



General Certificate of Education

Information and Communication Technology 6521

Unit 4 Information Systems within Organisations

Mark Scheme

2007 examination – January 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 Systems within Organisations / Unit 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.

1	<p>13.1 Organisation Structure</p> <p><i>Information is communicated at three levels within an organisation.</i></p> <p><i>State these three levels.</i></p>	<i>(3 marks)</i>
	<p>1 per level</p> <ul style="list-style-type: none"> • Strategic • Tactical (or Implementation) • Operational <p>Order not important</p>	

2	<p>13.8 Effective ICT teams</p> <p><i>Describe two characteristics of an effective ICT team.</i></p>	<i>(4 marks)</i>																		
	<p>1 for characteristic (c), 1 for description/extension (e) to a max 2 x (2,1,0)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 45%; padding: 5px;">Characteristic</th> <th style="width: 55%; padding: 5px;">Example Description/Extension- accept others</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">Leadership; seniority to task; having an appropriate team leader/manager</td> <td style="padding: 5px;">understanding, ability to hold team together/control team</td> </tr> <tr> <td style="padding: 5px;">Balance of team members</td> <td style="padding: 5px;">business/system/operational/technical</td> </tr> <tr> <td style="padding: 5px;">Appropriate allocation to task</td> <td style="padding: 5px;">play to strengths of team member, viewing “whole”</td> </tr> <tr> <td style="padding: 5px;">Adherence to agreed standards</td> <td style="padding: 5px;">using agreed design methodology or procedures (e.g. ISO9000/2000, CMM)</td> </tr> <tr> <td style="padding: 5px;">Skills to monitor and control</td> <td style="padding: 5px;">progress against plan/ keeping to deadlines /recording progress etc</td> </tr> <tr> <td style="padding: 5px;">Skills to adequately and systematically monitor and control costs</td> <td style="padding: 5px;">keeping within budget</td> </tr> <tr> <td style="padding: 5px;">Good communication skills (with end users or management)</td> <td style="padding: 5px;">Need ability to talk at right level (without jargon etc)/ make sure requirements are clear and agreed</td> </tr> <tr> <td style="padding: 5px;">Good internal/within team communication skills</td> <td style="padding: 5px;">so that the whole team knows what its targets are/work together</td> </tr> </tbody> </table>	Characteristic	Example Description/Extension- accept others	Leadership; seniority to task; having an appropriate team leader/manager	understanding, ability to hold team together/control team	Balance of team members	business/system/operational/technical	Appropriate allocation to task	play to strengths of team member, viewing “whole”	Adherence to agreed standards	using agreed design methodology or procedures (e.g. ISO9000/2000, CMM)	Skills to monitor and control	progress against plan/ keeping to deadlines /recording progress etc	Skills to adequately and systematically monitor and control costs	keeping within budget	Good communication skills (with end users or management)	Need ability to talk at right level (without jargon etc)/ make sure requirements are clear and agreed	Good internal/within team communication skills	so that the whole team knows what its targets are/work together	
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3	<p><i>13.5 Management of change</i></p> <p><i>Changes in the way an organisation operates may be required when a new or amended information system is introduced. Any changes must be managed.</i></p> <p><i>Give five changes that would need managing.</i></p>	<i>(5 marks)</i>
	<p>Any 5x1</p> <ul style="list-style-type: none"> • organisational structure • staff re-skilling/training • staff attitude • employment pattern • employment conditions • internal procedures (or an example of a procedure e.g. security policy) 	

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4	<p>13.6 Disaster Recovery</p> <p><i>All organisations are advised to have a contingency plan to guide them in case a disaster strikes their computerised operations.</i></p> <p>(a) State three of the criteria that should be considered when drawing up a contingency plan for recovery after a disaster.</p> <p>(b) Discuss what should be included in the plan.</p>	<p>(3 marks)</p> <p>(6 marks)</p>
	<p>(a) Any 3 x 1</p> <ul style="list-style-type: none"> • Scale of the organisation and its ICT systems/Volume of data/Size of the system • Nature of the operation • The importance of data held • Timescale until the system is up and running • Costs of recovery options relative to “value” of systems • Perceived likelihood of disaster happening, based on risk analysis <p>(b) An answer encompassing some of the following ideas, to a maximum 6 marks - <i>1 mark per well explained point</i></p> <ul style="list-style-type: none"> • Who is responsible for different activities (e.g. who they are and what their role is) • Timetable of events in case of disaster • Options for recovery (e.g. reciprocal site) • Backup location/frequency etc (max 2 marks for discussion re backup) • Insurance/warranty arrangements for ICT/buildings 	

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>13.3 Corporate Information Systems Strategy</p> <p><i>When writing a Corporate Information Systems Strategy for an organisation, various factors have to be taken into account, including the structure of the organisation.</i></p> <p><i>Give five other factors that might be considered when writing a Corporate Information Systems Strategy and, for each one, give a reason why it might be considered.</i></p>	(10 marks)
	<p>1 for factor (f), 1 for reason for consideration (r) to max 5 x (2,1,0)</p> <ul style="list-style-type: none"> • Business strategy/Business objectives (f) + (r) • Legal and Audit requirements (f) + (r) • Information flow within the organisation (f) + (r) • Staff knowledge and experience with ICT (f), + (r) • Management style and methods/culture (f), + (r) • Responsibilities for ICT (f), + (r) • Personalities within org (f), + (r) • Ability to adapt to change (f), + (r) • Motivation of staff (f), + (r) • Training facilities for staff (f), + (r) • Hardware/technology available/considerations (f) + (r) • Software/applications/systems available/considerations (f) + (r) • Standards in use within organisation/within the industry (f) + (r) • Behavioural factors (f) + (r) • External data sources and sinks (f) + (r) • The need for security (f) + (r) <p>e.g.</p> <p>Legal & Audit requirements (f) because it is important to work within the laws of the country in which the organisation operates (r).</p> <p>Motivation of staff (f) because the staff should be regarded a big contributor to the organisation's success/unhappy staff may affect profit margins (r).</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.

7	13.6 Legal Issues	<p>(a) <i>An engineering company has purchased a design package with a licence agreement that allows up to 10 users at any one time. The company computer network has over 100 terminals and an engineer may need to use the design package at any terminal.</i></p> <p style="text-align: center;"><i>Describe one way of installing this package that will ensure the company does not break its licence agreement.</i></p> <p>(b) <i>Describe two actions that the company could take to discourage or prevent the installation of unauthorised software on their network.</i></p>	<p>(2 marks)</p> <p>(4 marks)</p>																
		<p>(a) Any of these -</p> <ul style="list-style-type: none"> • Installing the software onto a network server (1) and using software controls to limit the usage to 10 concurrent users (1) • Attaching the right to use to each of 10 user ids (1) and telling the engineers what these 10 ids are (1). <p>N.B. DO NOT allow installing direct onto 10 PCs – need to be able to use at any terminal</p> <p>(b) 1 for Action (a), 1 for description/extension (e) to any 2 x (2,1,0)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Action</th> <th style="text-align: left;">Description/extension (Example e marks)</th> </tr> </thead> <tbody> <tr> <td>Regular audits/monitoring</td> <td>of software on all computers/network</td> </tr> <tr> <td>Establish levels of access</td> <td>so only authorised people can install software</td> </tr> <tr> <td>Appoint a software/network manager</td> <td>who is responsible for all software licensing matters</td> </tr> <tr> <td>Monitoring of internet usage</td> <td>checking for illegal downloading</td> </tr> <tr> <td>Code of practice for network users</td> <td>Not allowed to install unauthorised/unlicensed software Not allowed to copy software for home/unlicensed use Disciplinary Procedures</td> </tr> <tr> <td>Disabling floppy/CD/USB drives</td> <td>so users cannot load unauthorised software</td> </tr> <tr> <td>Reinstall all software when each computer is rebooted</td> <td>so that any illegally installed software is 'erased'</td> </tr> </tbody> </table> <p>N.B. Do NOT allow virus scanning – does not necessarily prevent unauthorised software.</p>	Action	Description/extension (Example e marks)	Regular audits/monitoring	of software on all computers/network	Establish levels of access	so only authorised people can install software	Appoint a software/network manager	who is responsible for all software licensing matters	Monitoring of internet usage	checking for illegal downloading	Code of practice for network users	Not allowed to install unauthorised/unlicensed software Not allowed to copy software for home/unlicensed use Disciplinary Procedures	Disabling floppy/CD/USB drives	so users cannot load unauthorised software	Reinstall all software when each computer is rebooted	so that any illegally installed software is 'erased'	
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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	<p>13.4 Information</p> <p><i>A company uses an Information System to keep records of sales, and to produce reports for its sales staff and for its board of directors.</i></p> <p>(a) <i>Describe two differences between the information needed by sales staff in their day-to-day work, and by the board of directors in their quarterly meetings.</i></p> <p>(b) <i>Describe, using a different example for each one, three characteristics of good quality information that might be produced by this Information System.</i></p>	<p>(4 marks)</p> <p>(9 marks)</p>																
	<p>(a) 1 for difference (d), 1 for description/extension (e) to max 2 x (2,1,0)</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th style="width: 25%;">Difference</th> <th>Example Description/Extension – accept others</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td>operational/strategic</td> </tr> <tr> <td>Source</td> <td>Internal/External</td> </tr> <tr> <td>Nature</td> <td>Quantitative/Qualitative</td> </tr> <tr> <td>Timing</td> <td>current/historical</td> </tr> <tr> <td>Frequency</td> <td>short/long-term</td> </tr> <tr> <td>Use (Purpose)</td> <td>Day-to-day purposes/Long-term decision making</td> </tr> <tr> <td>Type</td> <td>Daily reports/Summary of events or finances or Detailed/Summarised</td> </tr> </tbody> </table> <p>If the candidate has the Difference mark, then they need only mention one example (from either Sales staff OR Board of Directors) to get the (e) mark. If they do not have the Difference mark, they must mention examples for both Sales staff AND Board of directors for the (e) mark.</p> <p>Do not credit examples out of this context.</p>	Difference	Example Description/Extension – accept others	Level	operational/strategic	Source	Internal/External	Nature	Quantitative/Qualitative	Timing	current/historical	Frequency	short/long-term	Use (Purpose)	Day-to-day purposes/Long-term decision making	Type	Daily reports/Summary of events or finances or Detailed/Summarised	
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(b) 1 for characteristic (c), 1 for example (e), 1 for description/extension (ee) to max 3x (3,2,1,0)

Characteristic	Example and description/extension – accept other examples and extensions <i>DO NOT credit negative examples</i>	
Relevant	Daily sales report	Of use to salesman to see if they are meeting their targets
Accurate	Figures accurate to the nearest thousand	Adequate for annual report
Complete	Monthly sales figures included up to last trading day of month	So that reliable decisions can be made about special offers etc
Reliable/Having User confidence	Sales figures from branches sent using standard spreadsheet	So that resulting summary can have the user's confidence
Right person/level	Daily/Monthly/Annual report	Sent to Operational/ Tactical/ Strategic level personnel
Right time/Timely	Daily/Monthly/Annual report	When it is needed to make op/Tact/Strat decisions
Right detail/Concise	Daily/Monthly/Annual report	Has enough/not excessive detail for recipient to do their job
Correct channel of communication	Reports sent from outlying branches	Using email attachments at end of day/week etc
Understandable	Summary reports with figures	To be a mix of tabulated and charts to make it easier to assimilate
Up-to-date	Reporting periods to be set with targets for report production	So that information is not too old to be useful
In right format	Daily reports likely to be tabulated and sorted	For ease of daily reference

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.

<p>9</p>	<p>13.7 Training and Support</p> <p><i>A software house has produced a specialist package for the insurance industry.</i></p> <p>(a) <i>Name and describe four methods, which the software house could offer, of providing training for the users of this package.</i></p> <p>(b) <i>Give three methods, which the software house could offer, of providing support for the users of this package.</i></p>	<p><i>(8 marks)</i></p> <p><i>(3 marks)</i></p>
	<p>(a) 1 for method (m), 1 for description/expansion (e). Any 4 x (2,1,0) marks are independent.</p> <ul style="list-style-type: none"> • On-line tutorials/internet (m), + (e) • Step through guide/user training manual (NOT text-book) (m), + (e) • Training course (internal or external) (m) + (e) • CBT using a CD-Rom or Software or DVD-Rom (m), + (e) • Video using VHS or DVD or CD (m) + (e) • One-to-one/on-the-job training (m), +(e) <p>(b) Any 3 x 1</p> <ul style="list-style-type: none"> • (External) Phone line/Help desk • (On-site) support technician / Help desk • User guides/ articles/ utilities/ books/ documentation • Communications systems/ bulletin boards/ internet site/ intranet (<i>passive/delayed response</i>) • On-line technical help (active/real-time) • Email updates from software house • On-screen help (within package) • Call-out support 	

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.

10	<p>13.2 ICT Projects Synoptic</p> <p><i>The development of an effective new information system, and its successful introduction into an organisation, can be due to a combination of factors such as formal development methods and teamwork.</i></p> <p><i>Discuss these factors, paying particular attention to:</i></p> <ul style="list-style-type: none"> • <i>the possible methods of acquiring, developing and implementing a new information system;</i> • <i>the people involved in the development;</i> • <i>the rôle of the organisation's management in the development and introduction of a new system.</i> <p><i>The quality of written communication will be assessed in your answer.</i></p>	<p><i>(20 marks)</i></p>
<p>Continuous prose is expected for this answer. <i>Discuss</i> is the question, so each point made must be full, not just a single word/phrase. Mark as A, P or M for the three bullet points in the question. A full explanation/description gets an extension mark (Ae, Pe or Me) – no more than 6 marks awarded in each section to a maximum of 16 content marks</p> <p>Notes:</p> <ol style="list-style-type: none"> 1. only 1 mark for a list of items/topics 2. topics and expansions below are examples only – others are valid in the context of each bullet point 		
<p>A – methods of acquisition, development, implementation – discussions around following topics -</p> <ul style="list-style-type: none"> • off-the-shelf package or bespoke system • internal development or software house (outsourcing) • Buy or lease • life cycles • formal methods • changeover methods • discussion about user or technical documentation <p>P – people involved –</p> <ul style="list-style-type: none"> • ICT development team • Project management • Commissioning/ business manager • End users • ICT technicians/specialist installers/engineers • User support/Help desk staff 		

	<p>M – organisational management –</p> <ul style="list-style-type: none"> • Involvement in Analysis/Design etc • Knowledge of ICT • Excessive demands etc • Staff management (attitudes, motivation) • Staff training • Structure change management • Introduction of new procedures • Employment changes – work patterns • Employment changes – conditions 	
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(Q marks) = Quality of Written Communication 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