



# Cambridge IGCSE™

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INFORMATION AND COMMUNICATION TECHNOLOGY

0417/12

Paper 1 Written

October/November 2020

MARK SCHEME

Maximum Mark: 100

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**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.

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This document consists of **9** 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)	SSD Memory stick	2
1(b)	Bar code reader Optical Character Reader	2

Question	Answer			Marks	
2		<b>behaviour</b> (✓)	<b>content</b> (✓)	<b>presentation</b> (✓)	4
	This is used to display and format elements within the web page			✓	
	This layer includes the hyperlinks to navigate around the website		✓		
	This layer is used to enter scripting language to elements within a web page	✓			
	This layer is used to create the structure of a web page		✓		

Question	Answer	Marks
3(a)	ROM/Read Only Memory	1
3(b)	3D printer	1
3(c)	Sensor	1

Question	Answer	Marks
4(a)	<b>One</b> mark per correct answer in correct order: Analogue Analogue to Digital Convertor Pre-set value Motor/Actuator	4
4(b)	Numeric keypad Moisture sensor	2

Question	Answer	Marks
4(c)	<p><b>Six from:</b></p> <p><b>Benefits</b>  Robots can work in sterile/hazardous areas where humans would need protective clothing  Robots can work 24/7  Cheaper in the long run  More accurate  Cars will be more consistent  Robots do the boring/laborious work  Issues can be found quicker  Higher productivity</p> <p><b>Drawbacks</b>  More expensive to buy//more expensive in the short term  Maintenance is more expensive as maintenance staff needed  Requires backup systems, which are expensive  They replace skilled workers, leading to de-skilling  They need constant observation which increases the cost of maintenance crews  If something goes wrong, it may be difficult to find the error  Workers need to be re-trained which is expensive</p> <p>To gain full marks there must be at least one benefit and drawback</p>	6

Question	Answer	Marks
5(a)	<p><b>Eight from:</b></p> <p><b>Similarities</b>  Both are communication systems  Both use internet technologies  Both use HTML to write the web pages  Both are information systems  Both are networks</p> <p><b>Differences</b>  An intranet has private access whereas the internet has public access  An intranet is policed whereas the internet anyone can post material  The data on an intranet is moderate whereas /the internet is not moderated  The data access on an intranet is more secure than the internet  Internet has greater amount of information than intranet  Intranet is within an organisation whereas the internet is world-wide  Data in the intranet is more relevant/reliable than information found on the internet</p> <p>To gain full marks there must be at least one from each section</p>	8

Question	Answer	Marks
5(b)	<p>Matched pairs:</p> <p>HTTP/HyperText Transfer Protocol Transfer data between a webserver and the browser//display/loads pages//connect to a webpage</p> <p>HTTPS/ HyperText Transfer Protocol Secure variant <b>One</b> from: Transfer data between a webserver and the browser <u>securely</u>//display/loads secure pages//connect to a secure webpage Secure variant of HTTP</p> <p>FTP/File Transfer Protocol Transfers files between computers/website</p> <p>VOIP/Voice Over Internet Protocol Makes phone calls over the internet</p> <p>SSL/TLS determines variables of the encryption for both the link and the data being transmitted</p> <p>SMTP Communication protocol for email</p> <p>SLS Protocol used on the internet</p>	6

Question	Answer	Marks
6(a)	<p>B4+(B4*Plan!\$B13)</p> <p><b>Three</b> from: Calculates the 2021 income in the Model sheet By increasing the 2020 income by 2.5% The 2.5% is taken from the Income Growth cell in the Plan sheet</p> <p>The \$ is needed as the column B needs to be retained when the formula is replicated – 1 mark</p> <p>The ! is needed to show that the data is being taken from a different worksheet – 1 mark</p>	5
6(b)	<p>IF(B20&gt;35000,“Y”,“N”)</p> <p>The formula automatically displays a Y/can buy the car if the Savings cell/B20 is greater than \$35 000 otherwise it displays an N/cannot buy the car</p>	3

Question	Answer	Marks
6(c)	<p>Pie chart – 1 mark</p> <p><b>Five</b> from:            Select Plan sheet            Highlight A5:A10            Press CTRL and highlight D5:D10            Click on insert chart            Select pie chart            Choose style of chart            Add a title            Add data/axes labels            Add legend            Add a name for the new sheet</p> <p>Right click on the chart and move to a new sheet//copy and paste in the new sheet – 1 mark</p>	7

Question	Answer	Marks
7(a)	<p><b>Six</b> from:</p> <p><b>Benefits</b>            Gives the opportunity for the member to give more honest answers            The questions can be expanded/modified//added to following previous questions/answers            Allows more detailed answers to be given rather than questionnaires            Questions can be explained            Can see the body language</p> <p><b>Drawbacks</b>            Takes a long time to interview all the members using this method            Both the members and the interviewer have to be free at the same time            This method is expensive as the system's analysts time is expensive            The member cannot remain anonymous, so they cannot express themselves properly            The member feels that they give comments that the interviewer wants to hear</p> <p>To gain full marks at least one benefit and drawback must be given</p>	6
7(b)	<p>Numeric: Integer            Boolean/logical            Date            Numeric: Currency</p> <p>Must be in this order</p>	4
7(c)	<p><b>Two</b> from:            The field would not be used for calculations            There is a leading zero in the data            Text fields take up less space than numeric fields</p>	2

Question	Answer	Marks
7(d)	<p><b>Six</b> from:</p> <p>Open/load the word processor</p> <p>Click on mailings/mail merge</p> <p>Load/create the membership card template/master document</p> <p>Tags/field/place holders are placed in the membership card</p> <p>Select/locate the data/recipient list in the new system//load data source</p> <p>Link the new system to the membership card template</p> <p>The membership card is merged with the new system</p> <p>The data from the fields are imported into the membership card</p> <p>The data replaces the tags/field/place holders</p> <p>Preview results</p> <p>Check spelling/proof read</p> <p>The membership cards are saved/printed/sent</p>	6

Question	Answer	Marks
8(a)	<p><b>Four</b> from:</p> <p>Costs are reduced as less staff have to be employed in the store</p> <p>Less physical shops are required therefore the costs of running the stores are reduced</p> <p>The customer base is increased as the internet is global</p> <p>There are increased costs due to employing more drivers/staff in the packing departments</p> <p>Increased costs in setting up and maintaining the online shopping website</p> <p>Reduction in customer loyalty as customers tend to shop around</p> <p>Change in jobs from instore to delivery drivers//increase in delivery drivers/staff have to be re-trained</p> <p>Increased costs as employees have to be trained on new technology</p>	4
8(b)	<p><b>Five</b> from:</p> <p>Use <u>up to date</u> anti-spyware/anti-virus to stop phishing and pharming attacks</p> <p>Using websites that encrypt data when sent/green padlock/use HTTPS/SSL</p> <p>Ensuring that strong passwords are used</p> <p>Passwords used for the online shopping account should be different to other passwords you use</p> <p>Check all transactions carried out with the store/receipts</p> <p>Type in the web address of the supermarket rather than copy and paste/click on links from an email</p> <p>Do not buy from untrusted websites/apps</p> <p>Ensure that the wireless password to the router is strong</p> <p>Report any phishing attempts</p> <p>Disable cookies/delete cookies frequently</p>	5

Question	Answer			Marks	
8(c)		<b>pharming</b> (✓)	<b>phishing</b> (✓)	<b>smishing</b> (✓)	4
	Fake emails are sent to target users		✓		
	When the user types in a URL they are directed to a fake website	✓			
	Malicious code is installed on the user's computer	✓			
	Fake text messages are sent to the user's phone			✓	

Question	Answer	Marks
9	<b>Four</b> from: <u>Making a copy</u> and giving it away to a friend or colleague/streaming without permission <u>Making a copy</u> and lending it without permission <u>Making a copy</u> and selling it without permission Using a single copy with multiple simultaneous use on a network Using coding from the original copy in your own programs/modifying the original code Renting out the original copy without permission	4

Question	Answer	Marks
10(a)	<b>Two</b> from: Link from an image or word Link containing a URL//URL code When clicked on it takes you to a web page or position in a webpage	2
10(b)	<b>Two</b> from: Internet Service Provider A company that provides users with <u>access</u> to the internet/internet services Usually broadband	2

Question	Answer	Marks
11(a)	<b>Three</b> from: Use a flat screen monitor to reduce the eye strain Use matt finish/anti-glare screens to stop glare Use screens that can be tilted to reduce neck pain Use screens that have height adjustment Turn the monitor 90 degrees to a window to reduce glare Use LCD monitors to reduce screen flicker Use screen filters//lower the brightness Do not sit too close to the screen Use LED to reduce eye strain	3

Question	Answer	Marks
11(b)	<b>Two</b> from: Use wrist/hand rests to reduce RSI Use ergonomic keyboards to reduce RSI Use voice activated software to reduce the use of the keyboard Ensure correct posture when typing on the keyboard Take breaks/use stretching exercises	<b>2</b>

Question	Answer	Marks
12	<b>Four</b> from: With a CLI Instructions must be typed to get a computer to carry out an action The user needs to remember/learn/understand the commands in a CLI The instructions need to be entered correctly in CLI With a CLI you have to remember the exact path and name of application With a CLI it is more important that users understand how a computer works With a GUI you just click on an icon In the GUI the instructions are pre-determined GUI is more user-friendly GUI uses more processing power GUI uses more memory	<b>4</b>