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CAMBRIDGE
International Education

Cambridge IGCSE™

INFORMATION AND COMMUNICATION TECHNOLOGY **0417/12**

Paper 1 Theory **February/March 2026**

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 February/March 2026 series for most Cambridge IGCSE, Cambridge International A and AS Level components, and some Cambridge O Level components.

This document consists of **10** printed pages.

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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
	Follow through
Highlighter	Information copied from the text
	Ignore subsequent work
	Two statements are linked
	Maximum number of marks that can be awarded
	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.
	Principal examiner has approved the mark
	Repeat
	Indicates that work/page has been seen including blank answer spaces and blank pages.
	Correct

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Question	Answer	Marks
1(a)	Hardware	**1**
1(b)	Software	**1**

Question	Answer	Marks
2(a)	**Three** from: The student speaks into a microphone / the voice is captured by the microphone The analogue data / sound / signal is sent to an ADC / sound card The data is converted to digital data Data is converted using an analogue to digital convertor / ADC This is read / stored by the computer Save the file on the computer as MP3/MP4	**3**
2(b)	**Three** from: Computer reads the audio file Computer sends a digital signal to a DAC / sound card Digital data is converted into analogue data / sound Data is converted using a digital to analogue convertor / DAC The signal is received by the sound card Sent to the speakers	**3**

Question	Answer	Marks
3(a)	Random access memory / RAM	**1**
3(b)	**Two** from: Read only Non-volatile / stored even if the computer is switched off Does not require refreshing Stores the start-up instructions Permanent memory Primary storage	**2**

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Question	Answer	Marks
4	**Similarities** Max **five** from: Both interact with the user / allows communication between the user and the system Both part of an OS Both require the user to learn the commands Both are used to input commands User needs training to use either system **Differences** Max **five** from: **Command line** Users need to type in / enter commands / text based Uses less processing power Uses less memory Difficult to edit Need to memorise the commands Syntax must be correct **Dialogue based** Uses speech / sound / voice as an input Hands free / implies of hands free System may need training to recognise the user's voice	**6**

Question	Answer	Marks
5(a)	**Four** from: Allows more connections for attaching sensors Larger screen easier to see / view / analyse the results Larger physical keyboard easier to enter details / results // Less typing errors will be made More appropriate software can be used on the tablet / better range of software available	**4**

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Question	Answer	Marks
5(b)	**Benefits** Max **five** from: Fast to enter the data Data entry is direct so no need for manual entry Data can be collected automatically Less human errors in collecting / entering the data Readings can be more accurate The data can be collected continuously / at regular intervals / 24/7 Safe to collect the data in this way It is easy to collect data from multiple variables **Drawbacks** Max **five** from: If the sensor is faulty / dirty then it can lead to incorrect results Difficult to maintain the sensor in the river The environment may affect the sensor More reliant on the technology More hazardous for a human to place the sensor in the river Additional cost of sensor / software	**6**
5(c)	**Three** from: The SSD / data could be damaged by the environment The SSD / data could be lost No need to carry the SSD with you More difficult to connect an SSD to the tablet It is safer / more secure storing the data on the cloud Storing on the cloud makes it easier to share with others Can access data from various / other locations	**3**

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Question	Answer	Marks
6(a)	**Four** from: **Antivirus software** Designed / created to detect / remove viruses Protect against established / known threats Protect against predictable issues / threats Examples worms / Trojans Commonly used in personal computing Scans files / programs for known viruses Compares against a database of known viruses Can monitor suspicious behaviour Some use an heuristic approach to identify viruses based on behaviour **Anti-malware software** Protects against newer / wider range of threats Examples polymorphic / zero-day malware / spyware / ransomware Updates the detection rules / database faster Anti-malware can detect threats faster Detects viruses that cannot be detected by anti-virus software Uses a combination of signature-based detection, heuristic analysis and behavioural analysis Commonly used by organisations	**4**
6(b)	**Two** from: Some viruses cannot be detected by anti-virus software Both types of software keep the computer safe from threats Both increase security / protection from various viruses and other types of threats.	**2**

Question	Answer	Marks
7(a)(i)	**Two** from: Continuous use of a keyboard / typing for long periods of time Continuously clicking the mouse button Holding the mouse tightly / incorrectly Working in a cramped workspace	**2**
7(a)(ii)	**Two** from: Rest your fingers / hands regularly Use an ergonomic keyboard / mouse Arrange your workspace so you are not cramped Use a wrist rest Use a dialogue / gesture-based interface	**2**
7(b)(i)	**Two** from**:** Working in a cramped workspace Not sitting upright in the chair // Not sitting with the correct / good posture Incorrect positioning of the computer screen	**2**

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Question	Answer	Marks
7(b)(ii)	**Two** from: Stretch your body / back regularly / take exercise Use adjustable / ergonomic chairs Sit upright against the back rest / sit up straight / sit with a good posture Tilt the computer screen so that the top of the screen is set just below your eye level Use a footrest	**2**

Question	Answer	Marks
8	Allow **one** mark for a definition / description of VoIP **Benefits** Max **five** from: Better call quality No telephone wire needed Call costs are lower Video calls can be made More additional features More scalable Can easily use end to end encryption Allows for easier remote working **Drawbacks** Max **five** from: Requires specialist hardware / software Increased costs due to the hardware / software Needs an internet connection Call quality depends on the speed of the internet If the internet not working, then the phone system cannot be used Calls can be more easily intercepted // System can be hacked	**6**

Question	Answer	Marks
9	**Two** from: Virtual Reality Augmented Reality Mixed Reality	**2**

Question	Answer	Marks
10(a)	**Six** from: Easy to connect with all students immediately Easy to contact the students all at once Easy to communicate with a large number of students / class Easy for students to keep in touch with the university / staff Can share information and ideas easily with students / staff Easy for the university to market / advertise itself Could be used by students / staff to advertise events to a wider audience Allows students to easily access educational resources / experts	**6**

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Question	Answer	Marks
10(b)	**Three** from: To block / report unwanted users To monitor / remove unwanted posts / advertisements To monitor / remove inappropriate images / content To monitor / remove messages containing inappropriate language Preserving confidentiality of / removing personal data	**3**

Question	Answer	Marks
11(a)	**Four** from: Connection of a number of LANs It covers a large geographical area Uses a router WANs can be private **or** public Private WANs can be setup by organisations to connect LANs by leasing telephone lines / Virtual Private Networks / VPN Uses a firewall for extra security Uses public communication systems	**4**
11(b)	**Two** from, for example: Local Area Network // LAN Wireless Local Area Network // WLAN Personal Area Network // PAN Metropolitan Area Network // MAN Campus Area Network // CAN	**2**

Question	Answer	Marks
12(a)	**Six** from: 1 All 6 fields Book title, author, book number, type of book, date book sold, customer number 2 Sensible spacing to enter the data. Title of the book may be long so candidate must show that they have thought about layout with different size boxes 3 Fills the screen. At least 75% of the screen is filled 4 Use of radio buttons / check boxes / calendar selection 5 Use of drop-down menus 6 Navigation buttons / save button / exit button / help button 7 Date book sold correctly formatted e.g. dd/mm/yyyy 8 Customer number 8 character. Needs to be obvious that it is 8 digits 9 Book number 5 character. Needs to be obvious that it is 5 digits	**6**
12(b)	**Two** marks from: Range / limit check Length check Character check / type check Format check	**2**

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Question	Answer	Marks
12(c)	**Two** from: Observation Interviews Questionnaires Examination of existing documents	**2**

Question	Answer	Marks
13	**Three** from: CAL uses specially designed software / online platforms It is an integrative technology in an educational environment It's a computer program It assists the user in learning a particular subject It refers to an overall integrated approach of instructional methods	**3**

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