

Cambridge International AS & A Level

INFORMATION TECHNOLOGY**9626/12**

Paper 1 Theory

February/March 2026**MARK SCHEME**Maximum Mark: 70

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 **11** 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 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.

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
	Benefit of the doubt
	To indicate where a key word/phrase is missing
	Incorrect
	Indicate a point in an answer
	Ignore subsequent work
	Statement/points 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.
	To indicate a point that has already been made or was given in the question
	Indicates that work/page has been seen including blank answer spaces and blank pages.
	Correct
	Too vague
	Indicate a point in an answer

Question	Answer	Marks
1(a)	TWO marks available: - Remove geotags//metadata (from the photograph) (1) - Restrict/flag photograph as not for public//change privacy settings (1) - Make access to the social media private (1) - Description of any edit to the photograph to keep personal data secure e.g. - ONE from - Obscure people's faces/features (1) - Obscure features which allow the location to be identified (1)	2
1(b)(i)	FOUR marks available: - Firewall only allows <u>authorised</u> traffic (DO NOT accept converse – mark as REP) (1) - TWO from: - Use of Packet filtering (1) - Use of Proxy service (1) - Use of Stateful inspection (1) - The firewall controls what can come in AND go out (1) - The firewall operates based on rules (1) - TWO from: IP addresses/IPs of known threats are blocked//only allows access to allowed IP addresses (allow converse) (1) - Only a restricted list of (communication) protocols are allowed (allow converse) (1) - Packages from certain (communication) ports are accepted/denied (allow converse) (1)	4
1(b)(ii)	ONE mark available: - Can block legitimate traffic (1) - Can slow down computer performance (accept any description) (1) - IP addresses can be masked/spoofed (1)	1

Question	Answer	Marks
2	ONE mark available: - They do not have meaning (1) - They are not in context (1) - They have not been processed (1) - They are raw data (1)	1

Question	Answer	Marks
3(a)	TWO marks available: • (Employee/user) moves part of body (may state part e.g. head/wave of hand) (DO NOT accept 'gestures are made') (1) • Movements are captured by a camera (1) • (Movements/gestures are) compared to a database (of stored movements gestures) (1st) Associated commands are triggered/enacted (may exemplify) (1)	2
3(b)	FOUR marks available: Positives Max 3 • No need to have a pass card/word/code (1st) So fewer things to lose//can't get in by finding a card (1) • No need for physical contact//operate from a distance (1st) Therefore reduced spread of diseases (1) Negatives Max 3 • Gestures may be seen from a distance and copied by others (1st) Therefore reduces the security of the system (1) • Gestures may take time to complete (1st) Therefore are slower//impact of being slower (security risk if trying to avoid someone etc.) (1) • Gestures may be misinterpreted//possibility for false positive//high degree of accuracy required (1st) So incorrect action occurs (accept any realistic action) (1) • System may be inaccessible to disabled staff who cannot make the gesture//if carrying something (1st) Therefore they can not get into the office (1) • Only works when visible to the camera (1st) Delays ability to open door (1) • Gestures may be embarrassing/offensive (1) Conclusion (may only be awarded if argument(s) for and/or against are included) • One mark for a value judgement/conclusion (1)	4

Question	Answer	Marks
4	SIX marks available: ONE mark per identified characteristic, ONE mark for the difference: - Longevity (1st) Mainframe computers last longer than supercomputers (1) - RAS/Reliability, availability and serviceability (1st) Mainframe computers are more reliable/available/serviceable than supercomputers (1) The term RAS is NOT used to assess supercomputers but does refer to mainframe computers (1) - Security (1st) Mainframe computers are more secure than supercomputers (1) - Performance metrics//any statement of processing (1st) Supercomputers are measured in FLOPS/TEPS and mainframes are measured in MIPS (1) Supercomputers are more powerful computers than mainframe computers (1) - Volume of input, output and throughput (1st) A mainframe has a higher rate of throughput//can deal with a large number of simultaneous transactions (1) - Fault tolerance (1st) Mainframe computers have a high level of fault tolerance (1) Mainframe computers allow hot swapping (1) Mainframes have a high mean time between failures (MTBF) (1) - Operating system (1st) Super computers tend to only use Linux (derivative) operating systems (1) Mainframe computers can have multiple operating systems (1) - Number of processors (1st) Mainframe computers have multiple processors (1) - Cores (1st) Supercomputers have more cores than mainframe computers (1)	6

Question	Answer	Marks
5(a)(i)	ONE mark available: - The force applied is measured (1) - Uses the piezoelectric effect (1) - The force applied to its surface creates an electrical signal (1) - Electronic resistance changes when a weight is applied (1)	1
5(a)(ii)	ONE mark available: - Affected by BOTH temperature and moisture (1) - Gathers changes in electrical impedance/capacitance/temperature (1) - A metal oxide strip resistance changes with humidity (1) - Impedance changes with ions in salts (1)	1

Question	Answer	Marks
5(b)	EIGHT marks available: • The standard pressure (without a car) is measured/has a preset value (1) • Data is captured constantly (do not award sensors <u>send</u> data for this mark point) (1) • Converted to digital (1st) by an ADC (1) • The computer/processor compares the readings to the standard pressure reading//a preset value (1) • If there is a pressure increase (from the standard), a car is present (in the space) (1st) This is recorded/reflected in the database (1) • If there is no change from the standard pressure reading, the space is empty (1st) This is recorded/reflected in the database (1) • Number of free spaces is calculated (1) • The number of free spaces/vehicles present is displayed (DO NOT ACCEPT alternative outputs that are not to do with finding out how many free spaces are available) (1)	8
5(c)(i)	ONE mark available: • An adjustment to a sensor (reading)//tuning a sensor to make it accurate (1)	1
5(c)(ii)	TWO marks available: • Sensors become inaccurate (1) • Calibration takes account of inaccuracy (1) • Increases the active/working life of the sensors (as long as they are sending a reading) (1) • So that readings are (always/remain) accurate (1)	2

Question	Answer	Marks
6	FIVE marks available: - Use of an example (1) FOUR from: - It is part of/uses forward chaining (1) - A process of using/analysing data to find a solution (this mark may be awarded for a description of this process as part of the description of the context) (1) - Data entered into the system determines the rules to be used (1) (The inference engine) starts with the data and progresses towards a goal (1) (The inference engine) will try to match the (inference) rules//searches the rules (award any indication that the rules base is interrogated) (1st) Until one matches the IF statement (1) - The THEN part of the rule brings out new information/data/advice (may answer in context instead of saying information/data/advice) (1) - Process is repeated until a goal is reached//no further possible solutions can be found (1)	5

Question	Answer	Marks
7(a)	SIX marks available, TWO per identified and corrected error: 10 total ← 10 (1) (Incorrect initial value//value should be 0//value does not need to be set) (1) 20 PRINT "Input number of repeats" 30 INPUT n 40 count → 1 (1) (Count arrow pointing in wrong direction) (1) (Count value should be 0 (this mark may be claimed at line 100)) (1) 50 REPEAT 60 count ← + 1 (1) (Incorrect statement for increment) (1) 70 PRINT "Input number ",count 80 INPUT number 90 total + number ← total (1) (Incorrect order//setting wrong value to variable) (1) 100 UNTIL count = number (1) (Incorrect statement for comparison/should compare to n) (1) 110 average ← total / n 120 PRINT average	6

Question	Answer	Marks
7(b)	TWO marks available: - A WHILE...ENDWHILE loop will only be executed if the condition is true (1) BUT a REPEAT...UNTIL loop will happen even it is not true. (1) - A REPEAT...UNTIL loop is guaranteed to happen, (1) but a WHILE...ENDWHILE loop may not happen. (1) - For a WHILE...ENDWHILE loop, the condition is tested before the statement runs (1) for a REPEAT...UNTIL loop, the condition is tested after the statement runs. (1) - A WHILE...ENDWHILE loop is a pre-condition loop, (1) and a REPEAT...UNTIL loop is a post-condition loop. (1) - A REPEAT ...UNTIL loop ends when a condition is met (1) but a WHILE...ENDWHILE loop ends when a condition is not met. (1)	2

Question	Answer	Marks
8	SIX marks available: ONE mark per identified characteristic, ONE mark for the description/purpose of that characteristic. - Can carry out WHAT-IF analysis (1) So that scenarios can be explored (may exemplify scenario being changed)(1) Allows for complexity (1) - Has inputs/outputs (1st) So that values can be set by the user//so that results can be seen by the user (1) - Can create rules (1st) These define how the inputted data/values are used//the calculations that take place (1) - Can edit rules (1st) To take account of changing parameters/conditions (1) - Cell protection (1st) Protects cells from being (accidentally) changed by the user (1) - User forms (1st) Allows the easy input of data (1) Allows data to be entered in an organised way (1) - Can create macros (1st) To automate processes (1) - Automatic recalculation (1st) Outputs automatically updated (1) - Can hold/handle large amounts of data (use of Multiple – award as BOD).(1st) To allow for different possible outcomes/scenarios (1) Allows for complexity (1) (may be repeated from MP 1) Note: – NOT DEPENDANT - Includes function/formulae (1) to perform calculations/carry out equations (1)	6

Question	Answer	Marks
9	EIGHT marks available: Areas for consideration (one mark each) • Ability to dictate how the product is tested//Extent to which testing has occurred//Potential for existence of bugs (1) • Extent to which user is/can be involved in testing (1) • Extent to which software has features as required//meets the requirements//tailored for the business (1) • Extent to which software includes unnecessary features//ONLY required features (1) • Compatibility with current system (1) • Copyright ownership//ability to sell on (1) • Who pays/paid development costs (1) • Whether immediately available for use or not (1) • Availability of support (online forums etc.) (1) • Updates (costs of or availability of) (1) • Reliance on continued existence of vendor going forward//product ceases to be available (1) • Scalability (1) Marks may only be awarded where the point made is correctly linked to the type of software. MAX six marks where only custom-written or off-the-shelf are considered.	8

Question	Answer	Marks								
10(a)	THREE marks available: <table><tr><th>Data title</th><th>Most appropriate data type</th></tr><tr><td>employee_name</td><td>Text/alphabetic (1)</td></tr><tr><td>hourly_rate_of_pay</td><td>Currency/numeric (1)</td></tr><tr><td>was_employee_born_in_france?</td><td>Boolean (1)</td></tr></table>	Data title	Most appropriate data type	employee_name	Text/alphabetic (1)	hourly_rate_of_pay	Currency/numeric (1)	was_employee_born_in_france?	Boolean (1)	3
Data title	Most appropriate data type									
employee_name	Text/alphabetic (1)									
hourly_rate_of_pay	Currency/numeric (1)									
was_employee_born_in_france?	Boolean (1)									
10(b)(i)	TWO marks available: First mark for identifying a suitable validation rule/test (1st) Second mark for a description of that test (1) • Range (1st) – to check value is BETWEEN two figures (1) • Type – to check data is in numeric/currency • Format check – to check entered as (e.g.) \$3.14//description of • Lookup check – to check against a list of values • Limit check – to check that is not below//above a certain figure • Character check – to check that is a decimal/real	2								

Question	Answer	Marks
10(b)(ii)	TWO marks available: First mark for identifying a suitable validation test (1st) Second mark for a description of that test (1) • Range – to check value is BETWEEN two figures • Type – to check data is in numeric/date • Format check – to check entered as (e.g.) dd/mm/yyyy • Limit check – to check that is not below/above a certain figure • Character check – to check that is an integer	2
10(c)	THREE marks available: • Age is based on the calculation between date of birth and today (1) • Age constantly increases with time//age changes every year (1) • A calculated field allows for a changing/dynamic figure (1) • The result shown//age is constantly accurate (1st) Reduced chance of human error resulting in the wrong number being stored (1)	3