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ASSESSMENT and QUALIFICATIONS ALLIANCE

General Certificate of Education

Information and Communications Technology 5521

ICT1 Information: Nature, Role and Context

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.

Unit 1 Information: Nature, Role and Context ICT 1

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	***10.1 Knowledge, Information and Data*** *Explain, using examples, the following terms as they are applied within ICT:* *(a) data;* *(b) information;* *(c) knowledge.*	 *2 marks* *2 marks* *2 marks*
	a) **(2,1,0)** Data are raw facts or figures, or a set of values, facts, figures, measurements, records of transactions(l) example(1) NOT no processing carried out, no use to anyone, have no meaning NOT single numbers like 12 or 010768 but ACCEPT a student's mark or a customer's reading as they contain multiple items Must be plural for definition & example Not the medium (questionnaire) must be results of. b) **(2,1,0)** Information is data, which has been processed or converted to give it meaning/to give it context/to organise it (1) example *(\)* Do not accept simple labelling Must be the result of processing not the event. Not just "given a meaning". c) **(2,1,0)** Knowledge is a "set of rules or concepts" used to interpret/make use of information (1) example (1) 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	***10.1 Knowledge, Information and Data*** ***10.2 Value and Importance of Information*** *When Mrs Brown received her gas bill she found that it was for £10,000, which she knew was not correct. When she telephoned the gas company to complain the explanation she received was that "The computer had got it wrong".* *Describe a more likely explanation.*	*3 marks*
	(3,2,1,0) One mark - incorrect input/data (1) One mark - will be processed (1) One mark - provide incorrect information (1) **Also allow** correct data but error in program (1) will mean incorrect processing (1) and therefore incorrect output(l)	

3	***10.7 Information and the Professional*** *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 ICT 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 x (2,1,0) 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 CANT 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/Approachable** (1) -to prevent end users from becoming flustered/stressed/ people feel they can ask you questions (1) **Be able to analyse users' problems/be objective** (1) - user may not describe problems clearly (1) **Confident manner** (1) so that people believe what you say (1) NOT Team working Flexible hours Management skills Social skills Technical skills Teaching or Training Initiative	

4	***10.5 The Social Impact of Information and Communication Technology*** ***10.6 Role of Communication Systems*** ***10.8 Information Systems Malpractice and Crime*** *Mr Patel has bought a DVD on fishing from a company on the Internet. He has now started to receive e-mails about fishing holidays, and is receiving fishing equipment catalogues through the post.* *(a) Explain why Mr Patel has started to receive the e-mails and the catalogues.* *(b) State what most people are likely to be worried about when ordering goods using credit cards over the Internet.* *(c) Describe two measures that a company can take to help give customers confidence in using their on-line facilities.* *(d) Describe two advantages to a company of selling its goods on-line.*	*2 marks* *1 mark* *4 marks* *4 marks*
	(a) **(2,1,0) marks** Looking for the principle that Mr Patel has given his details to the company when ordering over the Internet and that the details have been passed/sold by them to other companies or other parts of the same company, who are now targeting Mr Patel. Any two from: for has given his details to the company/(1) company having passed/sold/given the details on to other companies (1) being used for alternative purposes(1) by other parts of the same company(1). Mr Patel must not have read the details on the on line form correctly, or at all(1) and has thus allowed his details to be passed on(1) That the company has not complied with the 1998 DP Act (1) and has passed on details without permission. (1) (b) **One mark** Idea that people are afraid of having credit details stolen/hacked into/misused (c) **2 x (2,1,0) marks** 1 MARK FOR **WHAT** measure AND 1 MARK FOR **HOW** Or looking for concept of giving customers confidence. Examples Encryption/encoding of credit card details(1) to ensure data cannot be understood if intercepted(l) Give credit for mentioning SSL (Secure Sockets Layer) or SiHTTP(Secure HTTP) both of which are encryption protocols. Only part of stored credit card details shown(1) so whole card details only in encrypted form(1) Site should ensure checking of physical address against credit card(1) or with bank (1) to ensure correct person using(1) Company using firewalls(l) to prevent hackers from gaining credit card details from the	

	companies machine(1) Allocating customers unique ID's/passwords(1) so don't have to enter credit card details every time and thus reduce chance of misuse(1) Deleting details once used (1) explanation (1) Company staff - code of practice/procedures(1) how this will prevent details being misused(1) Call Back procedure - by telephone (1) explanation (1) d) **2 x (2,1,0) marks** Examples Reduction in retail space/staff (1) cost savings (1) NB includes staff and space so not separate points 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) Decrease in shoplifting(l) saving costs (1)	

5	***10.6 Role of Communication Systems*** ***10.5 The Social Impact of Information and Communication Technology*** ***10.4 Capabilities and Limitations of Information and Communication Technology*** *Many organisations have adopted e-mail as a method of communication only to find that it can have disadvantages, such as the risk of contracting viruses.* *Describe three disadvantages of the use of e-mail for business communication*	*6 marks*
	Any 3 x(2, 1 , 0) marks. 1 mark for stating the disadvantage to the business 1 mark for an expansion/explanation Examples: • Excessive amounts of mail to deal with (1) leads to loss of staff time for other tasks/expansion(1) • Used for personal use (1) results in lost staff time/other expansion (1) • Clogging up of network with mail messages (1) reducing speed of communication for other business activities (1) • Excessive amounts of storage used on mail messages(1) reduces disk space available/slows activities (1) • Tendency to abruptness in email (1) leads to communication problems (1) • Lack of social interaction (1) less of a productive environment (1) • Length of disclaimer can be significant (1) if printing (1) • Legal issues/liability issues (1) if emails passed on can cause company problems (1) • Lack of all having the facility (1) means can't rely on being able to use for all(1) • Interception of email / vulnerability to outside viewing / accessibility of address book (1) leading to changed content or secret info being acquired (1) • System failure leading to suspension of e-mail service (1) inability to send/receive e-mails (1) **And others but NOT VIRUSES**	

6	***10.6 Role of Communication Systems*** ***10.9 The Legal Framework*** *A student at a college is using the Internet to carry out research for an essay that she is writing.* *(a) Describe how she can access a website when:* *(i) She knows the Uniform Resource Locator (URL) or address?* *(ii) She does not know the URL or address.* *(b) Describe two concerns that the student might have about the information that she obtains from the Internet.* *(c) The student has been told that she must provide the details of all the websites that she has used when writing her essay.* *State one detail about each website she has used that she should provide, and explain why it is necessary.*	*2 marks* *2 marks* *4 marks* *2 marks*
	(a) **(2,1,0) marks** i. Type in address/pick from favourites (1) into a browser (1) **(2,1,0) marks** ii. Use search engine/internet directory (1) to give a list of hyperlinks (1) Looking for the idea of searching using keywords to obtain the site. (b) **2 x (2,1, 0) marks** One mark for e.g. one mark for WHY it is a concern Examples: No control on content (1) Validity of information (1) Copyright issues (1) if explained (1) Accuracy (1) if explained (1) Legality issues (1) if explained (1) Up to date (1) if explained (1) NOT Downloading a virus/corruption of files as this has nothing to do with the nature of the information obtained (c) **(2,1,0) marks** Address of site (1) so can show real site visited/ copyright/source declared (1) Date site last updated (1) so can show how up to date/age of information (1) Date site visited (1) so can show when obtained information (1)	

7	***10.8 Information Systems Malpractice and Crime*** *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.* *(b) Describe one measure that a company can take to protect its Information System from:* *(i) internal threats* *(ii) external threats.*	*4 marks* *2 marks* *2 marks*
	(a) 2 x internal, 2 x external Internal threats are from within the company or organisation / caused by own staff(1) example internal(1). Can accept theft of components as an example or any illegal activity - it is not just malpractice issues External threats come from outside the company or organisation / caused by people from outside the organisation (1) example external(1). Can accept Natural Disasters and Power NB Examples may only be used once e.g. hacking - either internal or external but not both. (b) (i) Internal **(2,1, 0) marks** 1 mark for measure and 1 mark for expansion or explanation 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/Access levels(1) to prevent unauthorised modification/copying of data (1) Guidelines on working practice (1) to prevent health and safety issues with employees/ loss of staff from illness etc (i) 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 **(2,1, 0) marks** 1 mark for measure and 1 mark for expansion or explanation Examples Audit trails/Backups (1) - Explain how they protect (1) 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 (l)-prevent loss of data when power lost (1)	

8	***10.9 The Legal framework*** *A clerk working in the accounts department of a large company spends all day entering employee timesheet data into the company's payroll system. The clerk uses a terminal linked to the company's main computer.* *To ensure the health and safety of the clerk, state, with reasons:* *(a) two work practice procedures that the company could introduce;* *(b) two design features that the workstation the clerk uses should have;* *(c) two design features that the software the clerk uses should have.*	 *4 marks* *4 marks* *4 marks*
	1 mark for stating procedure/feature 1 mark for explaining the health and safety risk it protects against **NB Second mark is dependant on the first in all sections of the question** a) **2 X (2,1,0)** 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 protect against injury (1) Providing training for staff (1) prevent stress etc (1) b) **2 X (2,1,0)** Ergonomic keyboard (1) preventing RSI/arthritis/wrist pains (1) Wrist rest (1) preventing RSI/arthritis/wrist pains (1) High quality/appropriately sized screen to reduce flicker/anti-glare filters/screens (1) preventing eyestrain (1) Tilting/adjustable monitors (1) prevent neck strain/eye problems (1) Five point chairs/adjustable/have support for back/lumbar support(1) prevent backache (1) **c) 2 X (2,1,0)** Shortcuts/macros (1) prevent repetitive typing/RSI (1) Appropriate use of colour/fonts/text size(1) -preventing eye strain (1) Clear error messages (1) prevents stress/frustration (1) Clear help/understandable messages(1) preventing stress/frustration (1) Appropriate menu/input screen design(1) stress/frustration (1)	