



ASSESSMENT and
QUALIFICATIONS
ALLIANCE

Mark scheme

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GCE

Information and
Communication Technology

Unit ICT2

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Unit 2: Information: Management and Manipulation

Overall guidelines

1. All examples accepted should be clearly related to the subject area and should not be “generalised”.
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.)

Specific marking guidelines

8. 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.
 9. The only figures in the margin should be sub-totals for question parts and a ringed total for the question.
 10. 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.
 11. 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.
 12. 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.
 13. All zero values should be crossed through.
 14. All blank spaces should be crossed through with a vertical line through the text space – not in the margin.
 15. All writing must be marked as read, either by the presence of ticks or by striking through the script.
 16. All blank pages must be crossed through.
 17. 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.
 18. 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.**
- a. **NO** other symbols or comments should be used

Unless indicated otherwise each bullet point is worth one mark.
/ denotes an alternative word or phrase.

1 Give **two** functions that should be incorporated into a software package to prevent accidental deletion/alteration of data.

- Read only File or File/Cells password protected/locked
- Message e.g. 'Update Y/N'
- Audible sound
- Undo

NOT ACCESS LEVELS/AUTOSAVE/RECYCLE BIN/BACKUP
ALLOW SINGLE WORD OR PHRASE

Max 2

2

2 Modern personal computer systems usually include a CD-Rewriter.
State **two** legal uses for a CD-Rewriter

- Transporting (large) amounts of data/or ICT example e.g. transporting created music/software (NB must be own work or clearly copyright free)
- Backing up work/application
- Archiving work

NOT JUST SAVING WORK
ALLOW SINGLE WORD OR PHRASE

Max 2

2

- 3 Give **two** advantages and **two** disadvantages of using a computer on a network rather than stand-alone.

Advantages

- Data/information can be shared (without need for duplication)
- Software can be shared
- Data transfer is improved/accessed from any terminal
- Communications are improved between users e.g. e-mail, diary scheduling
- Centralised upgrading/installation of software
- Improved sharing of peripherals e.g. printers
- Central control of security
- Central control of backup

NOT MONITORING/MORE STORAGE SPACE

Max 2

Disadvantages

- System more complex another layer of software is introduced
- Access rights to files/resources need to be carefully set-up as files can be hacked
- Extra hardware needs to be purchased/allow example/allow network points
- If server goes down then stations cannot access server based resources/Allow cannot log on
- Conflict of access to resources e.g. file deleted/in use by other user
- System performance can degrade under heavy network traffic
- Easier to spread viruses

NOT MONITORING/TRAINING

NB Specialist IT staff needed to manage Network CAN BE PRESENTED AS EITHER AN ADVANTAGE OR A DISADVANTAGE BUT MUST BE A WELL ARGUED POINT

Max 2

2+2

4 All employees of a company have an eight-digit password to log on to the company's network. State **three** rules that the employees must follow to ensure the effective use of the password system.

- Employees should not write their passwords down
- Passwords should be changed regularly
- Passwords should not contain memorable data/be used for other systems/allow an example
- Passwords should not be revealed to other people
- Allow not leave stations logged on

**NOT VARIABLE LENGTH PASSWORD/ENCRYPTED ON SCREEN
NB PASSWORD IS ALL NUMBERS (DIGITS)**

Max 3

3

5 A large national bank updates customers' bank accounts overnight with deposits made during the previous day.

- (a) Name an appropriate type of processing that the bank could use for this operation.
(b) Give **three** features of this type of processing.

(a)

- Batch processing

1

(b)

- it can be run without intervention from the user
- Batches of deposits/data will need to be collected/keyed in off line (1) then processed periodically(1)
- the processing/output is not time critical
- processing is done when the system is least used
- Records of deposits/data will not to be up to date at all times. (in fact it cannot be with current banking systems)
- Large volume of documents all of the same type
- Use of hash/control totals (to ensure integrity of data)
- Allow use of serial storage media e.g. magnetic tape

NOT DEPENDENT ON CORRECT ANSWER FOR (a)

Max 3

3

4

- 6 Explain the difference between the terms verification and validation when applied to data; illustrate your answer with an example of each.

Verification

- Checking by comparison that no alterations are made to data as it is transferred from one system to another/on first entry into the computer system
- E.g. keying data twice and comparing on input/ read after write check/checksum

Validation

- Checking that data is sensible (allow suitable alternative word NOT CORRECT)/ rejecting data that is unreasonable
- E.g. Presence check/Format check etc/description/ actual example .

ALLOW JUST NAME OF CHECK

4

-
- 7 Applications software can be described as being generic package software, specific package software or bespoke software. Describe, using examples, the characteristics these **three** types of software. (*The use of brand names will not gain credit.*)

Generic Package Software

- A package that is appropriate to many areas
- Of day to day business operations
- Word-processors/DTP/spreadsheets/database management systems/integrated package/presentation graphics

Max 3

Specific Package Software

- Software to perform a specific task/support a specialist application
- User requires knowledge of the subject area
- Payroll/CAD/CAM/Project Management/Music Software/ etc.

Max 3

Bespoke Software

- Specially written/tailor made
- To match user's specific requirements
- Suitable example

Max 3

9

NOT COST

ALLOW E-MAIL OR WEBROWSER AS AN EXAMPLE OF GENERIC OR SPECIFIC BUT NOT BOTH

8 *A small business has been forced to purchase new computer hardware and software to replace its 10 year old system that has been destroyed in a fire.*

(a) *Describe **four** items of software that the company will need to buy, explaining why each item is required.*

The staff have used the old system successfully for the past 10 years.

(b) *Give **two** reasons why it will be necessary for company to provide training for all members of staff on the new system.*

(a)

- Operating System (1) Reason (1)
- Word processor/DTP (1) Reason (1)
- Spreadsheet (1) Reason (1)
- Database management software (1) Reason (1)
- Browser/E-mail software (1) Reason (1)
- Integrated Package (1) Reason (1)
- Any other reasonable (1) Reason (1)

Max 4 × (2, 1, 0)

8

(b)

- New/updated software will have different/more/new features
- Staff will need to extend their skills
- Staff will be unfamiliar with new hardware/ software

Max 2

2

9 A flat file system is used to store orders taken by an electrical retailer. Examples from the file are shown below.

Customer	Address	OrderNo.	Date of Order	Item No.	Description	Price	Phone No.	Sales Staff No.	Sales Person
Paul Smith	38 BeechRoad	2345	4/11/2001	456	Steam Iron	£35.45	01234-665577	78	Sue Sneath
Anne Chu	27 Ash Square	2359	4/11/2001	764	Toaster	£19.99	01234-897645	62	Bert Jones
Anne Chu	27 Ash Square	2359	4/11/2001	798	Kettle	£19.99	01234-897645	62	Bert Jones
Sean Page	19 Elm Lane	2361	5/11/2001	461	Microwave Oven	£125.00	01234-567483	78	Mrs Sneath
Joan Patel	16 Oak Close	2362	5/11/2001	764	Toaster New	£15.99	01234-192837	78	Sue Sneath

(a) Referring to the examples above, describe the problems that have occurred by storing the data in a single flat file.

(b) The flat file system is to be replaced by a relational database. What structures would be needed in this database to allow for the effective updating and retrieval of data?

(a)

- Data is inconsistent (1) Sales person Sue Sneath (1) Description/Price Toaster and New Toaster (1)
- Data is unnecessarily redundant/duplicated/repeated (1) Anne Chu name/address/phone no (1) order number/date order (1) Bert Jones/Sue Sneath(1)

Any 2 × (3, 2, 1, 0)

6

(b)

- Tables/Relations
- e.g. Customer/Salesperson/Order/Stock
- Primary Key
- E.g. Sales Staff No. in Salesperson Table/Item No. in Stock Table/Order No. in Order Table/Allow Customer No. to be added to Customer Table
- Relationships/links e.g.
- Use Item no in Order/Use Sales Staff no in Order/Use Customer No. in Order
- As a foreign key

4

NOT QUERY/FORM/REPORT/MACRO

Max 4

10. A mail order company receives orders from its customers, handwritten on pre-printed forms. These are then used by clerks to enter the data into a computerised system. A sample blank customer order form (**Figure 1**) and input screen (**Figure 2**) are shown on the loose insert sheet provided with this question paper.

- (a) With reference to **Figure 1** and **Figure 2**, describe **three** features of the input screen that provide an effective human/computer interface.
- (b) Identify **three** data items that the software will enter automatically and, for each item state the event that triggers the automatic entry.

(a)

- Inclusion of heading/headings (1) reference to screen (1)
- Screen design in same order (1) as form (1)
- Areas clearly labelled on screen (1) reference to screen (1)
- Sufficient space left for data entry (1) reference to screen (1)
- Navigation buttons clearly included (1) reference to screen (1)
- Instructions for data entry clerk included (1) reference to screen (1)
- Drop down box (1) reference to screen (1)
- Use of colour (1) reference to screen (1)
- Use of * for colour blind users (1) reference to screen (1)
- Use of scroll bar (1) reference to screen (1)

Any 3 × (2, 1, 0)

6

(b)

Automatic

- Order Number (1) on pressing new order/opening of screen or first entry on screen (1)
- Customer Surname and Forename and/or Customer Address and/or Customer postcode (1) on entry of Customer Number (1)
- Description and/or Unit Cost (1) on entry of Item Code (1)
- Total and/or Order Total (1) on entry of Quantity (1)
- Date (1) on opening of screen or first entry on screen (1)
- Customer Number (1) on pressing new customer button (1)
- Partial address (1) on entry of new customer's postcode (1)

Any 3 × (2, 1, 0)

6
12