b) (ii) If the data itself is old then the graphs will/could be misleading (1) example(1) *(2 marks)*

5 *When an organisation holds personal data, it should have procedures in place to allow the data subjects to view any data that it holds about them.*
(a) State why it is necessary to have procedures.
(b) State two ways in which the data subject may request to view a copy of their data.

(a) Any one from:
- Data protection Legislation (1)
- Otherwise anyone could look at data/verify person's identity (1)
- Allows data subjects to check accuracy of data held (1)

(1 mark)

(b) In person with ID (1)
By letter/in writing/facsimile (1)

(2 marks)

6 *Describe four ways in which an organisation can make use of the Internet to communicate with suppliers and customers around the world.*

4 x2 marks
One mark for way, one mark for expansion or example.

Must be four different ways:
NB These are examples only.

- Use of videoconferencing (1) allows meetings without cost or time of travel (1)
- Use of email (1) cheaper way of keeping in touch with customers than using snail mail shots (1)
- Use of email (1) to send customers alerts about new products (1)
- Use of on-line store (1) to allow orders from customers worldwide (1)
- Use of own website (1) to post special offers to customers (1)

(8 marks)

7 *An important part of the development of an ICT solution is the production of documentation for its users. Describe two personal skills that are needed by an ICT professional when producing user documentation.*

2x2 marks
One mark for skill one mark for expansion in context

- Good written skills (1) so documentation is clear to user(1)
- Good oral skills (1) to tease out the end user requirements for the documentation (1)
- Good listening skills (1) so documentation produced is suitable for user/ meets users needs/ so professional understands what users are like (1)
- Problem solving/Logical mind (1) so documentation follows the logic of the solution/users needs/is in sensible order (1)
- Attention to detail(1) plus expansion (1)
- Thoroughness(1) plus expansion (1)
- Professionalism (1) plus expansion (1)

(4 marks)

8 *In order to prevent health problems, software can be designed to be "user friendly". For example, one function that a software developer can provide within a piece of software is the displaying of clear error messages. These can help to prevent stress in the user by making it obvious how to correct the error. For three other functions that could be provided within a piece of software, state the function and explain how it can help to prevent a health problem.*

3x2 marks
One mark for function
One mark for how prevents health problem
DEPENDENT MARKS
Example answers

- Validation to prevent errors on entry (1) reduces stress from entering incorrect data (1)
- Short cut keys (1) use reduces stress for experienced users by avoiding use of drop down menus (1)
- Help provided (1) prevents stress from not knowing what to do (1)
- Pre coding/use of drop down lists etc (1) reduces data entry and therefore RSI (1)
- Messages to take a break appear at intervals (1) encourage users to break from software use (1)
- Autosave facilities (1) prevent stress by reducing likelihood of lost work (1)

NB
Question is about functions, not just characteristics and so the function must **DO** something
Also it is **how** for second mark, **not** the health risk.

(6 marks)

9

The usefulness of ICT systems may be limited by several factors.
For each of the factors given below explain, using a different example for each one, how the factor may affect the usefulness of an ICT system:

(a) hardware limitations; 2 marks
(b) software limitations; 2 marks
(c) communications limitations; 2 marks
(d) inappropriate data control mechanisms or procedures 2 marks

One mark for example, One mark for how it affects the usefulness of the ICT system

NB the following are Examples only:

(a) Slow printer/small printer buffer (1) reduces throughput (1)
Low processing speed/needs faster processor (1) makes searching/sorting of data slow (1)
Screen small (1) plus how (1)
Poor resolution (1) plus how (1)
Unreliable hardware (1) plus how (1)
Poorly designed hardware (1) plus how (1) *(2 marks)*

(b) Software not compatible with other software (1) means data cannot be transferred across business (1)
Software poorly designed (1) plus how (1) *(2 marks)*

(c) Network has insufficient capacity (1) means transfer of files slow (1)
Low speed modem (1) means slow download of files (1) *(2 marks)*

(d) No backup procedures in place (1) data may be lost in event of system failure (1)
No access control (1) Data Protection Act may be breached (1) *(2 marks)*

10 *For each of the following areas, state one advantage and one disadvantage of the use of ICT. Your advantages and disadvantages must be dif ferent for each area.*

(a)	*Education*	*2 marks*
(b)	*Leisure in the home*	*2 marks*
(c)	*Industry*	*2 marks*
(d)	*Medicine*	*2 marks*
(e)	*Teleworking*	*2 marks*

(a)	Advantage one mark	Disadvantage one mark	*(2 marks)*
(b)	Advantage one mark	Disadvantage one mark	*(2 marks)*
(c)	Advantage one mark	Disadvantage one mark	*(2 marks)*
(d)	Advantage one mark	Disadvantage one mark	*(2 marks)*
(e)	Advantage one mark	Disadvantage one mark	*(2 marks)*

For all of a) to e)

Advantages

Increased availability of information
Reduction in staff
Increased speed of processing / greater productivity
Increased accuracy of calculations
24 hour availability / greater flexibility in hours
Vast amounts of data stored in a small space
Performs repetitive tasks
Better presentation possible
Improved / up to date company image
Efficient search and retrieval
Improved communication
Improved security
Better working conditions
Improved decision making
Ability to employ from a worldwide labour pool

Disadvantages

Inappropriate information may be more easily accessed
Lack of social interaction
Over-reliance on ICT can lead to problems
All modelling is not 100% accurate
Difficult to separate work and home life