Cambridge Assessment International Education

Cambridge IGCSE™ (9–1)

INFORMATION AND COMMUNICATION TECHNOLOGY **0983/12**

Paper 1 Theory **May/June 2023**

MARK SCHEME

Maximum Mark: 80

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 May/June 2023 series for most Cambridge IGCSE, Cambridge International A and AS Level and Cambridge Pre-U components, and some Cambridge O Level components.

[Turn over

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.

Mark scheme Abbreviations and Rules

/ separates alternative words / phrases within a marking point
// separates alternative answers within a marking point
underline actual word given must be used by candidate (grammatical variants accepted)
max indicates the maximum number of marks that can be awarded
( ) the word / phrase in brackets is not required, but sets the context

Note: No marks are awarded for using brand names of software packages or hardware. These must be careted

Examiners must ensure that annotations are placed to show that the whole answer has been seen.

Annotations MUST be placed in white space close to where the mark is awarded.

Before submitting a script please check all ticks match marks.

At the end of prose answers place a TV to show that the whole answer has been marked.

Any blank pages place the SEEN annotation.

If an answer is left blank then use SEEN and award NR, but if anything has been written for example 'Don't know', '?' etc. then use NAQ and award 0. If an answer has been attempted and crossed out then attempt to mark it.

Question	Answer	Marks
1	Check digit	**1**

Question	Answer	Marks
2(a)	Read Only Memory/ROM	**1**
2(b)	Sound card	**1**
2(c)	CPU/Processor	**1**

Question	Answer	Marks
3	**Four** from: **Similarities** Both capture images Both store digital data Both create digital images **Differences** Digital camera is more portable Scanner captures the image in more detail Scanners do not have a keystone effect Digital camera may capture glare/shadow off the image Digital camera has faster data capture **To gain full marks the comparison must have correct answers for both similarities and differences.**	**4**

Question	Answer	Marks
4(a)	**Two** from: An extranet is part of a company's intranet The company gives permission for customers and suppliers to access it Enables businesses to exchange information over the internet in a secure way Requires credentials/username and password to access it	**2**
4(b)	**Two** from: Internet allows public access to information whereas Extranet allows limited access Extranet is more secure The internet is not owned by anyone whereas the Extranet is owned by a company More information on the internet	**2**

Question	Answer	Marks
5(a)	Repetitive strain injury/RSI/carpel syndrome	**1**
5(b)	Eye strain/headache/neckache	**1**
5(c)	Neck ache/back ache	**1**

Question	Answer	Marks
6(a)	**Three** matched pairs from: The passwords could become similar … … Security/passwords could be weakened May be more difficult to find a different password … … The passwords/security could be weakened Users could easily forget the current password … … Leading to system lock out It may be typed incorrectly as the password is like the previous one … … Could lead to login errors Users may have to write the passwords down so they are not forgotten … … This may lead to others seeing the passwords	**6**
6(b)	**One** from: To ensure a website is trusted/authentic/genuine Verifies the company owns the website To share a public key for encryption when communicating with the website	**1**
6(c)	**Three** from: Company/owner's name Owner's/company public key Date issued Expiry date Company/owner's digital signature Issuer's/Sender's name Serial number	**3**

Question	Answer	Marks
7(a)	2 – 1 mark 31 – 1 mark **One** from: To test the boundaries (of the formula) To test the comparisons are correct	**3**

Question	Answer	Marks
7(b)	**Three** from: To test that data outside the range is not acceptable To test the correct data type is entered To test the error message works To test the errors are trapped correctly	**3**

Question	Answer	Marks
8(a)	**Three** from: Form of real-time/live/online communication Multiple users/devices connect … … using the internet All users see the same screen. Communication using video cameras/microphones	**3**
8(b)	**Six** from: **Positives** The students save time as they do not need to travel to the school The students save the cost of travelling to the school. The school saves costs as it does not need to open in the holidays Students and teachers can work from anywhere in the world Can be recorded for students who miss the lesson **Negatives** Hardware/software could be expensive Requires a good/reliable internet connection There could be issues with child protection More difficult to concentrate/motivate If the hardware breaks/loss of connection/lack of hardware then the student cannot participate Only students with the correct specialist devices will be able to access **To gain full marks candidates must have correct answers for both positives and negatives**	**6**

Question	Answer	Marks
9(a)	**Six** from: **Similarities** Both readers scan the product code Both readers use direct data entry Both readers allow tracking of products Both readers are contactless **Differences** Bar code readers only scan one bar code at a time whereas RFID readers read multiple tags at the same time Bar code readers require a direct line-of-sight with the code RFID readers use near-field technology Bar code readers need to be close to the bar code Bar code needs to be in the correct position for reader to be able to read it Bar codes readers might not be able to read a damaged/scratched bar code whereas RFID can read data as long as chip/tag is not severely damaged. Bar code reader might have read errors if the bar code is damaged/scratched whereas RFID readers are more likely to read damaged/scratched tags Bar code readers emit/use light whereas RFID uses electromagnetic/radio waves **To gain full marks the comparison must have correct answers for both similarities and differences**.	**6**
9(b)	**Two** from for example: Race timing Tracking Event Attendee Tracking Livestock Tracking Library book Tracking Contactless/credit/debit card payment Passports/ID cards	**2**

Question	Answer	Marks
10(a)	**Three** from: Name attributes Charset//Character set Content attributes	**3**
10(b)	The <head> element	**1**

Question	Answer	Marks
11(a)	**Two** from: Where the human body interacts with the device Where a human gives a command ... … without using a keyboard/mouse/pointing device	**2**

Question	Answer	Marks
11(b)	**Four** from: Fatigue/gorilla arm User can unintentionally activate the device … … by moving their arms/fingers Not as accurate as other interfaces Issues with stopping the gesture … … if user touches a button, interface knows the command is completed Have to learn what the gestures do//Having to remember the gestures Could cause damage if in restricted space May have a limited number of gestures that can be used Users with physical disabilities may not be able to make the gestures Have to use/learn the gestures accurately otherwise they may not be identified	**4**

Question	Answer	Marks
12(a)	**Four** from: Data cannot be erased/edited Blu-ray discs are portable As it is on an external device it does not take up internal storage You can have large number of Blu-ray discs therefore more storage Hard Disk is fixed in the computer	**4**
12(b)(i)	**Two** from: Non-volatile Stores data permanently Slower to access than internal memory	**2**
12(b)(ii)	**Two** from: Magnetic tape CD DVD DVD RAM Memory cards Pen drives SSD Cloud storage Flash memory	**2**

Question	Answer	Marks
13(a)	**Four** from: The large number of variables makes it more difficult for a human to forecast correctly/accurately Can predict long range weather trends/global warming Faster way of producing weather patterns than using a human Can deal with the more complex calculations quicker More accurate results produced Can give residents early warning of severe weather	**4**

Question	Answer	Marks
13(b)	**Two** from: Pressure Temperature Moisture/Humidity Wind speed	**2**
13(c)	**Two** from: Monitor Printer Plotter	**2**

Question	Answer	Marks
14(a)	**Four** from: Allows multimedia to be embedded in the pages Allows auto change of pages It is digital so can be used in other documents Sections can be linked internally/externally Readers can interact with the ePublication Can be used by many users simultaneously More up-to-date than physical magazines	**4**
14(b)	**Two** from: Users type in a unique licence key/serial number/authorisation key Users install DRM (parts of the code which stop you from copying it) Use of licence agreements Running the software with a dongle/CD/Pendrive attached Getting permission from the owner	**2**