



General Certificate of Education

Information and Communication Technology 6521

Unit 5 Information: Policy, Strategy and Systems

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.
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- 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: Policy, Strategy and Systems / Unit 5

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>14.3 Database Management Concepts</p> <p>State three responsibilities of a database administrator.</p>	(3 marks)
	<p>Any three:</p> <ul style="list-style-type: none"> • Maintain the data dictionary (1) • Monitoring performance of database (1) • Notifying user of changes made (1) • Allocation of access to users (1) • Provide training to the users as appropriate (1) • In charge of the backup procedure (1) • Allow point to do with being an effective ICT professional (1) • Allow design of the database (1) <p style="text-align: right;">max 3 marks</p>	
2	<p>14.1 Policy and Strategy Issues</p> <p>Give four reasons why a large organisation should have an Information Technology Policy.</p>	(4 marks)
	<p>Any four:</p> <ul style="list-style-type: none"> • to publish hardware strategy (1) • to publish software strategy (1) • to identify backup procedures (1) • to identify appropriate training provision (1) • to identify appropriate maintenance/support provision (1) <p style="text-align: right;">max 4</p>	

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3	<p>14.9 Reliability of Software</p> <p><i>Explain what is meant by the terms alpha testing and beta testing.</i></p>	<i>(6 marks)</i>
	<p>One mark per point, to a max of four each for alpha, beta:</p> <p>Alpha testing:</p> <ul style="list-style-type: none"> • testing done by the development company itself (1) • systematically / to a test plan (1) • unit and system testing (1) • using a restricted test data set (1) • to make sure that all the components work together as expected (1) <p>Beta testing:</p> <ul style="list-style-type: none"> • testing done by a select number of end-users (1) • using real data in a real environment (1) • using software in unexpected ways (1) • to get feedback to fix/enhance/improve the software (1) • for marketing/ raising customer awareness (1) <p>Overall Max 6 marks</p>	

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4	<p>14.5 Networks</p> <p><i>A Personal Assistant to a senior manager leaves a job where he used a stand-alone desktop computer, and begins a new job where the computer he uses is on a network. There are differences between the old interface and the new one.</i></p> <p><i>(a) Describe one difference that he may notice between the old and new user interfaces for:</i></p> <p style="padding-left: 20px;"><i>(i) the security of the system;</i></p> <p style="padding-left: 20px;"><i>(ii) control of the software used;</i></p> <p style="padding-left: 20px;"><i>(iii) control of the files that can be accessed;</i></p> <p style="padding-left: 20px;"><i>(iv) access rights to resources.</i></p> <p><i>(b) All activities on the network are logged automatically.</i></p> <p><i>Give two reasons why this is done.</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><i>(2 marks)</i></p>
	<p>All sections, Allow answers that relate to other sections providing they are not duplicate of previous responses.</p> <p>a)</p> <p>i)</p> <ul style="list-style-type: none"> • need to login to the system (1) puts more dialogue in place before accessing the system proper (1) • password management (1) e.g. minimum password length message (1) <p style="text-align: right;">(2,1,0) marks</p> <p>ii)</p> <ul style="list-style-type: none"> • access to software restricted (1) as only the licensed number of concurrent copies can run at any one time(1) • users are only allowed to use certain software at certain times (1) e.g. normally not outside workers contracted hours (1) <p style="text-align: right;">(2,1,0) marks</p> <p>iii)</p> <ul style="list-style-type: none"> • file may be passworded (1) require authorisation to view (1) • status message relating to the file appears(1) users are aware of others accessing the files (1) <p style="text-align: right;">(2,1,0) marks</p> <p>iv)</p> <ul style="list-style-type: none"> • users can ‘see’ certain printers (1) users in different areas see different printers/different user logging on to the same machine see different printers (1) • users can only see network drives relevant to their needs (1) administrators see most/all resources whilst users see a restricted set (1) <p style="text-align: right;">(2,1,0) marks</p>	

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	<p>b) Any two:</p> <ul style="list-style-type: none"> • To detect/deter misuse • To monitor network traffic • To monitor software use • To monitor hardware use • To monitor other resource use <p>NOT to log/track any activity (repeats question)</p>	
	Max 2 marks	
5	<p>14.10 Portability of Data</p> <p>(a) <i>What is meant by the term standard in an ICT context?</i></p> <p>(b) <i>Give two examples within ICT where standards are used and, for each example, explain why a standard is used.</i></p> <p>(c) <i>The Internet is an example of a wide area network. When data is transferred across the Internet, standard protocols are used.</i></p> <p style="padding-left: 20px;">(i) <i>What is meant by the term protocol?</i></p> <p style="padding-left: 20px;">(ii) <i>Give two reasons for using protocols.</i></p>	<p>(2 marks)</p> <p>(6 marks)</p> <p>(2 marks)</p> <p>(2 marks)</p>
	<p>(a) a series of agreed forms/methods (1) complied with by ICT industry (1)</p> <p>(b) Where used/example (1) why used (1) explanation/expansion (1)</p> <ul style="list-style-type: none"> • connecting hardware/USB (1) so different makes of devices can be used (1) avoiding single manufacturer control of market (1) • representing data/JPEG (1) so data can be used on different platforms (1) only one format of data need be supplied (1) • web pages/HTTP (1) so different platforms can view page (1) generated from same source code (1) <p>etc etc...</p> <p style="text-align: right;">max 2 x (3, 2, 1, 0)</p> <p>(c)</p> <p>(i)</p> <ul style="list-style-type: none"> • a standard set of rules (1) to regulate communication / transfer of data between devices (1) <p style="text-align: right;">(2, 1, 0) marks</p> <p>(ii)</p> <p>any two:</p> <ul style="list-style-type: none"> • enable devices to communicate (1) • specify data formats (1) • specify control signals (1) • minimise communication errors (1) <p style="text-align: right;">(2, 1, 0) marks</p>	

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	<p>14.6 Human/Computer Interaction</p> <p><i>The designers of spreadsheet software must consider the psychological factors that affect the way in which the user will interact with the spreadsheet software.</i></p> <p><i>State four psychological factors the designers should consider and, for each one, use an example to show how this factor could be considered in the design of the spreadsheet software.</i></p>	(12 marks)
	<p>Factor (1) example in context (1) explanation/expansion (1)</p> <ul style="list-style-type: none"> • user friendly (1) wizards (1) to guide user through use of complex functions (1) • provide short cuts for experts (1) hot keys (1) to access functions quickly (1) • give help to novices (1) onscreen link to help pages (1) to access if stuck (1) • make use of human memory (1) user can remember how to navigate (1) to required function (1) • make use of human perception (1) beep (1) if unavailable function selected (1) <p style="text-align: right;">max 4 x (3, 2, 1, 0)</p>	
7	<p>14.4 Communication and Information Systems</p> <p><i>Many organisations create their own intranet.</i></p> <p><i>Give four activities for which an organisation can make use of an intranet and, for each one, state why using the intranet is a benefit to the organisation.</i></p>	(8 marks)
	<p>Activity (1) reason (1)</p> <ul style="list-style-type: none"> • stock control (1) low stock at one site can be rapidly remedied by transfer from another site (1) • share data (1) all areas of business have access to same data at same time (1) • share other resource (1) central print facility for many workstations (1) • communicating/email/teleconferencing (1) exchange information without travel (1) • user collaboration (1) document can be authored by multiple workers in different locations (1) • hot desking/ teleworking (1) work in any geographical area of business / from home (1) <p style="text-align: right;">max 4 x (2, 1, 0)</p>	

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8	<p>14.7 Human/Computer Interface</p> <p>(a) <i>One method of providing a Human/ Computer Interface (HCI) is to make extensive use of menus.</i></p> <p>(i) <i>Name one example of where menus are used as a main feature of an HCI.</i></p> <p>(ii) <i>Describe four reasons why menus are appropriate for the example you have given.</i></p> <p>(b) <i>A sophisticated HCI makes high use of some system resources.</i></p> <p><i>Name three such system resources and, for each one, state why a sophisticated HCI makes high demands on it.</i></p>	<p>(1 mark)</p> <p>(8 marks)</p> <p>(6 marks)</p>
	<p>(a)</p> <p>(i) appropriate situation (1)</p> <p>(ii) reason (1) description/expansion in context (1)</p> <p>ONE example answer follows for each of FIVE example situations:</p> <ul style="list-style-type: none"> • mobile phone: shortcuts may be available(1) so that often used functions are easily available (1) • printer: choices are restricted / user guided (1) so data is validated / errors are avoided (1) • ATM: logical structure (1) e.g. amounts to withdraw displayed together for choice (1) • mp3 player: lightweight (1) very simple button set to select choices (1) • TV remote: end users skills cannot be predicted (1) so a simple interface has to be provided that is easy to learn (1) <p>Four such reasons are required, all from one situation</p> <p>4 x (2, 1, 0) marks</p>	
	<p>(b)</p> <p>naming a resource (1) why sophisticated HCI makes high demands on it (1)</p> <ul style="list-style-type: none"> • Processor time (1) to display visual interface details/ track mouse movements/ identify selections (1) • Hard Disk Drive/ Backing Store(1) a GUI requires many lines of code/ images which need to be stored(1) • RAM/Memory/ Immediate Access Store(1) large amounts of code/images need to be held in memory for execution(1) Input devices/mouse(1) the interface needs ‘point and click’ in order to function(1) • graphics card(1)will allow the CPU to be dedicated to other tasks NOT monitor <p>Max 3 x (2,1,0)</p>	

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9	<p>14.2 Software</p> <p><i>You are the ICT manager responsible for the information systems in a large college. The governors of the college have been told that the software used to manage examinations no longer has the required functionality and must be replaced. You have been asked to advise the governors on alternative software solutions.</i></p> <p><i>Discuss what you would do in order to make a recommendation. Your discussion should include:</i></p> <ul style="list-style-type: none"> • <i>how you will establish the requirements</i> • <i>the criteria you will use to evaluate possible software solutions</i> • <i>how you will match software capabilities to the requirements</i> • <i>the content of the evaluation report you will write for the governors.</i> <p>The quality of written communication will be assessed in your answer.</p>	(20 marks)
	<p>The solution for this question is intended to provide a framework of key concepts rather than a definitive solution. The aim is to establish an agreed standard that can be applied consistently, by all examiners, taking account of the many alternative answers to this type of question.</p> <p>Allocation of marks:</p> <ul style="list-style-type: none"> • establishing requirements (code as R) - 5 marks maximum • the criteria you will use to evaluate possible software solutions (code as E) - 5 marks maximum • how you will <u>match</u> software capabilities to the requirements (code as M) - 5 marks maximum • the <u>content</u> of the evaluation report you will write for the governors (code as C) - 5 marks maximum <p><i>Maximum mark for content is 16/20</i></p> <p><u>Quality of written communication</u> (code as Q) - 4 marks maximum.</p>	
	<p>Establishing requirements (R marks)</p> <p>how(1) expansion/ example in context (1)</p> <ul style="list-style-type: none"> • interviews (1) prepare questions for key personnel (1) • questionnaires (1) aggregation of responses from all users (1) • existing documentation (1) read to discover official procedures (1) • observation (1) record users real activities (1) • Allow “initial meeting with end-user” (1) so that requirements are clear and understood by both parties (1) • Allow “analyst uses experience” (1) requirements selection informed by what analyst knows works in similar systems (1) <p style="text-align: right;">[max 5 marks]</p>	

	<p>Criteria to evaluate possible software solutions(E marks) criterion (1) expansion/ example in context (1)</p> <ul style="list-style-type: none"> • agreed problem specification (1) ... (1) • functionality (1) ... (1) • performance (1) ... (1) • usability (1) ... (1) • compatibility with existing software base (1) ... (1) • portability (1) ... (1) • robustness (1) ... (1) • user support (1) ... (1) • resource requirements (1) ... (1) • upgradeability (1) ... (1) • financial issues (1) ... (1) • compatibility with hardware (1) ... (1) • ease of use (1) ... (1) • training (1) ... (1) • quality documentation (1) ... (1) • transferability of data (1) ... (1) <p style="text-align: right;">[max 5 marks]</p> <p>How you will <u>match</u> software capabilities to the requirements(M marks) [how(1) expansion/ example in context (1)</p> <ul style="list-style-type: none"> • Establish which software is available to complete the task(s) (1)...(1) • Apply the criteria decided upon to these software choices (1)...(1) • Apply weighting to the criteria in order to compare different solutions (1)...(1) <p style="text-align: right;">[max 5 marks]</p> <p>The <u>content</u> of the evaluation report you will write for the governors(C marks) content (1) expansion (1) Examples only. Credit all reasonable issues and expansions</p> <ul style="list-style-type: none"> • methodology used (1)...(1) • actual evaluation (1)...(1) • recommendations (1)...(1) • justification (1)...(1) <p style="text-align: right;">[max 5 marks]</p>	
The Quality of Written Communication (Q marks)		
4 marks	The candidate has expressed complex ideas clearly and fluently. Sentences and paragraphs follow on from one another smoothly and logically. Arguments will be consistently relevant and well structured. There will be few, if any, errors of grammar, punctuation and spelling.	
3 marks	The candidate has expressed moderately complex ideas clearly and reasonably fluently through well-linked sentences and paragraphs. Arguments will be generally relevant and well structured. There may be occasional errors of grammar, punctuation and spelling.	
2 marks	The candidate has expressed straightforward ideas clearly, if not always fluently. Sentences and paragraphs may not always be well-connected. Arguments may sometimes stray from the point or be weakly presented. There may be some errors of grammar, punctuation and spelling, but not such as to suggest a weakness in these areas.	

1 mark	The candidate has expressed simple ideas clearly, but may be imprecise and awkward in dealing with complex or subtle concepts. Arguments may be of doubtful relevance or obscurely presented. Errors in grammar, punctuation and spelling may be noticeable and intrusive, suggesting weaknesses in these areas
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