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CAMBRIDGE
International Education

Cambridge IGCSE™

INFORMATION & COMMUNICATION TECHNOLOGY **0417/12**

Paper 1 Theory **October/November 2025**

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 October/November 2025 series for most Cambridge IGCSE, Cambridge International A and AS Level components, and some Cambridge O Level components.

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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 descriptions 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.

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Annotations guidance for centres

Examiners use a system of annotations as a shorthand for communicating their marking decisions to one another. Examiners are trained during the standardisation process on how and when to use annotations. The purpose of annotations is to inform the standardisation and monitoring processes and guide the supervising examiners when they are checking the work of examiners within their team. The meaning of annotations and how they are used is specific to each component and is understood by all examiners who mark the component.

We publish annotations in our mark schemes to help centres understand the annotations they may see on copies of scripts. Note that there may not be a direct correlation between the number of annotations on a script and the mark awarded. Similarly, the use of an annotation may not be an indication of the quality of the response.

The annotations listed below were available to examiners marking this component in this series.

Annotations

Annotation	Meaning
	Omission or to indicate where a company brand name has been used
	Incorrect
FT	Follow through
Highlighter	Information copied from the text
ISW	Ignore subsequent work
LNK	Two statements are linked
MAX	Maximum number of marks that can be awarded
NAQ	Not answered question
Off-page comment	Allows comments to be entered at the bottom of the RM marking window and then displayed when the associated question item is navigated to.
On-page comment	Allows comments to be entered in speech bubbles on the candidate response.
PE	Principal examiner has approved the mark
REP	Repeat
SEEN	Indicates that work/page has been seen including blank answer spaces and blank pages.
	Correct

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Mark scheme abbreviations
/ 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.

The following <u>must</u> be applied
Examiners **must** ensure that annotations are placed so they can be easily seen in white space where or close to where the mark is awarded
Before submitting a script, please check all ticks match the marks
At the end of prose answers/long answer place an annotation at the end of the answer to show that the whole answer has been read, unless a marking annotation has been placed near or at the end of the answer.
On any blank pages, place **one** SEEN annotation
Read the whole sentence before marking it
If an answer is 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 and no other answer written, then attempt to mark it.

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Question	Answer	Marks
1	Behaviour Presentation	**2**

Question	Answer	Marks
2(a)(i)	So data can be read / processed by the computer	**1**
2(a)(ii)	**One** from: Data can be used to control devices The actuator can only understand analogue data	**1**
2(b)	**One** from: Sensor Microphone Data logger	**1**
2(c)	**One** from: Actuator Speaker Monitor	**1**

Question	Answer	Marks
3	**Advantages** Max **five** from: Quicker to select options on the screen Smaller footprint Improved hand and eye coordination More ergonomic Greater reliability Ability to use pinch and zoom Easier to choose options on the screen **Disadvantages** Max **five** from: More likely to strain the arm muscles If screen gets dirty can reduce responsiveness Screen can be more easily damaged as the user is pressing on the screen If the screen gets damaged it is more difficult to use to enter data Harder to upgrade as separate units need to be bought	**6**

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Question	Answer	Marks
4	**Similarities** Max **two** from: Both store data Both are devices **Differences** Max **three** from: Backing storage is permanent memory Backing storage is read and write Backing storage has larger capacity Backing storage data is non-volatile only Secondary memory Internal memory can be directly accessed by the CPU Internal memory tends to have faster data access Internal memory is only solid state Primary memory	**4**

Question	Answer	Marks
5(a)(i)	**Field name** **One** from: Model of car Date of registration State of car Type of car **Reasons** **One** from: Reduces errors in entering the data Quicker to enter the data They can only select what is in the list	**2**
5(a)(ii)	**Field name** **One** from, for example: State of car Type of car Model of car **Reason** **One** from: Only one option can be selected at a time Easier to choose between the options Reduces errors in entering the data Quicker to enter the data	**2**

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Question	Answer	Marks
5(a)(iii)	**Field name** **One** from: Registration Number Model of car Date of registration Sale price State of car Type of car **Reason** **One** from: Makes it easier to check the name written as one character per box Reduces errors on data capture Retains the same format	**2**
5(b)	**Two** from: The robot arm is guided by a worker The worker has sensors strapped to his arm Each movement is recorded / saved Each movement is stored in the computer's memory as a coordinate or Max **two** from: The robot is guided using icons on a user interface User clicks on the icons to guide it Each movement is saved	**2**
5(c)	**Benefits** Max **five** from: Robots can work in environments that would be harmful to a human They work continuously Running costs are low High productivity Greater consistency The painting done by the robot is accurate **Drawbacks** Max **three** from: Initial cost is very high Maintenance is expensive Can cause de-skilling of workers	**6**

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Question	Answer	Marks
6	**Two** from, for example: Laptop Smartphone Phablet Hybrid Tablet	**2**

Question	Answer	Marks
7(a)	**Six** from: RFID tags can be scanned even if they are defaced RFID tags are scanned faster than bar codes as they are read by radio waves RFID can be read from a distance RFID tag does not need to be in line of sight of the reader With RFID several tickets can be read / scanned at the same time RFID can track visitors More information can be stored on the RFID tag RFID tags are more robust More secure as barcodes can be photocopied	**6**
7(b)	**Four** from: Payment is online therefore no issues with different currencies Tickets can be instantly sent Tickets can be sent electronically Bookings can take place anywhere Bookings can be made 24/7 Many can book at the same time Prevents double booking	**4**

Question	Answer	Marks
8(a)	**Four** from: Pharming is a form of Internet fraud It is used to gain personal information Sends the data to a hacker A malicious code is installed onto a user‘s computer The code redirects the user onto a fake website when the user types in the real URL They are redirected without the user’s knowledge	**4**
8(b)	**Two** from: Use anti-spyware Check the URL carefully	**2**

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Question	Answer	Marks
9	**Purpose:** **One** from: The main section of the web page Contains all the contents of an HTML document **Element:** **Two** from, for example: Text Hyperlinks Images Tables	**3**

Question	Answer	Marks
10(a)	**Benefits** Max **three** from: Less expensive per byte Very robust technology Large data storage Data transfer rate is fast **Drawbacks** Max **three** from: Slow data access rate Can be affected by magnetic fields Not all devices support magnetic tape	**4**
10(b)	**Four** from: Switch on the computer Go to settings Select Bluetooth Switch on the headphones Click Bluetooth button on the headphones Bring the headphones close to the computer Click on searches for the headphones Choose the headphones Click connect	**4**

Question	Answer	Marks
11(a)	**Four** from: The email is encrypted using an encryption key This scrambles the data The decryption key is sent to the receiver The encrypted email is sent The receiver uses the decryption key to decrypt the email	**4**

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Question	Answer	Marks
11(b)	**Two** from: Use HTTPS Use TLS / Secure Socket Layer (SSL) Use of cloud computing Use FTP Secure // SFTP	**2**

Question	Answer	Marks
12(a)	**Positives** Max **four** from: Increases the sense of security The owner is alerted instantly if people are around the house 24/7 protection of the home Real-time footage of intruders The CCTV camera position can be controlled remotely The video can be encrypted to stop others hacking the system Video is recorded **Negatives** Max **four** from: Requires a good internet / phone connection If there are intruders, then they can only view them this could increase anxiety Can be annoying as it continually goes off To ensure footage is streamed smoothly, high network bandwidth is required Camera can be hacked	**5**
12(b)	**Two** from, for example: Washing machines Cookers Burglar alarms Central heating	**2**

Question	Answer	Marks
13(a)	**Two** from: Surgical and diagnostic aids Tissue engineering Creation of medical tools Artificial blood vessels Customised tablets Create organs for practising on	**2**

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Question	Answer	Marks
13(b)	**Benefits** **Two** from: Can produce a customised prosthetic Can produce the prosthetic faster than physically building them The design can be saved for later use **Drawbacks** **Two** from: Initial cost of printer is high Can take time to print the prosthetic Errors cannot be easily corrected	**4**

Question	Answer	Marks
14	**Two** from: Screen Light Speaker	**2**

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