



General Certificate of Education

Information and Communication Technology 5521

Unit 1 Information: Nature, Role and Context

Mark Scheme

2007 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.

Further copies of this Mark Scheme are available to download from the AQA Website: www.aqa.org.uk

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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 street” 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 is 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, c 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 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/signs 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: Nature, Role and Context / Unit 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	<p><i>10.1 Knowledge, Information and Data</i></p> <p><i>Explain, using examples, what is meant by:</i></p> <p><i>(a) data;</i></p> <p><i>(b) information;</i></p> <p><i>(c) knowledge.</i></p>	<p><i>(2 marks)</i></p> <p><i>(2 marks)</i></p> <p><i>(2 marks)</i></p>
	<p>(a) Data are raw facts or raw figures, or a set of values/ a set of facts/ a set of figures/ a set of measurements, records of transactions (1) example (1).</p> <p>(b) Information is data which has been processed or converted to give it meaning (1) example (1).</p> <p>(c) Knowledge is a “set of rules or concepts” used to interpret information or knowledge is a “set of rules or concepts” used to make use of information or knowledge is a “set of rules or concepts” applied to information (1) example (1).</p> <p>An example of knowledge might include the sales manager using a sales summary (information) to predict next year’s sales.</p> <p>Do NOT allow “traffic lights” examples. This specification does not include control systems.</p>	

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2	<p>10.1 Data, Information and Knowledge</p> <p><i>Figure 1 shows a weekly payslip which has been produced as the output from data that has been input and processed.</i></p> <p>(a) State one item of data that is input each week.</p> <p>(b) State two items of data that would be held on the payroll file.</p> <p>(c) Explain one process that has taken place in order to produce this payslip.</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tr> <th colspan="5" style="background-color: #cccccc;">Employee Name</th> </tr> <tr> <td colspan="5">Joe Jones</td> </tr> <tr> <th style="background-color: #cccccc;">Employee Number</th> <th style="background-color: #cccccc;">N.I. Number</th> <th style="background-color: #cccccc;">Tax Code</th> <th style="background-color: #cccccc;">Tax Period</th> <th style="background-color: #cccccc;">Date</th> </tr> <tr> <td>Z001</td> <td>ZX212345N</td> <td>567P</td> <td>29</td> <td>22/11/2006</td> </tr> <tr> <th style="background-color: #cccccc;">Item Code</th> <th style="background-color: #cccccc;">Description</th> <th style="background-color: #cccccc;">Rate</th> <th style="background-color: #cccccc;">Hours</th> <th style="background-color: #cccccc;">Amount</th> </tr> <tr> <td>01</td> <td>Basic-Weekly</td> <td>10.00</td> <td>46.00</td> <td>460.00</td> </tr> <tr> <td>06</td> <td>Travel</td> <td>10.00</td> <td>7.00</td> <td>70.00</td> </tr> <tr> <td>10</td> <td>Accommodation</td> <td></td> <td></td> <td>80.00</td> </tr> <tr> <td colspan="4" style="text-align: right;">TOTAL GROSS PAY</td> <td>610.00</td> </tr> </table>	Employee Name					Joe Jones					Employee Number	N.I. Number	Tax Code	Tax Period	Date	Z001	ZX212345N	567P	29	22/11/2006	Item Code	Description	Rate	Hours	Amount	01	Basic-Weekly	10.00	46.00	460.00	06	Travel	10.00	7.00	70.00	10	Accommodation			80.00	TOTAL GROSS PAY				610.00	<p>(1 mark)</p> <p>(2 marks)</p> <p>(3 marks)</p>
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	<p>(a) Any 1 from: Hours worked (1) Item code (1) Employee number (1).</p> <p>(b) 2 x 1: Employee number (1) Employee name (1) Item code (1) Rate of pay (1) N.I. number (1) Tax code (1)</p> <p>(c) (3,2,1,0) Expect an example of a calculation. Multiply Rate (1) by Hours (1) to give Amount (1).</p>																																														

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3	<p>10.5 The Social Impact of ICT 10.6 Role of Communication Systems</p> <p><i>Internet access at home has enabled many people to shop online.</i></p> <p>(a) Explain two benefits of shopping online.</p> <p>(b) Explain two limitations of shopping online.</p>	<p>(4 marks)</p> <p>(4 marks)</p>
	<p>(a) (2,1,0) benefit (1) + example/explanation/expansion (1) Can shop at a convenient time (1) as access available 24 hours per day seven days per week (1) Wider range of goods (1) which may not be available in local area (1).</p> <p>(b) (2,1,0) limitation (1) + example/explanation/expansion (1) Cannot try on/test drive/etc before buying (1) may cause problems if unsuitable (1) Do not have goods on day of buying (1) as may not be delivered for a number of days (1) Loss of social interaction (1) do not leave house (1) Cannot use cash (1) must have a credit or debit card in order to shop (1).</p>	
4	<p>10.7 ICT and the Professional</p> <p><i>ICT professionals require certain personal qualities to enable them to do their job well.</i></p> <p>Describe three personal qualities that they should have.</p>	<p>(6 marks)</p>
	<p>3x(2,1,0) Good oral communication skills (1) to enable the professional to explain a solution effectively to the user (1) Good written communication skills (1) to write clear and understandable user instructions (1) Patience (1) to explain a solution numerous times to a novice user without losing their temper (1) Problem solving skills (1) to give alternative solutions to the user (1)</p>	

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5	<p>10.4 Capabilities and limitations of Information and Communication Technology</p> <p><i>A international company conducts many meetings using video-conferencing facilities.</i></p> <p>(a) State two benefits of video-conferencing.</p> <p>(b) State two limitations of video-conferencing.</p>	<p>(2 marks)</p> <p>(2 marks)</p>
	<p>(a) 2x1 saves time of travel/saves cost of travel (1) meetings can be organised with less notice (1)</p> <p>(b) 2x1 lack of face to face interaction (1) technical problems e.g. system may fail/slow response time (1)</p>	
6	<p>10.8 Information Systems Malpractice and Crime</p> <p>(a) Using examples from ICT, explain the difference between malpractice and crime.</p> <p>(b) Describe one method of reducing malpractice.</p> <p>(c) Describe one method of reducing crime.</p>	<p>(4 marks)</p> <p>(2 marks)</p> <p>(2 marks)</p>
	<p>(a) (4,3,2,1,0) What and how malpractice- not following the organisations code of practice (1) example - a user walking away leaving their workstation logged on which may then be used by an unauthorised colleague (1)</p> <p>crime is an illegal act (1) example – gaining unauthorised access to a bank’s computer system with the intent to commit fraud (1)</p> <p>(b) (2,1,0) have an automatic logout if computer is left unused for 5 minutes (1) so unauthorised access is prevented (1)</p> <p>(c) (2,1,0) firewall (1) prevent unauthorised access to data from external sources (1)</p>	

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7	<p><i>10.9 The Legal Framework</i></p> <p><i>(a) Explain the purpose of data protection legislation.</i></p> <p><i>(b) What is meant by the following terms?</i></p> <p style="padding-left: 40px;"><i>(i) Data Subject</i></p> <p style="padding-left: 40px;"><i>(ii) Data User</i></p> <p><i>(c) Describe the rôle of the Information Commissioner.</i></p>	<p><i>(2 marks)</i></p> <p><i>(2 marks)</i></p> <p><i>(2 marks)</i></p> <p><i>(2 marks)</i></p>
	<p>(a) To protect the individual's rights/privacy/personal data (1) control what data is stored/passed on/used on individuals (1)</p> <p>(b) i) any 2 x 1 mark living (1) identifiable (1) individual who the data is about (1)</p> <p style="padding-left: 20px;">ii) any 2 x 1 mark the organisation (1) holding the data (1)</p> <p>(c) any 2 x 1 mark oversees and enforces the Data Protection/Freedom of Information Act (1) reports directly to UK parliament (1) promotes good handling of information (1)</p>	

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8	<p>10.4 Capabilities and Limitations of ICT 10.5 Social Impact of ICT 10.6 Role of Communication Systems</p> <p><i>The Internet can be used for communication and information publication.</i></p> <p>(a) Describe three methods of communicating over the Internet.</p> <p>(b) Describe three ways in which an organisation can use the Internet for publishing and/or retrieving information.</p> <p>(c) A student uses information from a website for an essay. What information should she give about the website in her bibliography</p>	<p>(6 marks)</p> <p>(6 marks)</p> <p>(2 marks)</p>
	<p>(a) 3(2,1,0) videoconferencing (1) interactive discussion conducted over a distance using audio visual links (1) e-mail (1) sending and receiving of electronic messages (1) instant messaging (1) ‘chat’ in real time between two or more participants(1)</p> <p>(b) 3(2,1,0) publish information on their website (1) + expansion (1) retrieve information using a search engine (1) + expansion (1)</p> <p>(c) 2 x 1 website address (1) date of access (1) date of last update/publication (1)</p>	