

GCSE

**Information and
Communication Technology**

45201 / Unit 1 Systems and Applications
Mark scheme

4520
June 2015

V1 Final Mark Scheme

Mark schemes are prepared by the Lead Assessment Writer 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 associates 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 associate understands and applies it in the same correct way. As preparation for standardisation each associate 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, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Assessment Writer.

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.

Further copies of this mark scheme are available from aqa.org.uk

1	(a)		C (Microphone)	Correct Answer Only	1
1	(b)		B (Digital projector)	Correct Answer Only	1
1	(c)		A (Hard disk)	Correct Answer Only	1
1	(d)		A (Encryption)	Correct Answer Only	1
1	(e)		A (Discuss a topic that interests them)	Correct Answer Only	1
1	(f)		C (Timing)	Correct Answer Only	1
1	(g)		C (Log on)	Correct Answer Only	1
1	(h)		B (Motherboard)	Correct Answer Only	1

2	(a)	(i)	H (VoIP) Correct Answer Only	1
2	(a)	(ii)	F (RFID reader) Correct Answer Only	1
2	(a)	(iii)	C (File server) Correct Answer Only	1
2	(b)	(i)	<p>Quicker/faster for downloads/uploads/sending (of videos/large email attachments/files)</p> <p>Better response time/faster than 3G</p> <p>Less latency/lag/buffering</p> <p>Faster Internet access/searching/browsing/Increased bandwidth</p> <p>Video calls/chat/conferences/VoIP/Skype more reliable/better quality</p> <p>Stream video</p> <p>Not quicker to communicate/faster Internet</p> <p style="text-align: right;">Any 2x1</p>	2
2	(b)	(ii)	<p>Limited to available coverage/signal/not all areas have it</p> <p>Other cheaper alternatives/more expensive/costs a lot of money</p> <p>Security issues (viruses, hacking, eavesdropping)</p> <p>Need to upgrade devices</p> <p style="text-align: right;">Any 1x1</p>	1

3	(a)	<p>Mark as three separate sections.</p> <p>Start Fd3 Rt90 (Lt270) (First mark for “Start”, “Fd3” and “Rt90” together and in correct order)</p> <p>Fd5 Lt90 (Rt270) Fd6 Lt90 (Rt270) (Second mark for “Fd5”, “Lt90, “Fd6” and “Lt90” together and in correct order)</p> <p>Fd4 End (Third mark for “Fd4” and “End” together, in correct order and in correct position)</p> <p>Deduct 1 mark only from total for error such as Fdx3 used instead of Fd3.</p>	3
3	(b)	<p>No room for error, device cannot guess commands/only follow commands/exactly/do what its told</p> <p>Slight errors can cause expensive accidents/risk of damage/crash/harm itself/can't be fixed (from far away)/being destroyed</p> <p>Device might not be 'intelligent' and not able to use 'initiative'/can't think/can't make decisions/adjust errors for themselves</p> <p>Because it won't do what you want it to do/do wrong task/wrong sequence/going wrong</p> <p>Might 'behave' dangerously/harm/hurt humans (outside its normal programmed limits)</p> <p>Not move or movement only (from question stem 3a) Not accurate only (from question stem 3b)</p> <p style="text-align: right;">Any 2x1</p>	2

4	(a)	(i)	Erasing	Correct Answer Only	1
4	(a)	(ii)	Morphing		1

			Correct Answer Only	
4	(a)	(iii)	Rotating Correct Answer Only	1
4	(a)	(iv)	Layering Correct Answer Only	1
4	(b)	(i)	Change/alter/improve/remove/erase/edit/refine/clear/eliminate/look different/manipulate Unwanted characteristics/imperfections/blemishes/flaws/improve quality Any 2x1	2
4	(b)	(ii)	Fake advertising/perceptions Create negative body image/insecurity (for females and males)/feel pressure/health/psychological problems/bulimia/anorexia Unrealistic looks made to look possible/blemishes/flaws removed from models Fake photographs to embarrass celebrities/politicians False news pictures/propaganda 'Photoshopped' images are not labelled to show they have been 'doctored'/people don't know they have been edited Any 2x1	2

5	(a)		Compare with other reliable sources Correct Answer Only	1
5	(b)		Only checks what is sensible/reasonable Doesn't check what is correct/e.g. people given the wrong name in a database Depends on whether the validation is setup correctly Ranges/rules might be coded inaccurately Can still enter incorrect values within acceptable range/rules Any 1x1	1
5	(c)		Look-up list Correct Answer Only	1
5	(d)	(i)	Double entry/keying Not dual Visual check Any 1x1	1
5	(d)	(ii)	Double Entry (Data is) entered twice/second time Entered by different operators The copies are compared (by the system)/check if they match Differences identified/highlighted/flagged up Corrected manually/next version accepted Visual Check Re-reading the data/proof reading Checked on screen Checked against the original Users reads and confirms if correct/ mistakes corrected Allow follow on if 5 (d) (i) incorrect However, both marks must come from the same type and must match method named in Q5 (d) (i) Any 2x1	2
5	(e)		Compares text with a set of rules/list Inaccurate/use/words/errors/that don't match rules are: highlighted/identified/notified/flagged up/underlined Provides options for corrections/suggestions/replacements (including words) Not just document make sense Not just to improve/more professional/desired outcome Any 2x1	2
5	(f)		Mail merge	1

			Correct Answer Only	
5	(g)		Recycle old equipment Sell computers/parts Donate computers/parts (to charity) Upgrade/refurbish/repair computers instead/sustainability Dispose of correctly Any 2x1	2

6	(a)		Sensor Correct Answer Only	1
6	(b)	(i)	Used in remote/dangerous situations Humans need breaks/can be carried out 24/7 Precise readings/many per second/shorter intervals No need to pay people/employ humans More accurate/no human error Any 2x1	2
6	(b)	(ii)	Data lost/not saved if equipment fails/computer might crash/break Software/equipment expensive (to set up/buy/install) (Sensors have to be) calibrated Only takes readings at logging interval/something might be missed Not expensive without qualification Not unemployment/training Any 2x1	2
6	(c)		53546768 Correct Answer Only	1
6	(d)		Not organised facts Needs to be processed Raw numbers/example (not 53546768) No meaning/context When processed becomes information Any 2x1	2

7	(a)	<p>Malfunction/breakdown/fail with reason for example: need an expert/skill level to repair Expensive to repair/cost to fix Pressure to buy latest version – technology goes out of date Need to know how to program the device</p> <p style="text-align: right;">Any 1x1</p>	1
7	(b)	<p>Operates the control panel on the front Activates the settings chosen by user Controls the temperature of the water Controls the temperature of the dryer Controls the pump/volume of water/when water is added Controls addition of detergents Controls the spin speed Controls time left in cycle/stop</p> <p style="text-align: right;">Any 2x1</p>	2
7	(c)	<p>Starting/stopping the ride/time of duration/on/off Use of cut-outs/limits/safety issues/scan for problems Testing the ride Controlling speed Controlling cameras/photographs Controlling direction Controlling lights/special effects/water sprays Detecting height, weight, number of passengers</p> <p style="text-align: right;">Any 2x1</p>	2

8	(a)		(copy the file) from one location to a new one Create a second/another version/back up Duplicate/replicate Ignore any phrase following or preceding the above for this 'state' question only Any 1x1	1
8	(b)		Load Rename Correct Answers Only	2
8	(c)		Running more than one program/task/file/job/document Perform tasks simultaneously/at once/no time lag or freezing Task is given an amount of processor time in turn/time-slices Any 1x1	1
8	(d)	(i)	Many users (access resources) at the same time /share processor time/memory/peripherals One person's use does not affect another person's Logs the processing power each process uses Can multi-task Calculates most efficient use of resources Manages network security Often found on mainframes Any 3x1	3
8	(d)	(ii)	Interactive Real time Online No named software such as Windows, Linux and so on Any 1x1	1

9	(a)	(i)	Screen magnifiers Spoken text Correct Answers Only	2
9	(a)	(ii)	Adjustable height desks Puff-sip/suck switch Eye-typer/eye controller/eye tracking Braille/concept /ergonomic/wireless/keyboard Braille printer Track ball/rollerball Speaker/microphone/ voice/speech recognition Foot operated mouse Not Screen magnifiers Not Spoken text Any 2 x1	2
9	(b)	(i)	Removing software/program/app from a system/device Not deleting/getting rid/taking off/erasing Any 1x1	1
9	(b)	(ii)	Program doesn't work as expected/malfunction Newer version available/out of date Free trial period ended Free up/clear/create hard disk/storage No longer want/use/need it/work anymore Remove pre-installed software supplied by vendor/'bloatware' Deleting does not remove all parts Not memory related answers Any 1x1	1

10	(a)	(i)	<p>Can scroll across wider areas of the screen in one go Suitable for use when a desk is available Familiar to users/intuitive</p> <p>Not easy to use Not more accurate Not touch screen</p> <p style="text-align: right;">Any 1x1</p>	1
10	(a)	(ii)	<p>Needs a flat desk/surface to work/space (space answer must be qualified e.g. extra/more) Not suitable for laptop when away from a flat desk Touch pad better when 'mobile' Needs batteries Components break/not working with reason for example: dirty</p> <p style="text-align: right;">Any 1x1</p>	1
10	(b)	(i)	<p>Bar-code reader</p> <p style="text-align: right;">Correct Answer Only</p>	1
10	(b)	(ii)	<p>Keyboard</p> <p style="text-align: right;">Correct Answer Only</p>	1
10	(b)	(iii)	<p>Remote control</p> <p style="text-align: right;">Correct Answer Only</p>	1
10	(c)	(i)	<p>Can be heard by many people/louder/higher volume Suited to situations where quiet is not necessary/events Sound quality is better</p> <p>Not less likely to damage ears</p> <p style="text-align: right;">Any 1x1</p>	1
10	(c)	(ii)	<p>Not suitable for public spaces (e.g. trains)/disturb/annoy others/not private/not personal</p> <p>Not suited to situations where quiet is necessary</p> <p>Cost when comparing quality is much higher</p> <p>Large speakers not 'portable'</p> <p>Not ear damage</p> <p style="text-align: right;">Any 1x1</p>	1

11	(a)		Unique (identifier)	Any 1x1	1
11	(b)		Game ID	Correct Answer Only	1
11	(c)		Currency	Correct Answer Only	1
11	(d)		Faster to update information Reduces duplication of data	Correct Answers Only	2
11	(e)	(i)	Spaghetti Soccer Cup (ignore spelling)	Correct Answer Only	1
11	(e)	(ii)	Dave the Bot (ignore spelling)	Correct Answer Only	1
		No rewardable material 0 marks			
		Lower mark range 1 – 2 marks State/give simple statement(s) or example(s) relating to the disadvantages of governments accessing personal data. Statement(s) relate to the ideas below. Sometimes a bullet list of statements (no description).			
		Mid mark range 3 – 4 marks There is evidence of some understanding shown through the use of at least two mostly correct descriptions and examples of the disadvantages of governments accessing personal data.			
		High mark 5 marks There is evidence of a clear understanding shown through the use of at least two correct descriptions and examples of the disadvantages of governments accessing personal data.			
11(f)		Key Issues:			
		<ul style="list-style-type: none"> • 1984-style fears of government surveillance • Loss of privacy • Possibly monitor political opponents • Loss of data – hacking, errors, viruses, ID theft • Passed onto other countries • Obtained from/used by private companies/third parties/adverts 			
					5

12	(a)	(i)	Max Correct Answer Only	1
12	(a)	(ii)	Min Correct Answer Only	1
12	(b)	(i)	=SUM(B3:E3) Accept without equals sign =B3+C3+D3+E3 Accept =sum(B3+C3+D3+E3) Any 1 x1	1
12	(b)	(ii)	(Absolute cell reference needed to) allow formula to fill down because grand total cell/ J8 is fixed/same/constant/stays Relative cell reference would require each formula to be typed in each time The \$ is used to make the column and row fixed/absolute Any 2 x 1	2
12	(c)		Merge Centre Borders Bold Wrap text Currency 1 decimal place Any 2 x 1	2

12 (d)	No rewardable material 0 marks	
	Lower mark range 1 – 2 marks State/give simple statement(s) relating to using online forms rather than paper-based questionnaires.	
	Mid mark range 3 – 4 marks There is evidence of some understanding shown through the use of mostly correct examples that describe at least one advantage and one disadvantage of using online forms rather than paper-based questionnaires. Examples given are supported by suitable reasoning. If only 2 mostly correct advantages or disadvantages are given then max mark of 3 can be awarded.	
	High mark 5 marks There is evidence of clear understanding shown through the use of correct examples that clearly describe at least one advantage and one disadvantage of using online forms rather than paper-based questionnaires. Examples given are well supported by reasoned arguments.	

	<p>Possible online form advantages</p> <ul style="list-style-type: none"> • Instant response/not waiting for paper to be returned • Save money on printing and posting/staff/environmentally friendly • Responses entered directly into system/less chance of human error/automated/data validation • More flexible, question order can be adapted depending on responses • IT literate people prefer Internet to writing on paper • No problem reading illegible hand writing <p>(No marks awarded for 'not losing data')</p> <p>Possible online form disadvantages</p> <ul style="list-style-type: none"> • Segments of the population still don't have Internet/computer access • Internet users overloaded with requests to complete and might ignore/not have time/bombarded • Internet users mistrust requests and may fear a scam 	
		5

13	(a)	<p>Allow users to report any inaccurate information they see Keep a record of changes made and the names of the users that changed a wiki entry</p> <p style="text-align: right;">Correct Answers Only</p>	2
13	(b)	<p>Audio/video/file and downloaded/uploaded and time period/series/episodes</p> <p style="text-align: right;">Correct Answer Only</p>	1
13	(c)	<p>Wider/bigger audience can be reached – poster might just be up around school</p> <p>Include (hyper)links to audio/video files/websites</p> <p>New posts/information can be: added/adjusted/easily/quickly/updated</p> <p>Readers can leave comments/feedback/opinions/questions</p> <p>Not cheaper or saves on printing Not environmental reasons</p> <p style="text-align: right;">Any 2 x 1 mark</p>	2
13	(d)	<p>Other people might leave inappropriate/disrespectful comments Online safety issues, cyberbullying/paedophiles possibilities Digital footprint – regret posts made No confidentiality – public ‘forum’ Need Internet/computer access People need to know about blog/name/URL</p> <p>Not hackers/viruses</p> <p style="text-align: right;">Any 2 x 1 mark</p>	2

13 (e)	No rewardable material 0 marks	
	Lower mark range 1 – 2 marks One or two simple statement(s) or sensible examples relating to normal or extreme data. Statement(s) relate to the ideas below.	
	Mid mark range 3 – 4 marks There is evidence of some understanding shown through the use of mostly correct descriptions and examples of the differences between normal and extreme data. At the top end there will be some understanding shown of both normal and extreme data and their differences.	
	High mark 5 marks There is evidence of a good understanding shown through the use of correct descriptions and examples of the differences between normal and extreme data.	
	Possible differences/examples: <ul style="list-style-type: none"> • Normal data is within the normal range • Normal data is what would normally be expected to be entered • Normal data will be accepted by a system • Suitable examples of normal data, such as in an exam out of 100: 10 and 90 would be normal data • Extreme data is within the acceptable range but close to the limits set • Extreme data is on/within the boundary between normal and erroneous data • Extreme data is the highest/lowest number in the range that the system will accept, on the edge • Suitable examples of extreme data, such as in an exam out of 100: 0 and 100 would be extreme data 	
		5

Read the full answer first before you start to mark it.	Q14
No rewardable material	0 marks
<p>Level 1 Lower mark range</p> <p>Subject Criterion Context</p> <p>Simple example(s) supported by no comments limited to the lower end (for example a bulleted list). At the higher end of the mark range there is a simple statement about at least one possible way people can behave responsibly or stay safe.</p> <p>Quality of Written Communication</p> <p>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.</p> <p>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</p> <p>There is evidence of some understanding shown by considering sensible issues that each briefly considers ways people can behave responsibly and stay safe. At the lower end of this mark range at least two points need to be considered. At the higher end of this mark range at least three points need to be considered. Examples are supported by limited discussions.</p> <p>Quality of Written Communication</p> <p>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</p>	4-6 marks

<p>occasions.</p> <p>Most of the text is legible and some of the meaning is clear.</p> <p>There are some errors of spelling, punctuation and grammar but it should still be possible to understand most of the response.</p>	
<p>Level 3 Higher mid mark range</p> <p>Subject Criterion Context</p> <p>There is evidence of a more developed understanding shown by discussing sensible issues that each look at possible ways people can behave responsibly and stay safe. At least four points need to be considered.</p> <p>Examples are supported by discussions.</p> <p>Quality of Written Communication</p> <p>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.</p> <p>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</p> <p>There is evidence of a clear understanding shown by clearly discussing sensible issues that each look at possible ways people can behave responsibly and stay safe. At least four points need to be considered.</p> <p>Examples are well supported by reasoned discussions.</p> <p>Quality of Written Communication</p> <p>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.</p> <p>Specialist vocabulary has been used appropriately throughout.</p> <p>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</p> <p>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>Possible issues of responsible behaviour/staying safe</p> <ul style="list-style-type: none"> • Nondisclosure of personal info • Use privacy settings/parental controls/passwords • Not forwarding unknown emails/viruses • Being aware of phishing • Not clicking 'unknown' links • Not meeting people from chat rooms/being aware of grooming/paedophiles/only talk to people you know • No inappropriate webcam use • Not Cyberbullying • Not accessing pornography • Think before trolling/posting a comment/picture/digital footprint/online 'forever' • Plagiarism/crediting owners • No illegal downloading • Follow 'digital etiquette' <p>Accept other sensible answers.</p>	

Read the full answer first before you start to mark it.	Q15
No rewardable material	0 marks
<p>Level 1 Lower mark range</p> <p>Subject Criterion Context</p> <p>Simple example(s) supported by no comments limited to the lower end (for example a bulleted list). At the higher end of the mark range there is a simple statement about at least one possible way of limiting authorised access.</p> <p>Quality of Written Communication</p> <p>Specialist vocabulary has been used inappropriately or not at all.</p> <p>Much of the text is legible and some of the meaning is clear.</p> <p>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</p> <p>There is evidence of some understanding or use shown by giving examples of at least two reasonably valid brief discussions of unauthorised access. Examples are supported by limited discussions.</p> <p>Possible ways of preventing are only briefly considered.</p> <p>Quality of Written Communication</p> <p>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.</p> <p>Specialist vocabulary has been used on a limited number of occasions.</p> <p>Most of the text is legible and some of the meaning is clear.</p> <p>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</p> <p>There is evidence of a more developed understanding shown through the use of suitable examples that at the bottom end discuss at least three types of unauthorised access and ways of preventing.</p> <p>At the top end, discuss at least four types of unauthorised access and ways of preventing.</p> <p>Examples are supported by suitable discussions.</p> <p>Possible preventions are discussed.</p> <p>Quality of Written Communication</p> <p>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.</p> <p>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</p> <p>There is evidence of a clear understanding shown through the use of at least four relevant examples that discuss types of unauthorised access and ways of preventing.</p> <p>Examples are well supported by reasoned arguments.</p> <p>Possible preventions are clearly discussed.</p> <p>Quality of Written Communication</p> <p>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.</p> <p>Specialist vocabulary has been used appropriately throughout.</p> <p>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</p> <p>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>Preventing unauthorised access:</p> <ul style="list-style-type: none">• User accounts/profiles• Passwords/pin codes – reasons for• Passwords/pin codes good practice• Levels of access• Security questions• Firewalls• Secure socket layer (SSL) authentication• HTTPS - secure payment• Anti-virus/Trojans• RSA certificates – encryption• Locks• Alarms• CCTV• Biometrics• Security guards <p>Accept other sensible answers.</p>	