



General Certificate of Secondary Education (Short Course)
January 2012

ICT

45204

(Specification 4520)

Unit 1: Systems and Applications in ICT

Final

Mark Scheme

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 events which all examiners participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for standardisation each examiner analyses a number of students' scripts: alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, examiners encounter unusual answers which have not been raised 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 students' 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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To Examiners:

1. When to award '0' (zero) when inputting marks on CMI+:

A mark of 0 should be awarded where a candidate has attempted a question but failed to write anything credit worthy.

Insert a hyphen when a candidate has not attempted a question, so that eventually the Principal Examiner will be able to distinguish between the two (unattempted/nothing credit worthy) in any statistics.

2. This mark scheme contains the correct responses which we believe that candidates are most likely to give. Other valid responses are possible to some questions and should be credited. Examiners should refer to a Team Leader off-mark scheme responses that they believe are creditworthy.

1	(a)		digital camera graphics digitiser keyboard/keypad light pen mouse sensor scanner concept keyboard web cam	tracker ball joystick/games controller bar code (reader) graphics tablet laser pen touch screens/pad microphone skype phone	Any 2 x 1 mark	2
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1	(b)		printer (or any named printer e.g. laser printer) Two named printers – 1 mark each monitor/screen/VDU plotter speakerheadphones skype phone Any 2 x 1 mark			2
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1	(c)		Hardware – physical parts/devices/components that make up a computer (system) Not just a single example e.g. monitor without explanation Any 1 x 1 mark			1
			Software – programs/set of instructions		Any 1 x 1 mark	1

2	(a)	(i)	D (File Server)	Correct Answer Only		1
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2	(a)	(ii)	B (Dial-up modem)	Correct Answer Only		1
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2	(a)	(iii)	A (Broadband)	Correct Answer Only		1
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2	(b)		LAN – Local Area Network	Correct Answer Only		1
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2	(c)		LAN – limited to a small area (house/building etc.) WAN – worldwide OR Allow LAN – usually cables/hardwired	(1)		1
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			WAN – wireless/satellite (1)	1
3	(a)		A14 Correct Answer Only	1
3	(b)		Date Correct Answer Only	1
3	(c)		=B5*C5 Correct Answer Only	1
3	(d)		AVERAGEUP Correct Answer Only	1
3	(e)		ROUND – will ‘round’ to the nearest digit (allow whole number) asked for (will round up or down depending on the following digit) Example (enough to gain the mark if correct) e.g.– 12.434 using ROUND to 2 decimal places gives 12.43	1
			ROUNDUP – will always round up to the next highest digit (allow whole number) asked for Example (enough to gain the mark if correct) – 12.434 using ROUNDUP to 2 decimal places gives 12.44	1
4	(a)		No address given to return the form Box not high/big enough, so cannot fill in details Text difficult to read/too small Too many different fonts used (styles or sizes) Boxes not in line Title field not in a suitable place Favourite type of game – too open/list/tick box better Other information may be needed (e-mail address) Any 3 x 1 mark	3
4	(b)		Bar Codes Correct Answer Only	1
4	(c)		Text/call to telephone E-mail (not in data capture form) Any 1 x 1 mark	1
5	(a)	(i)	Feasibility study Correct answer only	1
5	(a)	(ii)	Design Correct answer only	1
5	(a)	(iii)	Testing Correct answer only	1
5	(a)	(iv)	Evaluation Correct answer only	1
5	(a)	(v)	Analysis Correct answer only	1
5	(b)		Key points <ul style="list-style-type: none"> • Plan/carry out each stage • Review each stage for errors/changes/improvements • Constant/regular reviewing/looping • Feedback/changes from review fed back into earlier/later stages • Repeat cycle at each stage if needed 	

			Any 2 x 1 mark	2
6	(a)	11	Correct answer only	1
6	(b)	Not a unique identifier/two people have the same surname		1
6	(c)	(i)	GY0986, GY1003 Allow any separator and any order	1
6	(c)	(ii)	GY0340, GY1198, GY1201 Allow any separator and any order	1
6	(d)	<p>No rewardable material 0 marks Not even 1 simple statement relating to or naming a method of data validation.</p> <p>Lower mark range 1 – 2 marks There are simple (even vague) statements (or just naming methods) relating to data validation. These statements relate to ideas/examples below.</p> <p>Mid mark range 3 – 4 marks There is evidence of some understanding shown through the use of mostly correct examples that explain the need/ways of validating data (2). It should be reasonably clear that validation will check that the data is reasonable / sensible / valid / possible / acceptable. Examples given are supported by some relevant description/reasoning. These examples will cover a range of ideas/examples given below.</p> <p>High mark 5 marks There is evidence of a clear understanding shown through the use of correct examples that clearly explain the need/ways of validating data(2) It will be clear that validation with check that the data is reasonable / sensible / valid / possible / acceptable. Examples given are well supported by reasoned arguments. These examples will cover several of ideas/examples given below.</p> <p>Read the answer first before considering which level best fits the candidate's answer. Examples</p> <ul style="list-style-type: none"> • Named examples of validation – range check, presence check, type check, check digits, look-up lists or similar (LMR 1-2 marks) • Clear explanation of how validation / at least 2 examples of validation would improve the accuracy of data being entered into the database (Mid mark range 3-4 marks or HMR 5 marks) 		
7	(a)	The item you buy will usually take longer to arrive	Correct answer only	1
		You cannot inspect in detail the item you are buying	Correct answer only	1
7	(b)	<p>Key elements:</p> <ul style="list-style-type: none"> • websites • allow users to create/build on-line profiles, • share information, pictures, blog entries, music clips, 		

		<p>etc.</p> <ul style="list-style-type: none"> • 'talk' /'speak' online • can be related to a shared interest • build social relationships between members/ stay in touch/add friends <p style="text-align: right;">Any 2 point needed x 1 each</p>	2
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7	(c)	<p>No rewardable material 0 marks Not even 1 simple statement relating to possible software or hardware features used to help people with disabilities access ICT systems.</p> <p>Lower mark range 1 – 2 marks There are simple (even vague) statements (1/2/3) relating to software and/or hardware features used to help people with disabilities access ICT systems. These statements relate to ideas/examples.</p> <p>Mid mark range 3 – 4 marks At least one software and one hardware feature needs to be considered. There is evidence of some understanding shown through the use of mostly correct examples that describe a range (3) of software and hardware features used to help people with disabilities access ICT systems. Examples given are supported by some relevant description/reasoning. These examples will cover a range of ideas/examples.</p> <p>High mark 5 marks At least one software and one hardware feature needs to be considered. There is evidence of a clear understanding shown through the use of correct examples that clearly describe a range (3) of hardware and software features. Examples given are well supported by reasoned arguments. These examples will cover several of ideas/examples.</p> <p>Read the answer first before considering which level best fits the candidate's answer. Lots are possible. Below are a few examples; Hardware</p> <ol style="list-style-type: none"> 1. Specialist Input devices e.g. eye tracking devices, head movement devices, voice recognition, large tracker balls, large keyboards, concept keyboard/pictures used as input, Braille keyboards, touch screen devices, foot operated pointing device and many more. 2. Specialist Output devices e.g. Braille printers, voice output, high contrast monitor imaging, etc. <p>Software</p> <ol style="list-style-type: none"> 1. Software that adapts hardware e.g. 'SharpKeys' that turns off selected keys. 2. Word-prediction software (reduce keystrokes) 3. Software in Windows already e.g. slow keyboard repeats etc. 4. Range of specialist software 'tailored' to individual disabilities. <ul style="list-style-type: none"> • Stated examples would only gain a limited number of marks (LMR 1-2 marks) • A description of how at least 3 features would help people with disabilities access ICT systems would gain high marks (HMR 5 marks)
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8	Qu8	No rewardable material	0
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	<p>Level 1 Lower mark range</p> <p>Subject Criterion Context There are simple statement(s) about emerging technologies or at least one possible effect of how emerging technologies affect the way in which people and/or organisations operate and work together .This will usually be one valid effect. Examples are supported by very limited descriptions.</p> <p>Quality of Written Communication The candidate has used a form and style of writing which has many deficiencies. Ideas are not often clearly expressed. Sentences and paragraphs are often not well-connected or at times bullet points may have been used. Specialist vocabulary has been used inappropriately or not at all. Much of the text is legible and some of the meaning is clear. There are many errors of spelling, punctuation and grammar but it should still be possible to understand much of the response.</p>	<p>1-3 marks</p>
	<p>Level 2 Lower mid mark range</p> <p>Subject Criterion Context There is evidence of some understanding or use shown by looking at, at least one ‘emerging technology’ with examples of at least two valid effects of how emerging technologies affect the way in which people and/or organisations operate and work together. This will usually be at least two valid effects. Examples are supported by limited descriptions.</p> <p>Quality of Written Communication The candidate has used a form and style of writing which has some deficiencies. Ideas are not always clearly expressed. Sentences and paragraphs may not be well-connected or at times bullet points may have been used. Specialist vocabulary has been used on a limited number of occasions. Most of the text is legible and some of the meaning is clear. There are some errors of spelling, punctuation and grammar but it should still be possible to understand most of the response.</p>	<p>4-6 marks</p>
	<p>Level 3 Higher mid mark range</p> <p>Subject Criterion Context Both people and organisations need to be considered. There is evidence of a more developed understanding shown through the use of suitable examples that describe more than two effects of how emerging technologies affect the way in which people and organisations operate and work together. Examples are supported by suitable descriptions.</p> <p>Quality of Written Communication The candidate has mostly used a form and style of writing appropriate to purpose and has expressed some complex ideas reasonably clearly and fluently. The candidate has usually used</p>	

	<p>well linked sentences and paragraphs. Specialist vocabulary has been used on a number of occasions but not always appropriately. Text is legible and most of the meaning is clear. There are occasional errors of spelling, punctuation and grammar.</p>	<p>7-9 marks</p>
	<p>Level 4 High mark range</p> <p>Subject Criterion Context Both people and organisations need to be considered. There is evidence of a clear understanding shown through the use of relevant examples that discuss more than two effects of how emerging technologies affect the way in which people and organisations operate and work together. Examples are well supported by reasoned arguments.</p> <p>Quality of Written Communication The candidate has selected and used a form and style of writing appropriate to purpose and has expressed complex ideas clearly and fluently. Sentences and paragraphs follow on from one another clearly and coherently. Specialist vocabulary has been used appropriately throughout. Text is legible and the meaning is clear. There are few if any errors of spelling, punctuation and grammar.</p>	<p>10-12 marks</p>
	<p>Quality of Written Communication Skills The candidate's quality of written communication skills will be one of the factors influencing the actual mark an examiner will give within a level of response. The quality of written communication skills associated with each level is indicated above</p>	
	<p>Read the answer first before considering which level best fits the candidate's answer. Consider the 'emerging technology' given - any suitable. Then look for suitable statements/descriptions/discussion. Ideas (including 'emerging technologies' and possible effects) are given below. Some possible areas;</p> <ul style="list-style-type: none"> • Wide range of very recent 'emerging technologies • Teleworking (in all its forms) – home-based, mobile, telecentres, • Online buying/shopping – 24/7 society, home deliveries • Increased flexibility, flexible hours, home working • Size of workforce, jobs loss because of introduction of ICT (unemployment), new jobs being created, mainly in ICT. • Location of workplace, centralised, out of town, home working, mobile computing. • Change in jobs, as with size of workforce but also training and retraining issues. Plus job satisfaction, ease of tasks etc • Video conferencing - work together from anywhere in the world/home (Internet). Can communicate/collaborate from anywhere in the world. • Share resources - from anywhere (online storage) • Less face to face communication. 	

9	Qu9	No rewardable material	0 marks
	<p>Level 1 Lower mark range</p> <p>Subject Criterion Context There are simple statements about at least one possible hazard or method of avoiding the hazard. This will usually be one/two valid hazard/method of avoiding the hazard. These statements are limited but would refer to possible hazards such as those outlined below.</p> <p>Quality of Written Communication The candidate has used a form and style of writing which has many deficiencies. Ideas are not often clearly expressed. Sentences and paragraphs are often not well-connected or at times bullet points may have been used. Specialist vocabulary has been used inappropriately or not at all. Much of the text is legible and some of the meaning is clear. There are many errors of spelling, punctuation and grammar but it should still be possible to understand much of the response.</p>		1-3 marks
	<p>Level 2 Lower mid mark range</p> <p>Subject Criterion Context There is evidence of some understanding shown by giving examples of at least two valid possible hazards and limited methods of avoiding the hazards. Examples are supported by limited descriptions.</p> <p>Quality of Written Communication The candidate has used a form and style of writing which has some deficiencies. Ideas are not always clearly expressed. Sentences and paragraphs may not be well-connected or at times bullet points may have been used. Specialist vocabulary has been used on a limited number of occasions. Most of the text is legible and some of the meaning is clear. There are some errors of spelling, punctuation and grammar but it should still be possible to understand most of the response.</p>		4-6 marks
	<p>Level 3 Higher mid mark range</p> <p>Subject Criterion Context There is evidence of a more developed understanding shown through the use of suitable examples that describe more than two possible hazards and methods of avoiding the hazards. Examples are supported by suitable descriptions.</p> <p>Quality of Written Communication The candidate has mostly used a form and style of writing appropriate to purpose and has expressed some complex ideas reasonably clearly and fluently. The candidate has usually used well linked sentences and paragraphs.</p>		

		<p>Specialist vocabulary has been used on a number of occasions but not always appropriately. Text is legible and most of the meaning is clear. There are occasional errors of spelling, punctuation and grammar.</p>	<p>7-9 marks</p>
		<p>Level 4 High mark range</p> <p>Subject Criterion Context There is evidence of a clear understanding shown through the use of relevant examples that discuss more than two possible hazards and describe methods of avoiding the hazards. Examples are well supported by reasoned arguments.</p> <p>Quality of Written Communication The candidate has selected and used a form and style of writing appropriate to purpose and has expressed complex ideas clearly and fluently. Sentences and paragraphs follow on from one another clearly and coherently. Specialist vocabulary has been used appropriately throughout. Text is legible and the meaning is clear. There are few if any errors of spelling, punctuation and grammar.</p>	<p>10-12 marks</p>
		<p>Quality of Written Communication Skills The candidate's quality of written communication skills will be one of the factors influencing the actual mark an examiner will give within a level of response. The quality of written communication skills associated with each level is indicated above</p>	
		<p>Read the answer first before considering which level best fits the candidate's answer.</p> <p>Some possible examples</p> <p>Hazards – a wide range of online hazards are possible. Including;</p> <ul style="list-style-type: none"> • Phishing/scam e-mails • Mirror-image (look alike) websites • Spyware • Viruses • Hacking • 'Stay safe' issues <p>Methods of avoiding</p> <ul style="list-style-type: none"> • Don't download from unknown sources • Treat all e-mail attachments as suspicious • Use firewalls (hardware/software) • Virus protection/anti-virus software • Web browser security – maximise or change • Block pop-ups • Keep software up-to-date • Keep wireless networks secure • Follow 'stay safe' guidelines 	