



ASSESSMENT and
QUALIFICATIONS
ALLIANCE

Mark scheme

June 2003

GCE

Information and Communication Technology

Unit ICT4

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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.

Specific marking guidelines

7. 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.
8. The only figures in the margin should be sub-totals for parts of questions and a final ringed total for a whole question.
9. 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.
10. 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.
11. 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.
12. All zero values should be crossed through.
13. All blank spaces should be crossed through with a vertical line through the text space – not in the margin.
14. All writing must be marked as read, either by the presence of ticks or by striking through the script with a vertical line.
15. All blank pages must be crossed through.
16. 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.
17. 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 the use of brackets or 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.**

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

19. 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 4: Information Systems within Organisations

1 13.5 Management of change

The introduction of an information system is likely to result in changes to an organisation.

*State **three** factors that will need to be managed to ensure a smooth period of change.*

3 marks

Any 3 x 1

- Re-skilling (allow training of staff)
- Attitude
- Organisational structure
- Employment pattern and conditions
- Internal procedures

3 marks

2 13.2 IS and Organisations

(a) Describe what is meant by a management information system (MIS).

2 marks

(b) Explain why an organisation would implement an MIS.

3 marks

(a)

- a system to **convert data from internal and external sources** into information (1)
- communicated in an **appropriate form**/for use by **managers at different levels** (1)

2 marks

(b)

- so that **managers at different levels** of an organisation (1)
- can **use the information** produced (1)
- to enable them to make effective **decisions** (1)

3 marks

3 13.3 Information flow

With the aid of an example, state what is meant by informal information.

2 marks

- Information that **naturally arises/not structured/ad-hoc** (1)
- Such as a *phone call, personal conversation, during a meeting or by observation, e-mail, bulletin board, special interest group* (1)

NOT - texting, memo

2 marks

4 **13.2 Development and life cycle of an information system**
13.8 Project Management

(a) *In a system development life cycle, describe the need for:*

- | | | |
|-------|-----------------------------|----------------|
| (i) | <i>clear timescales;</i> | <i>2 marks</i> |
| (ii) | <i>agreed deliverables;</i> | <i>2 marks</i> |
| (iii) | <i>approval to proceed.</i> | <i>2 marks</i> |

(b) *Explain why projects are often sub-divided into tasks and allocated to teams.*

- (a)
- (i) any 2 from –
- so that the project can be monitored (1)
 - using stage **end dates/deadlines** that are achievable (1)
 - that both parties have agreed to (1)
 - so that the project is completed **on time** (1)
- (ii) any 2 from -
- so that the users' requirements are met (1)
 - with documents/system (1)
 - with agreed **content** (1)
 - produced to agreed **standards** (1)
- (iii) any 2 from –
- to ensure the user is satisfied with work to date (1)
 - by getting sign off for a stage from the user/management (1)
 - giving the go-ahead for the project to continue (1)
- 6 marks
- (b) an answer encompassing any 3 of the ideas below
- broken into more manageable sub-projects (1)
 - within smaller managed (1) teams
 - with a balance of skills / allocating ICT task to correct ICT team (1)
 - that would make the project easier to control (1)
 - and testing more manageable (1)
 - can run non-dependant sub-projects simultaneously (1)
 - doing this would bring down the elapsed timescale (1)
- 3 marks

5 **13.9 Information and the professional**

- (a) Explain what is meant by a code of practice. 3 marks
- (b) Give **one** element that could be included in a code of practice, and describe the benefit that a company would gain from it. 3 marks

- (a) a set of guidelines (1) about the standards and quality (1) of work intended to ensure that a high level of professionalism is maintained when working in the ICT industry (1) 3 marks

- (b) 1 for element (**E**), up to 2 for the benefit (**B** and **Be**)– any 1 x (3,2,1,0) – allow use of example to illustrate element, and award the two description marks if the described benefit given matches the element they have offered.

ELEMENTS – must be written as conceptual, e.g. “Responsibilities towards...”, to enable benefit to be described – if merely written as “Must not...” then can gain only 1 mark, no company benefit given.

- responsibilities for use of company hardware
 - responsibilities for use of company software
 - responsibilities for use of data
 - responsibilities for correct use of time
 - responsibilities for use of the internet or intranet
 - authorisation paths/levels, access rights/job related
 - security, password/ids/physical aspects
 - company’s implementation of legislation e.g. DPA
- 3 marks

6 **13.1 Organisational structure**
13.3 Information flow & Personnel
13.4 Information & Data

Companies rely on their information systems to provide good quality information.

- (a) Identify **three** different categories of users of information systems, and state the level at which they operate. 6 marks
- (b) Describe **four** characteristics of good information. 8 marks

- (a)
 Take any job title that fits one of the 3 levels.
 1 mark for category of user (C), 1 for level(L)

- Higher Management – Strategic
- Middle Management – Tactical
- Workers – Operational 6 marks

- (b)
 1 for characteristic (C), 1 for description (D) Any 4 x (2,1,0)

*** Make sure it is a description rather than an advantage ***
*** Can accept description by example, but be very careful that it does describe the characteristic ***
*** If characteristic wrong, then do not credit the description ***

- Relevant (1), plus description (1)
- Accurate (1), plus description (1)
- Complete (1), plus description (1)
- Reliable/have User's confidence (1), plus description (1)
- Right person/level (1), plus description (1)
- Right time (1), plus description (1)
- Right detail/Concise (1), plus description (1)
- Correct channel of communication (1), plus description (1)
- Understandable (1), plus description (1)
- Up-to-date (1), plus description (1)
- In right format (1), plus description (1)

NOT - Brief

8 marks

7 **13.6 Legislation**

Organisations that operate ICT systems have to comply with the relevant legislation. Most have procedures to ensure that this happens.

- (a) Describe **three** methods of enforcing and controlling data protection legislation within an organisation. 6 marks
- (b) Describe **three** methods of enforcing and controlling software misuse legislation within an organisation. 6 marks
- (c) Describe **three** methods of enforcing and controlling health and safety legislation within an organisation. 6 marks

1 for method (M), then 1 for description(D). Any 3 x 3 x (2,1,0)

(a) Data Protection -

- Have a departmental data protection officer
- Detailed job descriptions
- Procedures to follow up anomalies
- Security– password/physical/logins/firewalls/encryption
- Strict code of practice re personal databases/software etc
- Education of staff
- Network activity logging
- Use of access levels
- Disciplinary Procedures

6 marks

(b) Software misuse –

- Not allowed to install unauthorised/unlicensed software
- Not allowed to copy software for home/unlicensed use
- Have a Corporate hardware/software policy
- Virus scanning (M) of any externally used disk (D)
- Detailed job descriptions (if not used in (a))
- Separation of duties (M) where no-one does the complete job (D)
- Regular audits (M) of software on all computers/network (D)

This point is 2 or 0 – do not give a mark for ‘audit’ or ‘audit trail’ unless it also mentions ‘software’ or ‘licence’

- Central control of licensing (either a person or by software monitoring)
- Monitoring of internet usage/downloading
- Disciplinary Procedures (if not already given)

6 marks

(c) Health & safety –

- Have a Health and Safety officer
- Regular inspections of work stations against Health and Safety criteria (electrical equipment, VDU emissions etc)
- Regular inspections of work stations against ergonomic criteria (seat positioning, wrist supports, sight levels etc)
- Staff training re H&S legislation when working with computers and especially VDUs.
- Inappropriately designed software/thorough testing of software
- Procedures for ensuring faulty equipment replaced in a timely manner.
- Written procedures/memos/posters advising good Health and Safety practice
- Disciplinary Procedures (if not already given)

6 marks

NOT free eye tests (not an ICT response)

8 **13.4 Data collection**
13.7 Training

A large medical centre, with three doctors and community health clinics, is introducing an ICT based display system. The new system will give patients general information about the different surgery and clinic times, and who is on duty. There will be display screens in the foyer and in each waiting area. The system will be controlled by a PC which is to be connected to the medical centre network.

The centre's main reception team will be responsible for operating this new system. The receptionist rôle does not currently entail any computer work.

(a) Describe **two** different ways of collecting the data on which the information to be displayed will be based. 4 marks

(b) The receptionists will require training in the use of this new system so that they can provide useful information to the patients.

Describe **three** ways in which the training could be provided. 6 marks

(c) The system may also be used to display urgent messages.

Give an example of **one** such use, and describe **one** safeguard which should be present to prevent the misuse of this feature. 3 marks

(a) 1 for collection method (**M**), 1 for description (**D**). Any 2 x (2,1,0)

- Low tech: paper based pro-forma (1) given to main reception by a set time each day (1) to form a batch of messages for the display (1)
- High tech: template on the network is completed (1) by a set time each day (1) or sent by e-mail to message e-mail address (1)
- Medium tech: Pro-forma (1) on a disk (1) given to reception by a set time (1)

4 marks

(b) 1 for name (**N**), 1 for description (**D**). Any 3 x (2,1,0)

- On-line tutorials/internet
- Step through guide/user training manual (**NOT** text-book)
- Training course (internal or external)
- CBT/video
- One-to-one training

6 marks

(c) 1 for example (**E**), 2 for description (**D**) of safeguard

- e.g. Sudden delay/increase in waiting times
- or urgent contact from one of the clinics for a particular patient, especially if a patient is deaf
- in case of fire (one button input)

safeguard –

- nominated person/user from each area (1) to send message for display (1)
- procedures (1) that all staff know to use (1)
- automated logoff (1) to prevent other user using receptionist PC (1)

NOT password

3 marks

9 13.9 Information and the professional

The expansion of e-business using the Internet in the past few years has led to more businesses including this medium for their operations. In the absence of a regulatory body to police the Internet, the ICT and computing industry must regulate itself.

*Using **specific examples**, discuss this statement. Include in your discussion:*

- *why regulation might be required;*
- *the issues in devising regulation across a world-wide medium;*
- *the potential problems in enforcing regulation.*

Continuous prose is expected for this answer. Candidates can gain a second mark for a point made for discussion or expansion.

*Identify points from each area – Why regulation (R); Issues in devising... (I); Potential problems (P). 5 marks max under each area to a maximum of 12, as there are up to 5 marks **specifically** for examples (E)*

20 marks

Why regulation is required (R)

- Hacking
- Un-licensed software use
- Privacy of data
- Security/accessibility
- Accuracy of data
- Property & copyright
- Protection of the user
- Increase in size/accessibility, or ease of use of Internet software

Issues in Devising regulations (I)

- Different countries have different laws and standards
- Different countries have different cultures/acceptable content depends on local custom
- Technical issues
- Difficulty in agreeing a code of practice/one size fits all strategy
- Difficulty in introducing world wide/ implementation issues
- No-one “owns” the Internet, so who has authority?

Potential problems with regulation (P)

- Scale of the Internet – so many sites to cover
- Site based in country A where content is legal can be accessed in country B where it is not
- Not all countries can afford to implement regulations
- Professional hackers will always be willing to flout any regulations
- Hard to prevent fraud or false businesses being set up
- Finding/funding an incorruptible “policing” authority
- Identifying and prosecuting the culprits/law breakers
- Hard to enforce regulations/time consuming/requires regular checking

Good example (E) that makes a valid point gets a mark, but make sure not repetitive.

16 marks
max for
content

Quality of written communication

- 4 marks** The candidate has expressed complex ideas clearly and fluently. Sentences and paragraphs follow on from one another smoothly and logically. Arguments will be consistently relevant and well structured. There will be few, if any, errors of grammar, punctuation and spelling.
- 3 marks** The candidate has expressed moderately complex ideas clearly and reasonably fluently through well-linked sentences and paragraphs. Arguments will be generally relevant and well structured. There may be occasional errors of grammar, punctuation and spelling.
- 2 marks** The candidate has expressed straightforward ideas clearly, if not always fluently. Sentences and paragraphs may not always be well-connected. Arguments may sometimes stray from the point or be weakly presented. There may be some errors of grammar, punctuation and spelling, but not such as to suggest a weakness in these areas.
- 1 mark** The candidate has expressed simple ideas clearly, but may be imprecise and awkward in dealing with complex or subtle concepts. Arguments may be of doubtful relevance or obscurely presented. Errors in grammar, punctuation and spelling may be noticeable and intrusive, suggesting weaknesses in these areas

With these type of criteria, a best fit approach is taken.

4 marks