



Cambridge IGCSE™

INFORMATION AND COMMUNICATION TECHNOLOGY

0417/13

Paper 1 Written

October/November 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 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			Mark
1(a)		applications (✓)	system (✓)	2
	Measurement software	✓		
	Linker		✓	
	Database	✓		
	Utility software		✓	
4 correct ticks = 2 marks 2 or 3 correct ticks = 1 mark 1 correct tick = 0 marks				
1(b)	Two from: Processor Motherboard Random access memory (RAM) Read only memory (ROM) Video card Sound card Graphics card			2

Question	Answer				Marks
2	Item	Technical documentation (✓)	User documentation (✓)	Both (✓)	6
	Algorithms	✓			
	File structures	✓			
	Error messages		✓		
	Limitations of the system			✓	
	Hardware requirements			✓	
	Glossary of terms		✓		

Question	Answer	Mark
3(a)	Gutter margin	1
3(b)	Header	1
3(c)	Widow	1
3(d)	Fully justified	1
3(e)	Text/word wrap	1

Question	Answer	Marks
4	Two from: csv – comma-separated values txt – text rtf – rich text format	2

Question	Answer	Marks
5(a)	Three from: Created using HTML Every aspect of the site's content/information/data should be represented in this layer Can consist of text/images/hyperlinks/multimedia Layer used to create the structure of the web page	3
5(b)	Three from: Usually includes media queries Media queries changes the site's display based on screen size and device This is used to display and format elements within the web page/format of the web page/customise This layer is defined by CSS (Cascading Style Sheets) Contain styles that indicate how the document should be displayed in a web browser	3

Question	Answer	Mark
6(a)	<p>Six from:</p> <p>Benefits Faster to complete all questionnaires than using interviews Cheaper to produce questionnaires than pay/employ an interviewer Individuals can remain anonymous therefore they are more truthful More people can answer the questionnaire than can be interviewed They can fill it in in their own time therefore quicker to complete overall</p> <p>Drawbacks Tend not to be popular with users Too inflexible cannot ask follow up questions Users tend to exaggerate their responses as they are anonymous As it's anonymous people may not take it seriously Cannot expand on their answers/limited in their responses</p> <p>To gain full marks at least one benefit/drawback must be given</p>	6
6(b)	Visual verification Double data entry	2
6(c)	<p>Four from:</p> <p>Data may be out of range but verification does not pick it up Data may be in the wrong format but verification does not pick it up Data may be missing from a field but verification does not pick it up Data may be of the wrong length but verification does not pick it up Validation checks that the data is sensible which verification does not Verification only checks that the data has been transferred correctly Verification only checks that the data matches the original source document Together they reduce the number of errors in the data</p>	4

Question	Answer	Marks
7(a)	<p>Two from:</p> <p>Keypad Temperature sensor Override switch for timing Touch screen Remote control//smartphone//tablet</p>	2
7(b)	<p>Six from:</p> <p>Microprocessor reads/receives the data The required temperature/preset value is keyed in using the devices The microprocessor compares the data with the preset value If the temperature is greater than or equal to the preset value then a signal is sent to the actuator actuator turns off the heaters If the temperature is lower than the preset value then a signal is sent to the actuator to turn on the heaters Process is continuous</p>	6

Question	Answer	Mark
8(a)	=INT(G3/60) Two from: Gives the integer part of the calculation Works out the minutes The calculation is G3 divided by 60//Total time divided by 60	2
8(b)	=ROUND(I3,1) Two from: Rounds the value of I3//total time to 1 decimal place If the 2nd decimal place figure is 5 or more it rounds up If the 2nd decimal place figure is below 5 it rounds down//stays the same	2
8(c)	For the sort Max four from: Highlight A3 to G9 Select Sort Sort on Column I/Total Time Smallest to largest//ascending order For the display Max four from: Highlight columns A and B Click Insert column to the left Enter the titles Enter the Rank/Medal data	6
8(d)	Six from: Advantages More accurate Less expensive to run Data is more consistent More than one variable can be measured at a time/split times Results can be produced faster Disadvantages More expensive to purchase equipment/software Maintenance can be more expensive If the system fails/power outages could cause the computer to lose data/sensor fails To gain full marks at least one advantage and disadvantage is needed	6

Question	Answer	Mark
9(a)	<p>Five from:</p> <p>The document/attachment loads directly into the computer's memory therefore better security</p> <p>The computer need not be switched on</p> <p>The computer receives a soft copy</p> <p>The fax does one thing at once therefore could be engaged</p> <p>The document in an email is in digital format</p> <p>Easier to send to multiple recipients</p> <p>People are more likely to have email rather than fax</p> <p>Print quality is better with email</p> <p>More accessible as it can be sent/received by many devices</p> <p>The process of faxing is slower as the document needs to be scanned before sending</p> <p>With fax the paper could get damaged during scanning/printing</p> <p>Videos and audio can be sent by email</p>	5
9(b)	<p>Four from:</p> <p>The system must have installed anti-virus software</p> <p>The anti-virus software must be up to date/updated regularly//download anti-virus</p> <p>The email/attachment is scanned by the anti-virus software</p> <p>The email is not opened/attachment downloaded until any virus is removed by the anti-virus software</p>	4
9(c)	<p>Three from:</p> <p>Hard disk could be filled up</p> <p>The computer is performing routine tasks a lot more slowly</p> <p>Pop-ups keep appearing on the screen at random.</p> <p>Random reboots</p> <p>Software errors/software/computer doesn't work properly</p> <p>Recycle bin/files not working</p> <p>Computer hanging</p> <p>Anti-virus stops working</p> <p>System lock-up</p> <p>Files are being deleted</p>	3

Question	Answer	Marks
10(a)	<p>The worker completes the normal working hours per week</p> <p>But works fewer days</p> <p>For example: a 40 hour week compressed into 4 days not 5</p>	3
10(b)	<p>Workers complete the same amount of hours over a working week</p> <p>Workers can choose when to start and end <u>in agreement with the manager</u></p> <p>For example: Workers start at 9:30 rather than 9am to miss school run/miss rush hour</p> <p>Explanation of flexible schedule</p>	3

Question	Answer	Mark
11(a)	<p>Two from: The skeleton is scanned A <u>digital</u> copy is made of the skeleton Copy is saved The data is sent via the internet to China</p> <p>Three from: Data is loaded into the software to prepare it for printing Software slices the model into hundreds of layers 3D printer creates the model layer by layer Binds them together</p>	5
11(b)	<p>Four from: Products can be customised easily on request Speed of producing the product is faster than making it by hand Cheaper than making it by hand due to labour costs Parts of equipment that are no longer made can be printed without having to manufacture them Many copies of the original can be made Saves the original from damage in transit Create a fragile object from more robust materials</p>	4

Question	Answer	Marks
12	<p>Eight from: Examples for advantages The taxi can be controlled safely by the computer Navigation systems find the quickest/safest route Data is constantly being updated in the vehicle therefore reacts quicker to changes Traffic efficiency improved Fuel efficiency is improved as the vehicle finds the best way of getting from A to B Roads will be safer as the vehicle can react faster to situations Decreases the amount of accidents on the road</p> <p>Examples for disadvantages Security problem of others gaining access to the vehicle and can control its operation example: slam on the brakes More expensive to set up wireless technology than manual systems If the wireless technology malfunctions the taxi will not be able to drive The driver must remain alert in case of problems Problem of disconnection stopping the vehicle if the wireless signal stops then the vehicle will not operate Requires a large number of new receiving stations and this is more expensive Interference/weather can affect the signal and can stop the vehicle If the system fails this can cause accidents Higher cost of maintenance</p> <p>To gain full marks at least one of each section are required</p>	8

Question	Answer	Mark
13	<p>Matched pairs</p> <p>Do not be abusive//be polite Do not threaten people with violence/Do not use abusive words/Do not cyber bully other students or incite bullying As this will be upsetting for others</p> <p>Check spelling and grammar This sets a good impression</p> <p>The points made are public Be careful what is written as comments can be read by other people</p> <p>Respect people's privacy Do not discuss or publish information that might embarrass</p> <p>Do not use capital letters As this is conveyed as shouting</p> <p>Don't send pornography As it can be upsetting</p> <p>Maintain your privacy Do not send personal details</p> <p>Check the email address carefully/check the names on the send list So that emails are not sent to strangers</p>	6