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ASSESSMENT and QUALIFICATIONS ALLIANCE

General Certificate of Education

Information and Communications Technology 5521

ICT2 Information: Management and Manipulation

Mark Scheme

2005 examination - June series

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.

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. The answers given in the mark scheme are exemplars. Credit must be given for other correct answers not given in the mark scheme. Please refer to Team Leaders where there is any doubt.

8. One-word answers, where acceptable, will be indicated on the question paper.

9. Where a mark is only available if there is a previous correct response, i.e. a dependent mark, then this will be indicated on the mark scheme.

10. 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

11. 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.

12. The only figures in the margin should be sub-totals for parts of questions and a final ringed total for a whole question.

13. 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.

14. 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.

15. 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.

16. All zero values should be crossed through.

17. All blank spaces should be crossed through with a vertical line through the text space – not in the margin.

18. All writing must be marked as read, either by the presence of ticks or by striking through the script with a vertical line.

19. All blank pages must be crossed through.

20. 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.

21. 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 sign ^ 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.

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

23. 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.

Information; Management and Manipulation ICT 2

Examiners: the answers given in this mark scheme are exemplars. Credit must be given for other correct answers not given in the mark scheme. Please refer to Team Leaders where there is any doubt.

1	*State **three** formatting facilities that are offered by word processing software.*	*3 marks*
	Topic 11.5 – Manipulation and/or processing NB QUESTION IS **STATE** • Columns • Tables • Headers/footers • Margins/Indents • Justification e.g. textwrap, centre • Borders • Shading • Colour • Font style e.g. italic, bold, underline etc • Font type e.g. Times New roman • Font size e.g. 12pt • Font effect e.g. subscript, strike through, ALLOW WordArt • Paper size • Orientation/landscape/portrait • Bullet points/numbering • Line spacing • Picture formatting e.g. watermark • Use of templates **Max 3**	

2	*Passwords, entered at a keyboard, are often used as a method of protecting data against malicious or unauthorised access.* *Give **two** other methods of preventing access to data.*	*2 marks*
	Topic 11.8 – Security of data • Biometric passwords e.g. retina scan, thumb print, voice recognition • Removal/safe storage of disks • Swipe cards/keys for access to system e.g. for keyboard • Access rights/levels • Users not leaving the computer logged on/leaving workstation unlocked/automatic logout • Firewall • Encryption • Data stored on a computer/workstation that cannot be physically be/ accessed e.g. data stored on a standalone computer in a locked room **Max 2**	

3	*A company has procedures to backup the data files held on its computer system on a regular basis so that data can be recovered if it is lost or corrupted.* *Give **three** other items that need to be considered for the recovery procedure that should also be in place.*	*3 marks*
	Topic 11.8 – Security of data • Availability of computer system/hardware • Availability of programs/software NOT DATA • Availability of staff • Staff knowledge of procedures • Availability of communications • Testing of recovery procedures • Availability of accommodation for computer systems **Max 3**	

4	*(a) Explain, using a suitable example, what the term batch processing means.* *(b) Explain, using a suitable example, what the term transaction processing means.*	*3 mark* *3 marks*
	Topic 11.5 Manipulation and/or processing (a) • it can be run without intervention from the user • data grouped in batches and processed together • data processed periodically • the processing/output is not time critical • processing is done when the system is least used • data will not to be up to date at all times. • Large volume of transactions 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 **MAX 2 Marks** • Suitable example in context e.g. payroll, meter readings etc **1 mark** (b) • Deals with each set of data as it is submitted • Each transaction is completed • Before the next is begun **MAX 2 Marks** • Suitable example in context e.g. on-line bookings, banking transactions etc **1 mark**	

5	*Describe the characteristics of a natural language interface. Illustrate your answer with **two** different examples of use of this type of interface.*	*4 marks*
	Topic 11.10 – Human/Computer Interface • Special commands do not need to be remembered • Words used from 'normal vocabulary'….. • ……to identify information required • A user can just type in a question/instruction • Problems with vague/ambiguous/complex statements • Example 1 e.g. search engine/can google*, context sensitive help, AI, expert systems etc allow specific example e.g. medical diagnosis • Example 2 must be different to Example 1 * ALLOW use of the verb to google **Max 4**	

6	*A system contains several flat files that are to be replaced by a relational database.* *(a)* *Describe **two** problems that can occur when data is stored in flat files.* *(b)* Give **three** features that would be available when using relational database management software for the updating and retrieval of data.	*4 marks* *3 marks*
	Topic 11.3 - Organisation of data for effective retrieval (a) • Data is inconsistent (1) • has different values in different files (1) • Data is unnecessarily redundant (1) • more than one copy kept /duplicated/repeated (1) • Form of data is dependent on the program using it (1) • same item can be stored in different formats (1) • would not be able to normalise the data (1) **Max 4** (b) • Queries • QBE • SQL • Forms • Reports • Tables/Relations • Relationships/links • Enforcing referential integrity • Cascaded updates/deletion • Use of foreign keys • ALLOW use of macros **Allow examples** **max 3**	

7	*A new scanner is supplied with a set of drivers. These drivers are provided on a CD-ROM, together with Optical Character Recognition (OCR) software for use with the scanner.* *(a) State **three** functions of a scanner driver.* *(b) Give **one** reason why the drivers are not provided on a floppy disk.* *(c) Give **one** other method of providing the scanner drivers.* *(d) Describe **one** advantage of using OCR software.*	*3 marks* *1 mark* *1 mark* *2 marks*
	Topic 11.4 – Software; nature capabilities and limitations (a) • Provides interface/communication between the operating system/computer/application package and the scanner • Making the scanner recognisable to the operating system/computer • Translates images into a form that the computer can display • Stores page set-up/configuration • Error messaging e.g. scanner not ready etc. **Any 3 x 1** (b) • Files too large to go on single floppy disk • Floppy disk can be easily damaged • Not all computers have a floppy drive **Max 1** (c) • Downloaded (from web site) • E-mailed to customer • Flash memory allow other terms e.g. memory stick, pen drive etc. • DVD • Already provided with operating system **Max 1** (d) • Faster /more accurate than retyping (1) e.g. existing letters, reports (1) • Document stored as text not image (1) e.g. can edit, takes less storage space etc (1) **Max 2**	

8	*A small company is purchasing new computer hardware and software.* *(a) Name and describe **three** items of software that the company will need to buy, explaining why each item is required.* *(b) State **two** types of printer that the company could purchase and give one advantage of each type.*	*9 marks* *4 marks*
	Topic 11.4 – Software; nature capabilities and limitations **Topic 11.7 – Hardware; nature capabilities and limitations** (a) • Word processor(1) description (1) reason (1) • DTP (1) description (1) reason (1) • Spreadsheet (1) description (1) reason (1) • Database management software (1) description (1) reason (1) • Web browser (1) description (1) reason (1) • E-mail software (1) description (1) reason (1) • Integrated Package (1) description (1) reason (1) • Antivirus software (1) description (1) reason (1) • Firewall software (1) description (1) reason (1) • Operating System (1) description (1) reason (1) • Any other reasonable application (1) description (1) reason (1) **Max 3 x (3, 2, 1, 0)** (b) • Laser printer (1) advantage e.g. high speed printing of many pages per minute means that large documents can be printed more quickly than using an inkjet printer (1) • Inkjet/bubble jet printer (1) advantage e.g. purchase price of a colour inkjet printer is cheaper than the purchase price of a colour laser printer (1) • Impact dot matrix printer (1) advantage e.g. specialist use for printing on multi-part stationery (1) • Dye sublimation transfer/thermal wax transfer printer (1) advantage e.g. specialist use for the production of better quality colour images than a laser or an inkjet printer (1) • Thermal printer (1) advantage e.g. specialist use for tills/ticket machines as quieter/lower maintenance costs than similar impact printers (1) NB expense, speed, quality of print all need to be qualified to gain a mark **Max 2 x (2,1,0)**	

9	*A company sells hotel bookings via the Internet. An on-line reservation form has to be completed.* *(a) State **three** fields other than Surname, Address and Postcode that you would expect to find on the reservation form.* *(b) Name and describe a suitable validation check for each field that you have chosen. All your validation checks must be different.*	*3 marks* *6 marks*
	Topic 11.3 - Organisation of data for effective retrieval (a) ***Topic 11.2 - Verification and Validation (b)*** (a) • Number of rooms • Number of people • Hotel • Date(s) of reservation • Duration of stay • Type of room • Type of reservation e.g. room only, full board etc • Smoking or non-smoking • Price of room • Estimated time of arrival • Special requirements • Method of Payment • Title • Initial/other names • Telephone number • E-mail address • Credit/Debit/Switch card number/details • Gender • Age/date of birth • Allow marketing issues **Any 3 x 1 max 3**	

	(b) EXAMPLES of possible answers below • (**Number of rooms**) Range check/Format check/Presence check/Type check (1) and description (1) • (**Hotel**) Format check/Presence check/Look-up list (1) and description (1) (**Date**) Format check/Presence check/Range Check/Cross field check with venue/lookup (1) and description (1) • (**Type**) Format check/Look-up list (1) and description (1) • (**Price**) Type check/Range check/Look-up list/Cross field check (1) and description (1) • (**Method/title**) look-up list (1) and description (1) • (**Telephone number**) Format Check/length check (1) and description (1) • (**E-mail Address**) Format Check (1) and description (1) • (**Card**) Format Check/Check digit/ (1) and description (1) • (**Marketing**) an appropriate check (1) and description NB if fields not mentioned take checks in same order as part (a), checks must be different. Allow name or description but must match for 2 marks. Allow marks if different but valid fields used in part (b). **Any 3 x (2, 1, 0)**	

10	*A school has a Local Area Network (LAN).* *(a) Describe **two** advantages to the students of using a LAN rather than stand-alone computers.* *(b) State **two** disadvantages to the students of using a LAN rather than stand-alone computers.*	*4 marks* *2 marks*
	Topic 11.9 - Network Environments (a) • Can use any terminal (1) • to access own files stored on the network (1) • Software available at any terminal (1) • Improved access to peripherals (1) • e.g. range of printers available at all terminals (1) • Central control of backup (1) • no need to worry about taking copies of important work (1) • can communicate with other LAN users (1) • and share files/information (1) • Can access Intranet for school information etc (1) **Any 4 allow extra mark for good expansion of the above points** **Max 4** (b) • Slow response if network heavily used • Limited storage capacity on server • Restriction of file types stored on server • Restrictions on number and/or type of printout • If the server fails then no access to any network facilities • Inability/limited ability to customise desktop etc • Viruses can spread more quickly • 'online bullying' **Max 2** **NO MARKS for any answers to do with WANs or the INTERNET**	