



Cambridge IGCSE™

INFORMATION AND COMMUNICATION TECHNOLOGY

0417/12

Paper 1 Written Paper

March 2020

MARK SCHEME

Maximum Mark: 100

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the March 2020 series for most Cambridge IGCSE™, Cambridge International A and AS Level components and some Cambridge O Level components.

This document consists of **13** printed pages.

Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

Question	Answer	Marks
1(a)	Webcam Mouse	2
1(b)	RAM Video card	2

Question	Answer	Marks
2		internet intranet
	This type of network is public	✓
	This is the more secure type of network	
	This type of network is global	✓
	This type of network is more likely to be monitored	
		2

Question	Answer	Marks
3	Two from, for e.g.: Oil prospecting Mineral prospecting Diagnostic systems Careers Medical diagnosis	2

Question	Answer				Marks
4(a)		desktop computer	tablet computer	smartwatch	4
A computer made up of separate units	✓				
Is an example of wearable technology			✓		
A portable device that allows text to be typed relatively easily		✓			
Most easily used for fitness and health monitoring by runners			✓		
4(b)	<p>Three from: More portable as it is lighter in weight Smaller in size therefore can fit in in your pocket More likely to have the smartphone with you at all times Easier to receive and make phone calls on the move More of a chance of retaining the signal//can be used in more places than a laptop computer Less power consumption</p>				3

Question	Answer	Marks
5(a)	<p>IF(A2<>"",VLOOKUP(A2,E3:F6,2), "")</p> <p>If the contents of A2 are not empty – 1 mark Otherwise display a blank cell – 1 mark</p> <p>Three from: Looks up/searches the value in A2 Looks up in the range E3:F6 Retrieves/displays the corresponding value From the second column of the range Displays the value/produces ICT in A3</p>	5

Question	Answer	Marks
5(b)(i)	<p>Three from: Used if the range of cells is to be used many times Easier to remember a name rather than cell references Only has to type in the name rather than the cell references Less chance of errors when entering the range If the range of cells moves/copied the name still refers to the cells</p>	3
5(b)(ii)	Example name – Subjects	1
5(c)	<p>Counts the number of candidates/people that are opting for the ICT examination</p> <p>or</p> <p>Counts the number of 'E' <u>in</u> the range A4:A15</p>	2

Question	Answer	Marks
6(a)	<p>\\Work\Class_A1\Examination_Marks\ \Work – 1 mark \Class_A1 – 1 mark \Examination_Marks – 1 mark</p>	3
6(b)	<p>.txt is a text file format – 1 mark .rtf is a rich text format – 1 mark</p>	2
6(c)	<p>Three from: RTF has basic formatting (embolden, underline, etc.) while TXT is plain text RTF is capable of paragraph formatting while TXT is not RTF is capable of creating bulleted lists while TXT is not RTF files can include images while TXT cannot TXT takes up less memory while RTF takes up more memory</p>	3

Question	Answer	Marks
6(d)	<p>Four from:</p> <p>To save time typing the personal details of each student onto the document</p> <p>To help reduce the number of errors in the typing of the data</p> <p>Used to save time editing the document</p> <p>Produces a personalised document for each student</p> <p>So the teacher does not miss out a student</p>	4

Question	Answer	Marks
7(a)	<p>Max five from:</p> <p>The biometric data is unique to the user</p> <p>Biometric data is always with you</p> <p>Passwords can be copied/forgotten/guessed/cracked</p> <p><u>Difficult</u> to copy/forge biometric data</p> <p>Eliminates shoulder surfing</p> <p>Prevents key logging software</p> <p>Max two from, e.g.:</p> <p>fingerprints, Retina scans, Voice recognition, Iris scans, Handprint</p>	6
7(b)	<p>Four from:</p> <p>If the user wears glasses/grows a beard/damages the face/aging effects, then the laptop computer may not read the face correctly</p> <p>Position of the face and distance from the screen is important</p> <p>Possible concerns about personal liberty infringement/intrusive</p> <p>Equipment/set up is more expensive</p> <p>The system has to be set up before use and this can take more time than setting up a password</p> <p>May activate accidentally</p> <p>Once set up it is difficult to reset</p>	4

Question	Answer	Marks
8(a)	<p>Two from:</p> <p>A flat file database stores data in one table//a relational database uses multiple <u>tables</u></p> <p>In a relational database the tables are linked</p> <p>In a relational database must have a primary key and a foreign key in the linked tables</p>	2
8(b)	<p>Four from:</p> <p>Open database package</p> <p>Select database tools</p> <p>The teacher's file and subject file would be imported to separate tables</p> <p>A primary key is identified/set</p> <p>The foreign key is identified in the subject table</p> <p>Click/create/select relationships</p> <p>The primary key is dragged to the foreign key</p> <p>Save the <u>database</u></p>	4

Question	Answer	Marks																				
9	<table border="1"> <thead> <tr> <th></th> <th>header</th> <th>footer</th> <th>margin</th> </tr> </thead> <tbody> <tr> <td>Text entered that can appear at the top of each page automatically</td> <td>✓</td> <td></td> <td></td> </tr> <tr> <td>An area between the main content of a page and the edge of the page</td> <td></td> <td></td> <td>✓</td> </tr> <tr> <td>An additional space between facing pages</td> <td></td> <td></td> <td>✓</td> </tr> <tr> <td>Text entered that can appear at the bottom of each page automatically</td> <td></td> <td>✓</td> <td></td> </tr> </tbody> </table>		header	footer	margin	Text entered that can appear at the top of each page automatically	✓			An area between the main content of a page and the edge of the page			✓	An additional space between facing pages			✓	Text entered that can appear at the bottom of each page automatically		✓		4
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Question	Answer	Marks															
10(a)	<p>Four from:</p> <p><i>Cell phone</i> He could use his cell phone to send text messages Text messages can be sent at any time of the day//Text messages are not affected by time zone differences He can capture image/audio <u>and send them</u></p> <p><i>VoIP</i> Used on any computing device that can connect to the internet Can connect using hot spots Live videos can be sent</p> <p>To gain full marks it needs at least one benefit of using a cell phone and at least one benefit of using VoIP</p>	4															
10(b)	<p>One from: Pay in cash/money Withdraw cash/money</p>	1															
10(c)	<table border="1"> <thead> <tr> <th></th> <th>Appropriate</th> <th>Not Appropriate</th> </tr> </thead> <tbody> <tr> <td>How old are you?</td> <td></td> <td>✓</td> </tr> <tr> <td>What is your mother's maiden name?</td> <td>✓</td> <td></td> </tr> <tr> <td>What is your PIN?</td> <td></td> <td>✓</td> </tr> <tr> <td>Which town were you born in?</td> <td>✓</td> <td></td> </tr> </tbody> </table>		Appropriate	Not Appropriate	How old are you?		✓	What is your mother's maiden name?	✓		What is your PIN?		✓	Which town were you born in?	✓		2
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Which town were you born in?	✓																

Question	Answer	Marks
10(d)	<p>Three from: Saves money by not having to pay for transport to the bank Saves time by not having to travel to the bank He does not carry cash therefore less chance of robbery Banking is 24/7 Money from his parents can be sent at any time therefore speeding up the time it takes to reach his account Saves time rather than queueing in the bank He can select his own language</p>	3
10(e)	<p>Two from: May not have a <u>stable</u> internet connection It is easier to make an error with online banking There may not be the facilities to carry out online banking in remote parts of Kenya Security issues as he could be using <u>public</u> hot spots May need cash as isolated communities may not have facilities</p>	2

Question	Answer	Marks
11	<p>Max four from: The introduction of robots has reduced the number of car production/factory floor workers Vehicle production factories/robots work '24/7' Workers could be working unsociable hours De-skilling of staff Increase in training for staff</p> <p>Max four from: Increase in the number of supervisors/quality control workers Increase in the number of maintenance staff Increase in part time/job sharing Increased number of staff compressing hours Increase in the number of engineers/designers/programmers to build the robots</p>	6

Question	Answer	Marks
12(a)	<p>Four from:</p> <p>The web address should start with https</p> <p>There is a closed/green padlock</p> <p>When the padlock is clicked a message will state the connection is encrypted/secure</p> <p>The web page has a digital/SSL certificate</p> <p>The green padlock shows it has an Extended Validation (EV) certificate/CA certificate</p>	4
12(b)	<p>Max four from:</p> <p><i>Differences</i></p> <p>Pharming downloads a file/program/<u>malicious</u> code onto the user's smartphone</p> <p>When the user enters a correct website the software redirects them to the fake website</p> <p>When the user enters his password/personal data it is sent to the hacker's computer</p> <p>Pharming can be stopped by not downloading .exe, .bat files</p> <p>In Smishing the user receives a text message <u>from an unknown person</u></p> <p>In Smishing the user is asked to phone a number/reply to the text/click on a link</p> <p>Smishing can be stopped by not replying to unknown text messages</p> <p>Max three from:</p> <p><i>Comparisons</i></p> <p>Both are attacks on the smartphone</p> <p>Both redirect the user to a fake company/person/fake website</p> <p>Both require the user to enter/divulge personal information</p> <p>Both obtain/steal personal/your data</p>	6

Question	Answer	Marks
13(a)	<p><i>Advantages</i> Max five from: Allows the use of sound/animation/video/transitions to make the presentation//leaflets cannot use sound/animation/video Can be more interactive therefore can be used on a company website/interactive whiteboard Hyperlinks can be used//the users of the leaflet would have to type in the hyperlink No printing costs More accessible (speak text, etc.) People can throw away leaflets without reading them Easier to update</p> <p><i>Disadvantages</i> Max five from: <u>Special</u> equipment is needed to view the presentation Power/equipment failure/corrupted software can be an issue There could be more focus on the presentation rather than the content People have to be present in the lecture room The leaflet can be read at any time Presentations cannot be written in braille</p>	8
13(b)	<p>Four from: Open the presentation Take/photograph an image of the product Upload an image of the new product from a camera/file/the company website//export from camera Save the image Select the correct slide Create a frame on the slide Browse/search for the image Import/insert/copy and paste the image into the presentation/slide Place/drag the image in correct place Edit the image Save the presentation</p>	4

Question	Answer	Marks
13(c)	Two from: The image is not in the current/same folder The name of the image/format/extension is incorrect The image does not exist//software does not support the file extension The image has not been uploaded	2