



Cambridge IGCSE™

INFORMATION AND COMMUNICATION TECHNOLOGY

0417/12

Paper 1 Written

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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 October/November 2020 series for most Cambridge IGCSE™, Cambridge International A and AS Level and Cambridge Pre-U components, and some Cambridge O Level components.

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		behaviour (✓)	content (✓)	presentation (✓)	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)	One 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)	Six from: Benefits 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 Drawbacks 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 To gain full marks there must be at least one benefit and drawback	6

Question	Answer	Marks
5(a)	Eight from: Similarities Both are communication systems Both use internet technologies Both use HTML to write the web pages Both are information systems Both are networks Differences 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 To gain full marks there must be at least one from each section	8

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

Question	Answer	Marks
6(a)	B4+(B4*Plan!\$B13) Three 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 The \$ is needed as the column B needs to be retained when the formula is replicated – 1 mark The ! is needed to show that the data is being taken from a different worksheet – 1 mark	5
6(b)	IF(B20>35000,"Y","N") 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	3

Question	Answer	Marks
6(c)	Pie chart – 1 mark Five 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 Right click on the chart and move to a new sheet//copy and paste in the new sheet – 1 mark	7

Question	Answer	Marks
7(a)	Six from: Benefits 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 Drawbacks 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 To gain full marks at least one benefit and drawback must be given	6
7(b)	Numeric: Integer Boolean/logical Date Numeric: Currency Must be in this order	4
7(c)	Two 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	2

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

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

Question	Answer				Marks
8(c)		pharming (✓)	phishing (✓)	smishing (✓)	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	Four 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)	Two 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)	Two 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)	Three 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)	Two 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	2

Question	Answer	Marks
12	Four 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	4