CAMBRIDGE
International Education

Cambridge International AS & A Level

INFORMATION TECHNOLOGY **9626/11**

Paper 1 Theory **October/November 2025**

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

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)	**One from:** • Data is raw facts (1) • Data has no meaning (1) • Data is unprocessed/unorganised (1) • No context (1)	**1**
1(b)	**One from:** • Information is data with meaning (1) • Information is data in context (1)	**1**

Question	Answer	Marks
2(a)	**Three from:** • She will be able to provide a better quality of service (1) • She will have better quality information about her patients (1) • She can get exactly the data she wants//can ask follow-up questions//concept of relevancy (1) • Data is more reliable/trustworthy//she knows where it came from (1) • Data is more up to date (1) • Data only relates to the sample/patient that she want/collects from (1)	**3**
2(b)	**Three from:** • No organisation of data (1) • No pre-analysis of data (1) • Requires access to the source//patient is needed (1) • Prone to human error (1) • May suffer from bias (1) • May require specialised equipment (1) • No peer review (1)	**3**

Question	Answer	Marks
3(a)	**Two from:** • The unauthorised person phones the victim pretending it is a call from the bank (1st) – The unauthorised person claims that there is an issue/peril/fault with the victim's account (1) – The unauthorised person persuades the victim to give them their details (1) – The unauthorised person convinces/tricks the victim into believing they are talking to a real bank (candidate may exemplify) (1)	
3(b)	**Two from:** • Do not answer the phone to unknown numbers (1) • Do not give login/personal details (over the phone) (1) • Contact the bank with a **different** device (1) • Contact the bank on a known number (1) • Block the number (via phone settings/provider) (1) • Report the call (to phone provider/bank) (1) • Don't use any phone number provided by the caller (1)	**2**

Question	Answer	Marks
4(a)	**One from:** • A database/store of facts **and** a rules base (1)	**1**
4(b)	**Four from:** • Knowledge base holds facts (1) gathered from an expert (1) • Knowledge base holds rules (1) that are used to interrogate the facts (1) • It is interrogated by the inference engine (1st) – Using relevant rules//rules that apply (1) • The rules base includes IF…THEN rules (1)	**4**

Question	Answer	Marks
5(a)	**Two from:** • Sensor accuracy changes with time/use because of wear and tear from environmental circumstances/constant use (1) • Sensors might not be adapted to the required environment because the conditions can change (1) • Calibration maintains the accuracy of the sensors to ensure they produce reliable/accurate/correct readings (1) • New sensors need to be setup/calibrated to ensure they meet the appropriate requirements because they will be set to factory settings//have preset parameters (1) • Other components that are part of the system/impact on the reading may affect the reading so making it inaccurate (1)	**2**
5(b)	**Five from:** e.g. • Only one measurement point/reading with one-point calibration//with multipoint calibration at least three readings are taken (1) • One-point calibration is used with sensors that measure a single value// multipoint calibration is used with sensors that measure a range of values that have a non-linear relationship (1) • One-point calibration requires a simple calculation to take account of the error//multipoint calibration requires a complex calculation (1) • They **both** mitigate/reduce impact of structural errors in readings//inaccurate readings (1) • They **both** need to be done regularly (1) • They **both** compare values with known/correct/accurate measurements (1)	**5**

Question	Answer	Marks
6	**Max one for:** • It is a type of system software/Software used by the operating system (1) **Max two from:** • Used by the operating system to maintain a computer/file system/add functionality (1) • It improve/optimises the computer's performance (1) • Without utility software some devices/peripheral devices would not be available/accessible to the operating system (1) • Describing a clear specific need that is solved by a named/example of utility software (1)	**3**

Question	Answer	Marks
7(a)	**Two from:** • A query that prompts the user for an input (1) • Allows the parameter/criteria **to be changed each time (1)** • Allows to **search** based on specific parameters/criteria the user needs at any given time (1)	**2**
7(b)	**Three from:** • Efficient way to search a database (1) • Reduces the number of queries saved//number of queries through which to search (1) • Reduced file size (1) • Requires little technical knowledge by end user (1) • Allows the end user flexibility/control (1) • Saving time in not creating a new query every time (1) • It provides a user-friendly way to interact with the database (1)	**3**

Question	Answer	Marks
8(a)	**Max one for:** • It means adding tracks/audio clips (1) **Max one mark for any valid reason:** e.g. • Add complexity to the music/audio (1) • Adds voiceover (1) • Add extra instruments (1) • Add sound effects to match what is happening on the screen (1)	**2**
8(b)	**Max one for:** • It means boosting/reducing/changing the levels of **different frequency bands** (1) **Max one for any valid reason:** e.g. • To pick out speech from background sounds (1) • To reduce the hiss (1) • To reduce/increase identified/intrusive noise frequencies (1) • To emphasise/highlight a guitar solo in a music track (1)	**2**
8(c)	**Max one for:** • Is an effect that adds echo to a sound (may describe sound being bounced off (e.g.) walls) (1) **Max one for any valid reason:** e.g. • To simulate being in a different environment (e.g. cavern/concert hall) (1) • To give depth/richness to a sound (1) • To create a dramatic effect in a radio/audio play/podcast (1)	**2**

Question	Answer	Marks
9	**Four from:** • Programmer can write in high level language (1) • Programmer does not need to code in machine code (1) • The program code will run on different computers/operating systems (1) • Only need to maintain one version of the program (1) • It is easier to debug the program//It is easier for the programmer to spot mistakes in the code (1) • An interpreter will highlight mistakes as they are found (1)	**4**

Question	Answer	Marks
10	**Six from:** • It uses sensors and output/actuator (1st) – A valid example of input e.g. proximity sensors (1) – A valid example of output e.g. thrusters (1) • Real time processing occurs in a (micro-)processor (1) • It uses a process called feedback (1) • Output from the system affects the input/sensors/environment (1st) – Input from the sensors is used to alter the output (1) – Valid example of action e.g. trajectory correction (1) • Description of the output/input system (as a whole) in action e.g. sensor detect object in path of rocket and fires thrusters to avoid (1) • Real time processing produces an extremely/fast response(s) (to avoid critical incidents) (1) • Real time processing runs continuously (1) • Real time processing can run autonomously (1)	**6**

Question	Answer	Marks
11	**Four from:** • They have a **short** lifespan (1) • They perform consistently and reliably (concept of reliability) (1) • They have very little downtime (concept of availability) (1) • They are no more complex to maintain than other computer systems (concept of serviceability) (1) • They can sacrifice security for faster processing//they might be more liable to attacks because of the data they contain (concept of increased security) (1) • They have high fault tolerance (1) • They achieve very high temperatures//They require heat maintenance (1) • They have a very large number of processors/multi-core processors **running in parallel** (1) • Their processors are close together (in a 'computer cluster') (1) • They can run multiple operating systems at the same time (1) • They carry out multiple processes at the same time (1)	**4**

Question	Answer	Marks
12	**Two from:** • Stands for millions of instructions per second (1) • Are a unit of measurement of processing power (1) • Are used to measure **mainframe** performance (1)	**2**

Question	Answer	Marks
13	**Max one for:** • Definition of computer simulation (1) **Max six from:** *Benefits* • Identified cost saving (1) • Drivers are not put in physical danger/can be safer/less risk of being hurt/no risk to life (1) • Different/extreme conditions can be simulated so no need to wait for natural occurrence (1) • Conditions/scenarios can be **repeated**//each simulation can be reset to same starting point/values/circumstances (1) • Simulation can be recorded for later playback/analysis (1) • Feedback can be visual overlays of previous test (1) • Real time data/telemetry produced (1) • Computer can more accurately measure performance metrics (1) • Greater number of testers could be used (1) • Testing can occur at multiple points in the development process (1) • Can try different (possible) features of the car without having to actually build it (1) **Max six from:** *Drawbacks* • Can be difficult to simulate all conditions found on roads (1) • Can be expensive to create a realistic simulation (1) • Lack of a realistic experience of the car (1) • Drivers may be more reckless in simulations because of lack of real danger (1) • Could produce phantom/ghost/erroneous problems (1) • Significant analysis/expertise may be required to make sense of data (1) • Simulated scenarios may be inaccurate/wrong (1)	**8**

Question	Answer	Marks
14	**Four marks for two matched group-remedy pairs:** e.g. ***Groups*** (1st) • Old people (1) • People in rural areas (1) • Low/different levels of education (1) • Lower socioeconomic group//people who cannot afford to purchase (1) • People with learning difficulties (1) • People with physical impairments (1) • People with sensory impairments (1) • People in less industrially developed nations (1) ***Remedies*** (1) • Education/training (1) • Drop-in centres support (1) • One to one support (1) • Invest in infrastructure (1) • Provide specialist interfaces (1) • Provide (cheap) loans/subsidies/price ceiling/free (1) • Recycling/refurbish/repurpose equipment (1)	**4**

Question	Answer	Marks
15	**Four from:** • It is used in database design (1) • Describes the relationship between two tables (1) • It ensures that all data in a database remains consistent (1) • It ensures that it is all up to date (1) • It ensures that all foreign keys are dependent on the **matching** primary key (1) • Gives user a warning if they try to delete parent data (1) • Helps to reduce redundant data (1)	**4**

