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ASSESSMENT and QUALIFICATIONS ALLIANCE

General Certificate of Education

Information and Communication Technology 5521

ICT2 Information: Management and Manipulation

Mark Scheme

2008 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.

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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.
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.
11. Responses in the mark scheme with a '/' are either/or alternatives.

Specific marking guidelines

12. 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.
13. The only figures in the margin should be sub-totals for parts of questions and a final ringed total for a whole question.
14. 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.
15. 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.

16. 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.

17. All zero values should be crossed through.

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

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

20. All blank pages must be crossed through.

21. 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 first section of the answer finishes.

22. 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, faster, cheaper etc.

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.

23. NO other symbols or comments should be used.

24. 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

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	**Topic 11.7 – Hardware: Nature, Capabilities and Limitations** A document, containing both text and graphics, is about to be printed out from a computer system. Give **two** types of printer that may be used.	*(2 marks)*
	Any knowledge of printers such as: Laser (printer) Ink jet (printer)/bubble-jet Dot matrix/impact (printer) Thermal (printer) NOT Laser-Jet, Desk-Jet, colour, black and white unless qualified e.g. colour laser and monochrome laser would be worth two marks **Max 2**	

2	**Topic 11.5 – Manipulation and/or processing** A map has been scanned and its image saved in a file. State **three** ways in which the image of the map could be manipulated before it is printed.	*(3 marks)*
	Application of knowledge of image manipulation such as: Re-sized {accept shrunk or enlarged NOT STRETCHED} Addition of items Rotated (NOT FLIP, MIRROR OR ZOOM) Sharpened Brightness/Contrast Edit picture Cropped Colours changed etc **Max 3**	

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3	**Topic 11.10 – Human/Computer Interface** Describe the characteristics of a natural language interface. Illustrate your answer with examples of use of this type of interface.	*(4 marks)*
	Knowledge and understanding of a natural language interface such as: • Using plain English to tell an ICT system what you want • 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 **Max 2** • Examples e.g. search engine/can google*, context sensitive help, AI,expert systems etc allow specific example e.g. medical diagnosis **NB can have up to three different examples** * ALLOW use of the verb to google **Max 3** **Max 4 for whole question**	

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.

4	**Topic 11.4 – Software: Nature, Capabilities and Limitations** A report is to be produced using a word-processing package. The report is divided into several sections. Each section starts with a heading and finishes with a brief conclusion. (a) State **two** features of the word-processing package that could be used to ensure that the headings stand out. (b) State **two** features of the word-processing package that could be used to ensure that the final paragraphs containing the conclusions stand out. These features must be different from those stated in (a).	*(2 marks)* *(2 marks)*
	(a) Application of knowledge and understanding of word-processing software such as: • Bold • Underline • Italic • (Different) font style • (Different) font size • (Different) font type or e.g. Times New Roman ALLOW change font • Alignment or e.g. right alignment, change alignment • Colour • Border/Box • Highlighting/Shading background • Use of images • Automatically applying a (heading) style ALLOW use of 'Word Art' with BOD for (a) only **Max 2** (b) Application of knowledge and understanding of word-processing software such as: • Indented Paragraph • Line spacing e.g. double spacing • Any from (a) NOT already used • Bullet points **Max 2** **ALLOW one word answers for (a) and (b)**	

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.

5	**Topic 11.5 – Manipulation and/or processing** (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 marks)* *(3 marks)*
	(a) Application of knowledge and understanding of batch processing such as: • 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 e.g. payroll, meter readings etc **1 mark** **3** (b) Application of knowledge and understanding of transaction processing such as: • Deals with each set of data as it is submitted • Each transaction is completed • Before the next is begun **Max 2 marks** • Suitable example e.g. on-line bookings, banking transactions etc **1 mark** **3**	

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.

6	**Topic 11.8 – Security of data Topic 11.9 – Network Environments** A school has a Local Area Network (LAN). (a) Describe **three** benefits to the students of using a LAN. (b) Describe **two** limitations of using a LAN rather than stand-alone computers. (c) Explain what facilities would be available to the students if the LAN was expanded to a WAN with Internet access. (d) Describe **two** ways that students can try to protect their work, which is stored on the computer network, from malicious or accidental alteration or deletion.	*(6 marks)* *(4 marks)* *(3 marks)* *(4 marks)*
	(a) Application of knowledge and understanding of Local Area Networks such as: • 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) • improved communication with other LAN users (1) • internal email etc(1) • and share files/information (1) • Can access intranet/VLE for school information etc (1) **Any 6 allow extra mark for good expansion of the above points max 6** (b) Application of knowledge and understanding of Local Area Networks such as: • 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 there is a network fault/server failure, then no access to any network facilities • Inability/limited ability to customise desktop etc • Viruses can spread more quickly • 'online bullying' **Any 4 allow extra mark for good expansion of the above points max 4** **NO MARKS for any answers to do with WANs or the INTERNET** (c) Application of knowledge and understanding of Wide Area Networks and the Internet such as: • Any resources on the World Wide Web • External email • Ability to log in from home • Use of search engines for research Examples only there are many more. **max 3** (d) Application of knowledge and understanding of security procedures such as: • Password protection • Choice of 'strong' password/ not telling others password etc • Not leaving terminals logged on • Not leaving disks etc in drives • Backing up work regularly….. • …..in case of unforeseen problems • Use of file attributes eg: read-only, hidden **Any 4 allow extra mark for good expansion of the above points max 4**	

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.

7	**Topic 11.4 – Software: Nature, Capabilities and Limitations** **Topic 11.2 – Verification and Validation** **Topic 11.3 – Organisation of Data for Effective Retrieval** A swimming club keeps records of all its members using a relational database. There are two sections to the club, Junior and Senior (a) Explain why members' dates of birth are stored, rather than the members' ages. (b) Design a suitable record structure for storing the members' details. (c) Junior members must transfer to the Senior section on 31st December after their fourteenth birthday. A set of test data is needed to ensure that the correct records will be updated on 31st December 2008 The following set of test data for the members' dates of birth has been proposed. 08/10/1993 01/01/1994 12/03/1994 31/12/1994 01/01/1995 Explain why these particular test dates have been chosen.	*(2 marks)* *(5 marks)* *(4 marks)*
	(a) Application of knowledge and understanding of organisation of data such as: • Age will need changing on a regular basis • Age can be calculated from date of birth **max 2** (b) Application of knowledge and understanding of organisation of data such as: • Forename • Surname • Member ID • Telephone Number • Address line 1 • Town • Postcode • Section • Other relevant details **Max 4 - must have date of birth for 1 mark** (c) Application of knowledge and understanding of testing such as: • normal / would move up (1) 01/01/1994 or 12/03/1994 or 31/12/1994 or 'all the dates in 1994' (1) • should have already moved up / erroneous (1) 08/10/1993 (1) • boundary/extreme (1) 01/01/1994 or 31/12/1994 or 1/1/1995 (1) • would not move up (1) 1/1/1995 (1) **Max 4**	

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.

8	**Topic 11.3 – Organisation of Data for Effective Retrieval** **Topic 11.6 – Dissemination and Distribution** A shoe shop faxes orders to its suppliers at the end of each week. An order is only produced by its product database system if the stock level is low. Each order consists of approximately five products. (a) State **three** items of information that the company would send to its suppliers about each product being ordered. (b) The orders are generated by the product database system, and printed ready to be faxed to the suppliers. Sketch a diagram to show a possible layout for the order. Annotate your diagram to explain the reasons for each element of your design. (c) The shoe shop has arranged that, in future, it will e-mail the orders to its suppliers. Give **two** benefits to the shoe shop of using e-mail to send the orders generated by the product database system.	*(3 marks)* *(8 marks)* *(2 marks)*
	(a) Application of knowledge and understanding of organisation of data such as: • Product code/number/Barcode • Name/description • Size • Colour • Style • Price • Re-order amount/quantity ordered **Max 3** **3** (b) Must have diagram Application of knowledge and understanding of dissemination such as: • Title/Document Identifier (1) clear identification of document (1) • Date (1) brief explanation (1) • Order number (1) brief explanation (1) • Name and/or address of supplier (1) brief explanation (1) • Name and/or address or phone number or contact details of company/Company Logo/Account number (1) brief explanation (1) • Separate Delivery or Invoice Address (1) brief explanation (1) • Product number, Product description, Re-order amount, Price [must include items mentioned in (a)] (1) brief explanation (1) • Sorted on product code (1) brief explanation (1) • Total price/VAT/Delivery Charge/Discount (1) brief explanation (1) • Authorisation (1) brief explanation (1) **only one mark for each of up to 4 elements if there are no explanations** **Any 4 x (2, 1, 0)** **8** (c) Application of knowledge and understanding of distribution such as: • Two way communication, response is easier using reply feature • Can be fully automated • Supplier's computer does not need to be switched on when message sent and cannot be engaged unlike fax • Problems with quality of fax at receiver's end • ALLOW cost and time ONLY if fully explained e.g. no printing/papercopies required so cheaper • Instant delivery **Max 2** **2**	