



ASSESSMENT and
QUALIFICATIONS
ALLIANCE

Mark scheme January 2002

GCE

Information and Communication Technology

Unit ICT2

Information: Management and Manipulation

Unless indicated otherwise each bullet point is worth one mark.

/ denotes an alternative word or phrase.

1. *All spreadsheet packages allow users to format cells in various ways.*

*State **three** different ways of formatting cells.*

- Data Type/Date/Currency/No of decimal places etc.
- Alignment/Centre/Left/Right
- Re-size/Width/Height
- Font type/Font colour/ underline/Bold/Italic/Font size
- Borders/Shading/Background colour
- Merge cells
- Wrap text
- Locked/Protected
- Hidden
- Conditional formatting

Max 3 **3**

2. *Passwords, entered at a keyboard, are often used as a method of protecting data against malicious access. Give **two** other methods of preventing access to data.*

- Biometric measures/retina scan/thumb print/voice (pattern) recognition
- Physical measures/Removal of disks/Locks-various
- Swipe cards
- Encryption
- Firewall

Max 2

2

3. *A company has procedures to backup the data files held on its computer system on a regular basis. Explain why recovery procedures should also be in place.*

- Ensure that the computer system is available
- Ensure that up-to-date information is available
- Ensure that alternative accommodation for computer systems is available
- Ensure that staff will be available and know what their role is

Max 3

3

4. *A mail order company is using an interactive, transaction processing system for its computerised telephone ordering system.*

Explain what is meant by the terms *interactive processing* and *transaction processing*.

Interactive processing:

- Dialogue between user and system
- System responds to each input straight away

Transaction Processing

- Each item of data is dealt with as it is submitted
- Each transaction is completed
- Before the next is begun

Max 4

4

5. *A database has been used to replace a flat file storage and information system.*

List four advantages of using a database.

- Data independence
- Data can be accessed by several applications
- Changes in the structure of the database do not affect software that accesses other parts of the database
- *Consistency of data/single input principle*
- Information held more than once is automatically updated by the system
- Control over redundancy of data
- Reducing to a minimum any duplicate data
- Increased productivity as ad hoc reports can be generated to meet particular needs/relationships between tables allow extraction of linked information
- Allows different access rights for different parts of database

Max 4 marks

4

6. A company stores its staff records in a computer file. Examples of records from the file are shown below.

Surname	Forename	Department Number	Name of Department	Extension Number
Chan	Dan	132	Accounts	572
	Wendy	123	Training	467
Jones	Sarah	121	Training	468
Chan	Dan	132	Accounts	572
Patel	Paul	132	Accounts	573

- (a) The records in this file have been input with the validation checking turned off. Referring to the examples above, describe the problems that have occurred.
- (b) Name and describe **three** different validation checks that would have prevented these problems.

(a)

- No entry in Surname field for second record (I)
- Training has two different department number (II)
- Dan Chan has two identical records (III)
- Accounts spelt incorrectly in last record (IV) 4

(b)

- Presence check (1) and description (1) (I)
 - Cross field check/Look-up list (1) and description (1) (II) (IV)
 - Uniqueness check (1) and description (1) (III)
 - Cross field check/Look-up list (needs to be different response to II (1) and description (1) (IV)
- 3 x (2,1,0)** **6**

10

7. An Internet search engine is said to have a natural language interface.

- (a) Explain, using examples, **two** advantages to the user of the natural language interface.
- (b) Explain, using examples, **two** limitations of a natural language interface.

(a)

- Special search commands are not required (1) example (1)
 - A user can just type in a request (1) example (1)
- Any 2 x (2, 1, 0)** 4

(b)

- Needs to be able to cope with misspelled words and poor grammar (1) example (1)
 - May not be able to cope with complex requests (1) example (1)
- Any 2 x (2, 1, 0)** 4

8

8. *Software packages need to be thoroughly tested before they are released. An ‘address book organiser’ package is being given away to promote a new software company.*

(a) *Explain why it is important that this piece of software is thoroughly tested.*

(b) *The organiser stores telephone numbers that can be used for automatic dialling. Describe, using examples, **three** types of test data that should be used for testing the validity of the telephone numbers stored.*

(a) **Any 2 × 1**

- Software functions ‘correctly’/there are no ‘bugs’
- Should work on a variety of hardware/operating systems/platforms
- Sample of software to promote quality of other software products
- Sample ‘easy to use’

2

(b)

- Normal data (1) and example (1)
- Extreme data (1) and example (1)
- Erroneous data (1) and example (1)

NB allow national or international telephone numbers

6

8

9. *A small company is installing a computer network. Employees are to be issued with a handbook to help them to understand the networking terms. Provide an explanation of the following terms for the handbook.*

(a) *Local Area Network and Wide Area Network*

(b) *Server and peer-to-peer*

(a) **Max 5**

- Network a set of computers and peripherals connected together
- Network enables sharing of data and resources
- All the computer systems are relatively close to each other e.g. the same building or cluster of buildings (LAN)
- Direct physical connection is possible (LAN) e.g. fibre optic/coax cables or Wireless Network
- Network connections are normally cables (LAN)
- Computers are geographically remote (WAN)
- A range of connection methods can be used e.g. satellite link, modem, telephone line, router, gateway (WAN)

5

(b) **Max 5**

- A computer/station on a network that provides a resource that can be used by any client station - server
- Provides access to storage – file server
- Provides access to network printer and print spooling – print server
- Provides access to shared information – database server
- Server not working means that clients do not have access to server controlled resources or (p-to-p) a station not working only means that the other stations do not have access to the resources on that station
- Clients/stations have access to resources/data controlled by other clients/stations (p-to-p)
- All stations on the network have similar status (p-to-p)
- Provides access to shared resources e.g. printers and storage (p-to-p) (if not given in (a))

5

10

10. A company has offices on five different sites, each office has between ten and twenty members of staff working in it. Internal e-mail is used as a means of communicating between the staff. It has been suggested that speech recognition input and voice output might be used for the e-mail system.

- (a) State the extra input and output devices each PC would need to support speech recognition input and voice output.
- (b) State **two** advantages to the staff of using a speech recognition system.
- (c) State **three** reasons why the speech recognition system may not be effective.
- (d) State **two** disadvantages of the voice output system.

(a)

- Microphone/mic
- Speakers/Headphones
- Headset (2) (microphone and speakers combined)

2

(b)

- Faster data entry if not a trained typist
- Easier to use for person with a disability
- Leave hands free for other purpose
- Health implications – RSI
- Avoids spelling mistakes because picks words from a list

Max 2

2

(c)

- Needs to be trained for individual voice
- Problems with voice changes e.g. user has cold
- Excessive background noise
- Grammar/language problems
- Distinguishing between text and commands

Max 3

3

(d)

- Excessive noise in busy office
- Problems in distinguishing 'own' e-mail
- E-mail may be private
- Interpretation of message
- Cannot be used by hearing impaired or deaf employees

Max 2

2

11. A large college provides a wide range of courses. The college has three options for distributing the information on the courses to potential students.

For **each** of the following options describe **one** advantage and **one** disadvantage to the college of this method of disseminating the information.

Option 1 Issue a prospectus containing the details of all the courses.

Option 2 Publish course information on the college website.

Option 3 Publish a course information booklet that can be downloaded from the college website.

Option 1

- Information readily available/can be distributed in many ways (A)
- Information can be out of date/errors cannot be corrected/ Prospective student may not read booklet (D)
- Long lead time between providing information and production of booklet (D)
- High cost of printing/production/distribution (D)

Option 2

- Information can be updated on a regular basis/new courses can be added (A)
- Instant access to e-mail (1) to request further information etc (1) (A)
- Can print relevant sections (A)
- Information only available at internet terminals (D)
- Prospective students may not find site on the internet (D)
- Time consuming to keep up-to-date/ needs regular updates (D)
- Instant access by non-targeted audience (A)
- Availability of different media e.g. sound, moving pictures (A)

Option 3

ALLOW ANY POINTS FROM 2 IF NOT GIVEN ABOVE EXCEPT THE LAST

- Up-to-date information available in printed form (A)
- Can be saved to disk for further use/off-line viewing (A)
- Can take a long time to download from the Internet (D)
- Specific software/permissions needed to download and print the booklet (D)

Allow one advantage and one disadvantage for each option, one mark for stating the point plus an expansion mark for a good description.