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CAMBRIDGE
International Education

Cambridge IGCSE™

INFORMATION & COMMUNICATION TECHNOLOGY **0417/13**

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	OMR QR scanner	**2**

Question	Answer	Marks
2	**Four** from: Reads/writes data Volatile memory Stores data temporarily Stores data currently in use Can be directly accessed by the CPU Primary storage	**4**

Question	Answer	Marks
3(a)	**Six** from: Interactive user interface asks questions about the route The user answers the questions with Yes/No answers The start and end points are entered into the (interactive) user interface Answers lead to other questions The inference engine searches The knowledge base is searched using the rules base Probable routes are displayed The explanation system explains how the results were found	**6**
3(b)	**Six** from: Enter start and destination point Number of satellites orbiting the earth Satellites transmit signals to the ground Computers installed in the vehicle Computers receive the signals Computers interpret the signals The satellite uses an atomic clock The satellite transmits its position and time The computer in the vehicle calculates its exact position The position is superimposed on the sat nav maps An algorithm is used to calculate the route	**6**

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Question	Answer	Marks
4(a)	**Positives** Max **five** from: Non-intrusive method Very fast authentication Hands-free system No other device is needed on the laptop No physical password needed therefore improves security Login becomes easier Increased security as cannot be shoulder surfed **Negatives** Max **five** from: Security issues Other people can record the password as it is spoken The system has to learn the voice and this can take time If the users voice is different then the device will not unlock Accuracy is lower In noisy environments it may be difficult to hear the voice	**6**
4(b)	**Two** from, for example: Face Iris Retina Fingerprint Thumbprint	**2**
4(c)	**Benefits** Max **three** from: Does not use a password so passwords cannot be forgotten More secure Stops shoulder surfing Uses network/location/device signals to authenticate a user Faster login process The login process is more robust The login is unique to the user Much simpler login Less intrusive method **Drawbacks** Max **three** from: Can increase the cost of the device Constantly working in the background so could use up resources Only the user can login to the device so this could affect access of data	**4**

Question	Answer	Marks
5(a)(i)	**One** mark for the check and **one** mark for the reason: Length check it has 8/10 characters Format check it is NN/NN/NNNN	**2**

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Question	Answer	Marks
5(a)(ii)	**One** mark for the check and **one** mark for the reason: Range check Needs to be in a range from 0 to 126 000 Type check Needs to be a number	**2**
5(a)(iii)	**One** mark for the check and **one** mark for the reason: Length check One character Boolean check Either N or U	**2**
5(b)(i)	Premier, HydroSport, EcoSport **One** from: H/P/E Any suitable code	**1**
5(b)(ii)	**Three** from: Quicker to enter the data Less data entry errors Allows validation to be used Faster searching of data	**3**

Question	Answer	Marks
6(a)	**Advantages** Max **five** from: The questionnaires can be answered more quickly than interviews Questionnaires can be answered at any time Saves time as many questionnaires can be completed at the same time Cheaper method as an interviewer does not need to be employed Individuals can remain anonymous with questionnaires Quicker analysis of the data More people can answer with a questionnaire Answers can be more biased with interviews **Disadvantages** Max **five** from: Number of questionnaires returned is often low Difficult to expand the questions Questionnaires tend to be more generic More difficult to explain vague questions Cannot see the body language when gathering data	**6**

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Question	Answer	Marks
6(b)	**One** from: **Explanation** General information on the requirements of a system **One** from: **Item** Hardware requirements Software requirements	**2**

Question	Answer	Marks
7(a)	**Three** from: Computer system Monitor Camera Microphone Speaker Router	**3**
7(b)	**Four** from: Saves money on travel Saves time in not having to travel to a central meeting Saves money on accommodation Meetings can be called at short notice Safer due to not travelling Saves money as a conference room does not need to be set up Saves examination board resources as individuals are paying for their own utilities Allows communication with examiners in different locations	**4**

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Question	Answer	Marks
7(c)	**One** mark for the software and **two** marks for the description Hardware drivers **Two** from: To ensure the webcam transmits the images To ensure the microphone transmits the sound CODEC **Two** from: Encodes or decodes digital data streams Allows data to be transmitted and played back Allows data to be compressed when transmitted Echo cancellation software **Two** from: Allows talking to take place in real time Allows synchronisation of communication It stops feedback from the microphone picking up sound from the speakers Video conferencing software **Two** from: Allows the video conference to take place Users log in to the software so reduces security issues	**3**

Question	Answer	Marks
8	**Four** from: A 3D printer uses different types of materials Ink jet printers use ink A 3D printer makes a solid object Takes a longer time to print with a 3D printer 3D printers use tomography Inkjet printers spray droplets of ink Ink jet printer output fades with time 3D printer needs to be physically set up each time therefore takes more time Inkjet printers print in 2D	**4**

Question	Answer	Marks
9(a)	**Four** from: Smishing is a form of online fraud Uses text messages Uses a mobile phone to send fake messages Scams can contain a link embedded in the text message Appears to come from a legitimate source The user clicks on the link The user is asked to enter personal details	**4**

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Question	Answer	Marks
9(b)	**Two** from: Use a filter Do not click on links from people you do not know Avoid using contact information in a message If the message is urgent, check it carefully Do not share personal information in any text message	**2**

Question	Answer	Marks
10(a)	Head Body	**2**
10(b)	**Two** from: It's a place holder/tag It allows quick access to the web page, so the user does not have to search for it To create a location in the HTML document Stores the URL in the system	**2**

Question	Answer	Marks
11(a)	**Two** from: Web log Personal internet journal Author types in observations on a topic Single author People can only read them and comment Reverse chronological order	**2**
11(b)	**Two** from: Web application Anyone in the group can edit/create/delete content There are many authors Page layout can be changed by the author Factual information (about many topics)	**2**

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Question	Answer	Marks
12	**Advantages** Max **three** from: Larger data storage Less expensive as several SSD have to be purchased Longer life span More read and write cycles Cheaper per byte **Disadvantages** Max **three** from: Slower data access rate Slower data transfer rate SSD is more robust Affected by magnetic fields	**4**

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