Cambridge IGCSE™

INFORMATION & COMMUNICATION TECHNOLOGY	**0417/11**
Paper 1 Theory	**October/November 2024**
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 2024 series for most Cambridge IGCSE, Cambridge International A and AS Level components, and some Cambridge O Level components.

[Turn over

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.

Abbreviation	Meaning
/	separates alternative words/phrases within a marking point
// followed by a capital letter	separates alternative answers within a marking point
underline	actual word given must be used by candidate (grammatical variants accepted)
( )	the word / phrase in brackets is not required, but sets the context
These points <u>must</u> be followed:
No marks are awarded for using brand names of software packages or hardware. These must be careted before the word and after it.
Read the whole sentence **before** marking it
Annotations **MUST** be placed in white space at 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 **R** at the end of the answer to show that the whole answer has been marked, unless a marking annotation has been placed near the end of the answer.
On any blank pages, place **one** SEEN annotation
If an answer is left 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 has been written then attempt to mark it.
Remember an answer is correct or incorrect <u>only</u>
Make sure you have read the AE / PE guide **BEFORE** marking

Question	Answer	Marks
1(a)	So it can be processed by a computer	**1**
1(b)	**One** from: So it can be used in control systems So that the data can be understood by a human	**1**

Question	Answer	Marks
2(a)	Applications	**1**
2(b)	System	**1**
2(c)	Hardware	**1**
2(d)	**One** from: Central Processing Unit Micro processor	**1**

Question	Answer	Marks
3(a)	*Backing Storage* Max **three** from: Backing Storage is non-volatile only This is permanent storage Storage devices have slower access rates than internal memory Larger storage capacity than internal memory Secondary storage *Internal Memory* Max **three** from: Data can be either volatile <u>or</u> non-volatile Can be permanent <u>or</u> temporary storage <u>Directly</u> accessed by the CPU Primary storage	**4**
3(b)(i)	**One** from: Read Only Memory / ROM Random Access Memory / RAM	**1**
3(b)(ii)	**One** from: Magnetic storage Optical storage Solid state storage Allow a correct example as an alternative to each	**1**

Question	Answer	Marks
3(c)	Positives Max **five** from: Data stored on the cloud can be shared by many people easier than other backing storage Easier to maintain files as there are no physical devices to manage Storage space is dynamic Easily expandable Users only pay for what is used Automatic backup of data to ensure data is not lost Easier to find items of data as they are all in one place Data can be synced across multiple devices / servers when changes are made Data can be accessed from multiple devices Data can be accessed from anywhere Negatives Max **five** from: Data control is lost Data security can be an issue as many copies are stored Requires a stable internet connection Subscription needs to be maintained otherwise the cloud account could be lost If the cloud provider closes down you may lose data	6

Question	Answer	Marks
4(a)	*Benefits* Max **five** from: Easy to use especially for a beginner Commands tend to be intuitive Commands do not need to be typed in therefore less typing errors No need to learn complex syntax A GUI lets users exchange data between different software applications *Drawbacks* Max **five** from: GUIs take up a large amount of hard disk space They need a significant amount of RAM to run They use a lot of processing power They can be slow for experienced programmers to use Restricted to pre-determined options	6
4(b)	*Inputs* Max **three** from: Data from experts is entered into the expert system Corrections are entered The user answers the question by typing yes or no *Outputs* Max **three** from: The data entered is displayed on the screen The question is displayed A list of diagnoses / probabilities / results is displayed An explanation is displayed	4

Question	Answer	Marks
5	**Six** from: Laptop computers are mobile computers Laptop computers have a smaller footprint Laptop computers tend to be lighter in weight Laptop computer the main components are integrated Laptop computers can be run by battery power The components of a desktop tend to be standardised therefore if one breaks its easy to replace Laptop computers are more difficult to repair Laptop computers are more expensive to repair Laptop computers tend to have smaller screens Desktop computers tend to have a more stable internet connection	**6**

Question	Answer	Marks
6	**Two** from: Magnetic stripe reader Radio Frequency Identification (RFID) reader Optical Mark Reader Optical Character Reader Bar code reader QR scanner Biometric scanner	**2**

Question	Answer	Marks
7(a)	**Two** from: Connecting networks and devices to the internet Storing computer addresses Forward packets based upon a routing table	**2**

Question	Answer	Marks
7(b)	**Four** from: The data packet contains an IP address of the computer / network The router reads the data packet The data packet contains the IP address of the destination The router searches the IP address with its routing table The data packet is forwarded to the next router / network The data packet continues being sent to subsequent routers until it reaches the target device The router will use the IP address to work out the best route If the destination address is unknown it uses its default route Stores the IP address for future use	4

Question	Answer	Marks
8(a)	**Two** from: A physical token is a small hardware device Authorises access to a system It generates / uses a single-use code to use when accessing a platform Provides an extra security layer	2

8(b)	**Six** from:
	
	Download an anti-malware software ensure the anti-malware software is up to date
	Set the email account to scan any email / attachments automatically
	Scan the email / attachment for viruses / malware
	If no virus found (1st)
	    download the attachment (1)
	If a virus is found (1st)
	    delete the email / attachment without opening / downloading it (1)
		6

Question	Answer	Marks
9(a)	**Three** from: Eye strain Repetitive Strain Injury Back ache / Neck ache Headache	3
9(b)	**Three** from: Tripping over trailing leads Fire Electrocution Injuries caused by equipment falling	3

Question	Answer	Marks
10(a)	**Two** from: Voice over Internet Protocol Internet telephony Communication method over the internet	2
10(b)	**Four** from: Members of the team log into the cloud Access to the document is given to members of the team Members of the team edit the document Members of the team download / upload the document Each change causes the document to be automatically saved All copies of the document are synced A history of the changes can be easily created from the saved versions	4

Question	Answer	Marks
11(a)	*Benefits* Max **five** from: Cheaper than building the real object Can be safely tested under extreme conditions Can use it to find unexpected problems Able to easily test different scenarios Able to explore 'what if' questions Can speed things up / slow them down to see changes over long / short periods of time *Drawbacks* Max **five** from: Mistakes may be made in the programming The cost of setting up a computer model can be high Time may be needed to make sense of the results Reactions to the model might not be realistic / reliable Cannot take into account all variables The model is only as good as the data entered	6
11(b)	**Four** from: Data is entered into the model The computer model is run Vary the timings of the traffic lights Increase the number of vehicles at the junction Increase the number of vehicles that stop to turn right / left Consider emergency vehicles Consider different times of day Consider an increase in the number of pedestrians at the crossing To see how it affects the traffic flow Results are produced which are analysed to create the real junction Change the values to test for dangerous situations / scenarios	4

Question	Answer	Marks
12(a)	**Three** from: Monitors Multimedia projector Laser printer / inkjet printer / dot matrix printer Plotter Speaker	**3**
12(b)	**Three** from: Programmed to produce the tablet Data is entered The material used in the tablet is mixed (with a binding compound) 3D printer is filled with the mixture / powder Uses a nozzle that ejects a fine spray of the medicine The printer then repeats the process over hundreds of layers Layers build up the tablet	**3**

Question	Answer	Marks
13	**Two** from: Observation Interview Questionnaire Document analysis	**2**