



ASSESSMENT and  
QUALIFICATIONS  
ALLIANCE

# Mark scheme January 2002

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## GCE

# Information and Communication Technology

## Unit ICT1

**Information: Nature, Role and Context**

1. Explain, using examples, the following terms as they are applied within ICT:

<i>Data;</i>	<i>2 marks</i>
<i>Information;</i>	<i>2 marks</i>
<i>Knowledge.</i>	<i>2 marks</i>

a) **Data** are raw facts (or material) or figures or a set of values, facts, figures, measurements, records of transactions (1) example (1). 2 marks

Must be plural for definition & example.

Not the medium (questionnaire) must be results of.

b) **Information** is data which has been **processed** or converted to give it meaning or is data in context or data that has been organised (for example by sorting or ordering) (1) example (1). 2 marks

**Do not accept simple labelling**

Must be the result of processing not the event.

Not just “given a meaning”.

c) **Knowledge** is a set of rules and/or concepts/ which allow people to interpret/understand information/ take actions/make decisions (1) example (1). Any 2 marks

An example for knowledge might include the sales manager using sales data for last year to predict next year’s sales. His knowledge of sales trends allows him to interpret the sales information.

DO NOT allow “traffic lights” examples.

**NB: For a, b and c**

**CAN GET THE MARK FOR THE EXAMPLE, WITHOUT GETTING THE DEFINITION MARK.  
EXAMPLES DO NOT HAVE TO BE RELATED TO ONE ANOTHER.**

2. Professionals involved with ICT systems often have to work with people who have little, or no, understanding of the ICT systems that they are using.

State **two** personal qualities that IT professionals should have that will enable them to help such people effectively, and give an example of when each quality would be needed.

4 marks

ANY 2 × 2 MARKS

Allocated 1 mark for stating quality  
1 mark for example explaining in context.

Examples: Good Communication skills (1) communicate clearly/effectively with users (1)

IF HAVE THIS THEN CAN'T HAVE THE NEXT TWO POINTS AS WELL

**Be able to communicate well orally** (1) – to enable efficient and effective communication with users/or colleagues/ being able to use suitable language, free from jargon (1)

**Have good written skills** (1) – to be able to provide end users with clear instructions/user guides (1)

**Have patience/be understanding/perseverance/be calm** (1) – to prevent end users from becoming flustered/stressed (1)

**Be able to analyse users' problems/be objective** (1) – user may not describe problems clearly (1)

Confident manner (1) people believe what you say (1)

Approachable (1) people feel they can ask you questions (1)

There are other acceptable answers but equally there are ones that are not acceptable, such as:

Team working	NOT Flexible hours
Management skills	Social skills
Technical skills	Teaching or Training
Initiative	

This question is asking for “in context” answers i.e. skills that help them to help people **effectively**.

**Can get mark for the example without the quality.**

3. *When ordering goods by telephone many companies ask the purchaser for his or her postcode. They then use this to confirm the address of the purchaser by looking up the postcode in a database of codes.*

*Explain **two** reasons why companies prefer to buy a database of postcodes rather than to collect the data from the purchasers.*

*4 marks*

2 × 2 marks: 1 mark business benefit; 1 mark reason

Examples:

- Saves on cost/time/staff as staff do not have to spend time collecting all of the address (1) increases productivity (and so can answer more calls in a given time) (1)
- Increased customer satisfaction/increased sales (1) Improves image as faster for customer (1)
- Accuracy (1) avoids errors due to clerk mishearing/miss-typing addresses (1)
- Completeness (1) buying complete list means that they have all postcodes available for ... (1)
- Saves on cost of bulk mailing (1) Post Office provides discount if mailing ordered by postcodes (1)

N.B. Note the inclusion of saving on time and staff both in one possible answer  
Not prevent fraud

4. Explain, using examples, **four** different ways in which the Internet is being used to support illegal activities. 8 marks

Any 4 × 1 mark stating examples

Any 4 × 1 mark explanations/descriptions of how

**ONLY 4 Examples**

Examples of **illegal** activities: Mark as 4 × 1

- Terrorism/illegal groups
- Football hooliganism
- Hacking / logic bombs and viruses (if don't mention blackmail) i.e. all Computer Misuse Act crimes
- Stalking
- Blackmail
- Paedophilia
- Theft/Fraud – this covers “false sites”
- Copyright infringement
- Money Laundering
- Selling illegal items inc. pornography

Explanations of how the Internet can support these activities: Mark as 4 \* 1

- Recruitment of members web sites set up/ wider audience reached (1)
- Easier to keep in contact any time any place (1)
- Wider groups can be formed international boundaries removed (1)
- Easier to be anonymous/harder to find Internet addresses/names not based on physical location (1)
- Can give false personal details (1)
- Purchase goods on line, easier to commit credit card fraud with stolen card numbers (1)
- More data moving across communication links makes hacking easier
- Easier to launder money/ harder to track fraud as vast sums can be moved quickly electronically (1)
- Downloading of music/pictures/software (1)

N.B. Can't **store** on the Internet. Can store on ISP

5. *Information Systems need to be protected from both internal and external threats.*

(a) *Explain, using examples, the differences between an internal and an external threat to an Information System.* *4 marks*

(b) *For each of the following, describe a measure that a company can take to protect his or her Information System from:*

(i) *Internal threats;* *2 marks*

(ii) *External threats.* *2 marks*

a) 2 × 2 marks

**Internal** threats are from within the company or organisation / caused by own staff(1) example (1).  
Can accept theft of components as an example.

**External** threats come from outside the company or organisation/ caused by people from outside the organisation (1) example (1).

Accept Natural Disasters – Power failure.

NB Examples may only be used once e.g. hacking is either internal or external but not both.

b)

(i) Internal: 1 mark for measure and 1 mark for explanation of how measure prevents threat

Examples

- Procedures for using disks/virus checking/ (1) prevents employees introducing virus onto network (1)
- Auto save/ confirmation of delete/ other software functions (1) designed to prevent loss/corruption of data from careless mistakes (1)
- Passwords & Ids/Access levels(1) to prevent unauthorised modification.(1)
- Guidelines on working practice (1) to prevent health and safety issues with employees/ loss of staff from illness etc
- Good pay/benefits (1) prevent loss of experienced/vital staff (1)
- Code of conduct (1) to prevent.....(1)
- Training of staff (1) to prevent misuse/accidental mistakes (1)
- Security cameras/CCTV etc must explain how it prevents (2 or 0)

(ii) External: 1 mark for measure and 1 mark for explanation of how measure prevents threat.

Examples

- Audit trails/Backups – MUST explain how they protect (so either 2 or 0)
- Firewalls (1) prevent access to/corruption of data from external sources (1)
- Encryption (1) used to prevent misuse of data if intercepted during transfer (1)
- Physical measures – locks/guards/ CCTV (1) prevent unauthorised access by non employees (1)
- UPS (1)-prevent loss of data when power lost (1).

6. What do the following features, available with most e-mail software, allow the user to do?

- |     |                     |                |
|-----|---------------------|----------------|
| (a) | <i>Forward</i>      | <i>2 marks</i> |
| (b) | <i>Reply</i>        | <i>2 marks</i> |
| (c) | <i>Send/receive</i> | <i>2 marks</i> |
| (d) | <i>Attach</i>       | <i>2 marks</i> |
| (e) | <i>Prioritise</i>   | <i>2 marks</i> |

a) Forward – able to send message to another recipient (1) only have to type in new name/address (1)

b) Reply – can type response to original message (1) and return to original sender(1)

c) Send/Receive – used to collect incoming mail (1) and dispatch outgoing mail (1)

d) Attach – used to send other files (1) by adding on to mail message (1)

e) Prioritise – marks message with symbol (1) to denote importance to recipient (may be implied) (1)

Not allows user to determine order to send messages in

7. *Data protection legislation was introduced into the UK in 1984; it has since been superseded by the 1998 Act.*

- (a) *State why the legislation was originally introduced.* *1 mark*
- (b) *State what type of data is the subject of the Data Protection Act 1998.* *2 marks*
- (c) *A company wishes to collect data from order forms submitted by its customers to sell to other companies.*  
*State two actions that the company must take so that they can legally collect and sell that data.* *2 marks*
- (d) *The Data Protection Act gives individuals the right to see what data is held about them.*
- (i) *State how an individual must ask to do this.* *1 mark*
- (ii) *Could an individual have to pay to receive a copy of his or her data?* *1 mark*

a) To protect (r similar) individuals/personal data (1)

b) Data relating to living (1), identifiable (1) human beings  
One mark for personal data

c) Register the fact that they are going to be selling the data on (1)  
Get the data subjects permission to pass their data on (1)

NB Future tense – they must do this before they start collecting data, not during data collection.

- d) i. Written request (1)  
ii. Yes (1)



8. A clerk working at the offices of a mail order company spends all day entering order data into the company's sales order processing system. The clerk uses a workstation linked to the company's main computer.

To ensure the health and safety of the clerk, state, with reasons:

- |     |  |         |
|-----|--|---------|
| (a) | <b>two</b> work practice procedures that the company could introduce;    | 4 marks |
| (b) | <b>two</b> design features that the hardware the clerk uses should have; | 4 marks |
| (c) | <b>two</b> design features that the software the clerk uses should have. | 4 marks |

1 mark for stating procedure/feature

1 mark for explaining how it protects the health and safety of the clerk

**NB Second mark is dependant on the first in all sections of the question**

- a) Taking regular breaks (1) – prevents eyestrain from constant staring at screen/ gives muscles chance to relax preventing stress/tension (1)

Changing working patterns (1) allows change in muscles used and prevents RSI/aches/stress/fatigue(1)

Regular checking of equipment (1) to ensure is not faulty/causing risks (1)

Providing Training for staff (1) prevent stress etc (1)

- b) Ergonomic keyboard (1) preventing RSI/arthritis/wrist pains (1)

Anti glare coating on screen (1) prevent eyestrain(1)

High quality/appropriately sized screen to reduce flicker/anti-glare filters/screens (1) preventing eyestrain (1)

Tilting/adjustable monitors (1) prevent neckstrain/eye problems (1)

No Printers or Noisy fans or Positioning of equipment.

- c) Shortcuts/macros (1) prevent repetitive typing/RSI (1)

Good use of colour/fonts/text size(1) –preventing eye strain (1)

Good/Clear error messages (1) prevents stress/frustration (1)

Clear help(1) preventing stress/frustration (1)

Good menu/input screen design(1) stress/frustration (1)

Voice activated commands(1) prevent RSI/arthritis/wrist pains (1)

9. A large clothing retailer has decided to set up an on-line store.

- (a) Explain **two** advantages to the retailer of using this method of selling as opposed to selling from a high street shop. 4 marks
- (b) Explain **one** advantage to the customer of using the on-line store rather than a high street shop. 2 marks
- (c) State **one** disadvantage to the customer of using the on-line store rather than a high street shop. 1 mark
- (d) Describe **two** ways in which the retailer could make use of the Internet to publicise its new service. 4 marks

a) 2 × 2 marks

Reduction in retail space/staff (1) cost savings (1) NB includes staff and space so not separate points  
JIT/Reduction in stock/warehouse space/investment in stock (1) cost savings (1)  
Increased customer base (1) increased sales/profits (1)  
Keep up with competition (1) prevent loss of sales (1)  
Cost savings (1) due to decrease in shoplifting(1)

b) 1 × 2 marks

Saves time/cost of travel (1) no need to visit shops/saves time searching for what you want (1)  
Allows people with limited movement (1) to shop from home (1)  
Saves leaving home (1) crowds/comfort factor/convenience (1)

c) 1 mark

Cannot try on clothes (1)  
Possibility of fraud (credit card) (1)  
Social interaction/ direct help from sales staff lost (1)  
Time delay between purchase and receipt of goods (1)

d) 2 × 2 marks

Adverts on ISP homepages/Gateway sites (1) attract new custom/promote company(1)  
Links set up from other sites (1) allows customers to find store (1)  
Email (1) potential customers to gain more trade/promote company (1)  
Register with search engines (1) allow more people to find site (1)

TOTAL MARK 70