



Cambridge IGCSE™

INFORMATION AND COMMUNICATION TECHNOLOGY

0417/11

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	Marks
1(a)	LCD monitor Laser printer	2
1(b)	DVD RAM drive Blu-ray disc drive	2

Question	Answer	Marks																				
2	<table border="1"> <thead> <tr> <th></th> <th>ALU (✓)</th> <th>Control Unit (✓)</th> <th>Main memory (✓)</th> </tr> </thead> <tbody> <tr> <td>This is the immediate access storage</td> <td></td> <td></td> <td>✓</td> </tr> <tr> <td>This carries out the calculations</td> <td>✓</td> <td></td> <td></td> </tr> <tr> <td>This carries out logical decisions</td> <td>✓</td> <td></td> <td></td> </tr> <tr> <td>This directs the input and output flow in the CPU</td> <td></td> <td>✓</td> <td></td> </tr> </tbody> </table>		ALU (✓)	Control Unit (✓)	Main memory (✓)	This is the immediate access storage			✓	This carries out the calculations	✓			This carries out logical decisions	✓			This directs the input and output flow in the CPU		✓		4
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Question	Answer	Marks
3(a)	A bridge A modem A switch A network interface card They are in this order All answers must be different	4
3(b)	Routing table	1
3(c)	Five from: Data is sent in data packets//uses data packets Each data packet contains an IP address of the next router The router reads/checks/inspects the IP address It checks the IP address against its routing table Data packet is sent to the router with the IP address The router uses the IP address to work out the best route/destination computer The router stores the IP addresses	5

Question	Answer	Marks
4(a)	Two from: Document/page title Meta data Character set Styles Scripts Default target window/frame	2
4(b)	Two from: Defines the document's body Contains all the elements of an HTML page Contains the content Contains style instructions	2
4(c)	Two from: A class definition name starts with a full stop A class is used for adding or changing a style within CSS Classes are subtypes within an element There are a limited number of styles Styles are pre-defined classes are user-defined Styles are defined in the head section Styles are used once but classes are styles saved for future use	2

Question	Answer	Marks
5(a)	Six from: Positives The fields are fully visible on the screen The fields are clearly labelled Ample/suitable space to enter the data Screen looks clear to read Text is clear to read Suitable space between fields Negatives No indication of what to do for the seat position/how to select the correct option There is too much space to enter the data No drop down/combo box lists for number of adults/children No navigation/submit/help buttons No radio button for position of seat No explanation on how to fill in details The form does not fill the screen Text is too small To gain full marks there needs to be at least one positive <u>and</u> at least one negative	6

Question	Answer	Marks
5(b)	<p>Max four from:</p> <ul style="list-style-type: none"> Adult or Child shown/type of ticket Name of the performance Time of the performance Date of the performance Seat position Title of the venue Seat number Ticket number shown Person's name <p>Uses a bar code/QR code/RFID – 1 mark Looks like a ticket with enough elements – 1 mark</p>	6

Question	Answer	Marks
6(a)	<p>Three from:</p> <ul style="list-style-type: none"> This is the scrambling of data Makes the data not understandable/meaningless This system uses an encryption key to encrypt the data This system uses an encryption/decryption key to decrypt the data Protects sensitive data 	3
6(b)	Question Removed	6

Question	Answer	Marks																		
7(a)	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">Field name</th> <th style="width: 25%;">Data</th> <th style="width: 50%;">Validation check</th> </tr> </thead> <tbody> <tr> <td>ISBN</td> <td>9781471837951</td> <td>Check digit/length check</td> </tr> <tr> <td>Name_of_book</td> <td>A View of the Castle</td> <td>Presence check</td> </tr> <tr> <td>Purchase_price</td> <td>\$16.99</td> <td>Range check</td> </tr> <tr> <td>Year_published</td> <td>2018</td> <td>Type check/length check</td> </tr> <tr> <td>Date_acquired</td> <td>31/01/2019</td> <td>Format/picture check</td> </tr> </tbody> </table>	Field name	Data	Validation check	ISBN	9781471837951	Check digit/length check	Name_of_book	A View of the Castle	Presence check	Purchase_price	\$16.99	Range check	Year_published	2018	Type check/length check	Date_acquired	31/01/2019	Format/picture check	3
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Question	Answer	Marks
7(b)	<p>Matched pairs:</p> <p>Any number in the range 1–100 This is normal data and should work//data that is within the acceptable range</p> <p>Any number outside the range or a word/character/symbol This would check the range check boundaries/trap incorrect data types/abnormal data//data that is outside the acceptable range</p> <p>1 This would check the lower boundary of the range check/extreme data//on the edge of acceptable range</p> <p>100 This would check the upper boundary of the range check/extreme data//on the edge of acceptable range</p>	6

Question	Answer	Marks
8	<p>Six from:</p> <p>Microprocessor reads the data The data from the proximity sensor is compared to the pre-set value The pre-set value is set to show the minimum distance from the vehicle in front If the values are the same nothing happens If the values are different the microprocessor sends a signal to the actuator Actuator speeds up the vehicle/slows down the vehicle/applies the brakes The process is continuous</p>	6

Question	Answer	Marks
9	<p>Eight from at least two methods:</p> <p>Portable devices and cloud Storing the data on a portable hard/SSD/Pen drive/cloud means that the device is with you at all times and not with the laptop computer No data is stored on the laptop computer if a portable SSD/HDD/pen drive/cloud is used so if the laptop computer is stolen nothing is lost If the pendrive is lost then all your data is lost The access to the cloud can be password protected If the laptop gets stolen the data will be safe on the cloud</p> <p>Passwords and encryption The data on the computer can be encrypted to increase security Data can use <u>strong</u> passwords making it more secure Passwords to the data can be forgotten and lost especially if the laptop password needs to be remembered Security methods prevent users who do not know password from gaining access Passwords could be difficult to remember which could lock the device</p> <p>Physical security Use of a dongle to log onto the laptop ensures that only the person with the device gains access Devices like pendrives/dongles tend to be small and can easily be lost/stolen If the dongle is stolen/lost then access to the laptop is difficult Security software may malfunction rendering the laptop impossible to access</p> <p>Biometrics Biometrics can be used to access the laptop/data this means that the user needs to be present Difficult to fake/replicate biometrics Biometric data cannot be reset once compromised Biometrics are unique therefore it is an added security method</p>	8

Question	Answer	Marks
10(a)	<p>Magnitude ≥ 6.5 AND Depth(km) < 15</p> <p>Magnitude – 1 mark ≥ 6.5 – 1 mark AND – 1 mark Depth(km) – 1 mark < 15 – 1 mark</p>	5
10(b)	Japan	1

Question	Answer	Marks
10(c)(i)	<p>COUNTIF(A\$3:A\$19,F3)</p> <p>Three from: The formula counts the number of times Vanuatu/contents/value of F3 Appears in the country list/A3 to A19</p> <p>The \$ allows the range to remain static if replicated/search in the same range if replicated – 1 mark</p>	4
10(c)(ii)	<p>Max four from: Highlight F3 to G10 Click Insert Chart Click Bar chart//column graph Select layout/type of bar chart Add title to the chart Add axes Add a legend Save the chart</p> <p>Three from, for example: Title – Earthquakes in 2019 X/horizontal axis label – Countries Y axis label/vertical – Number of earthquakes</p>	6

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12(a)	Three from: Controller wand/joystick/control buttons/microphone Tracking/force balls//trackpads//trackers Treadmill/motion platforms Pressure mats Data gloves/bodysuits Head mounted display/head mounted device/projector Headset/head mounted device/ear mounted device Goggles/VR eyeglasses Steering/gaming wheels/consoles Pedals/Paddles Cameras Motion sensors	3
12(b)	Three from: Eye problems/strain Neck pain/back pain Headaches Balance problems/motion sickness Tiredness Injuries caused by being too involved in the VR system	3
12(c)	Four from: A small font size A formal font type Formal content Pastel shade colours to make it easier to read Use of both upper and lower case characters to make it easier to read Use of technical/appropriate language Fewer images and more text Don't use too much colour Use suitable/appropriate images Use plain and simple backgrounds	4