Cambridge IGCSE™

INFORMATION & COMMUNICATION TECHNOLOGY　　　　　　　　　　**0417/11**

Paper 1 Theory　　　　　　　　　　　　　　　　　　　　　　**October/November 2023**

MARK SCHEME

Maximum Mark: 100

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 2023 series for most Cambridge IGCSE, Cambridge International A and AS Level components, and some Cambridge O Level components.

This document consists of **9** 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 descriptors 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.

Question	Answer	Marks
1(a)	Product_number	**1**
1(b)	Not every publication has a bar code	**1**
1(c)	**Four** from: • Uses data integrity which means no discrepancies in the data • Less memory used in the computer • Data is not unnecessarily duplicated • Queries can be created using many tables//Complex queries can be created • Reports can be created using many tables//Complex reports can be created • Only have to input the data once into a relational database therefore it saves time	**4**
1(d)(i)	**One** from: Numeric: currency	**1**
1(d)(ii)	Text/string/alphanumeric	**1**

Question	Answer	Marks
2(a)	Analogue	**1**
2(b)	Digital	**1**
2(c)	Analogue to digital convertor/ADC	**1**
2(d)	Temperature (sensor)	**1**

Question	Answer	Marks
3(a)	**Six** from: *Advantages* • Easier to connect devices onto a tablet • Larger screen to see the findings • Larger onscreen keyboard to enter the data • Better software suited to the task *Disadvantages* • Smartphones are more portable and can be carried in a pocket • Students are more likely to have smartphones with them • If cameras are to be used then it is easier to use a camera with a smartphone **To gain full marks the discussion must both advantages and disadvantages**	**6**

Question	Answer	Marks
3(b)	**Two** from: • Keyboard • Camera • Touch screen • Microphone • Sensor	**2**

Question	Answer	Marks
4	**Six** from: *Similarity* • Both readers are in direct contact with the card • Both readers can cause wear and tear on the cards • Both are input devices *Difference* • Chip and PIN readers the user needs to know the PIN • The chip and PIN reader is susceptible to shoulder surfing • Chip and PIN reader prompts the user to enter a PIN • It is more secure as a PIN is needed • In the magnetic stripe reader the card can be used by anyone as no PIN is needed • The transaction is faster using a magnetic stripe reader • Less data entry errors using a magnetic stripe reader as no manual input **To gain full marks the comparison must have both similarities and differences**	**6**

Question	Answer	Marks
5(a)	**Two** from: • A bridge connects two LANs that use the same protocol • A bridge creates a single LAN from separate parts • A router allows data packets to be sent to LAN/WAN • A router connects a LAN to a WAN	**2**
5(b)	**Four** from: • Internet Protocol address • Unique identifier • IP addresses must be different for each device on a network • All devices connected to the internet use IP addresses • Determines the electronic location of the <u>device</u>	**4**
5(c)	**Two** from: • Used to determine where data packets will be directed • Stores route information • Stores IP addresses	**2**

Question	Answer	Marks
6(a)	**Two** from: **Mark the first two answers only** • More difficult to edit the PDF • PDF sometimes render incorrectly • Need PDF editor software to edit//Need PDF viewer	**2**
6(b)	**Two** from: • Audio • Interactivity • Ability to change to different languages • Ability to change text flow left-to-right and right-to-left • Text to speech • Accessibility • Video • Animation • Turning pages automatically	**2**
6(c)	**Six** from: • To interest/attract the younger audience the ePublication should use: • Bright colours • Animations • Videos • Sounds//sound effects • Cartoons • There should be more pictures than text • The wording should be simple//Short sentences could be used • Large text fonts so that it is easier to read • Use of white space to break up the text and make it easier to read • Games/activities for content can be used **If a list of points is given with no reasons then max 5 marks**	**6**

Question	Answer	Marks
7(a)	**Three** from: • Password is not strong • It is easy to guess • The letters and numbers are in sequence on the keyboard • Easy to shoulder surf • It should be changed regularly to secure his login	**3**
7(b)(i)	Encryption	**1**
7(b)(ii)	Biometrics	**1**
7(b)(iii)	Digital certificate	**1**
7(b)(iv)	Firewall	**1**
7(c)	**One** from: • If someone finds the password for one of the systems/accounts other systems/accounts are compromised • If someone finds the password for one of the systems/accounts then he has gained the company password	**1**

Question	Answer	Marks
8	**Six** from: **This question is a cause and effect question** • Reduces the amount of time it takes to complete a task… (1st) …therefore gives the user more leisure time/time to do other things (2nd) • The user does not need to be present when the device is working…(1st) …therefore gives the user more/less exercise (2nd) • Allows the user to use interactive games devices…(1st) …therefore helps improves their fitness (2nd) • When the device does all the work…(1st) …it makes the user lazy (2nd) • Users are not doing as much manual work…(1st) ...this can cause [a valid named health issue] (2nd) • Using computers/gaming machines/devices for long periods…(1st) ...this can cause [a valid named health issue] (2nd) **If the candidate does not give two named devices with effects then max five marks**	**6**

Question	Answer	Marks
9(a)(i)	**This is a use and reason question** To store the operating system/games **One** from: • Faster loading of the operating system/games • The game/OS runs faster	**2**
9(a)(ii)	**This is a use and reason question** To store the apps/software/data/files/movies **One** from: • Can store more files • Can store larger files	**2**
9(b)	RAM ROM	**2**

Question	Answer	Marks
10(a)	**Four** from: Similarities • Both are used to check that data has been entered correctly • Both ensure that the data has been transferred correctly • Both are used to check the data against the original data *Differences* • In visual verification the <u>user</u> compares the data • Data is compared with the original data source • In double data entry the computer compares the data • In double data entry the data is compared with the previously entered data • In double data entry data is entered twice <u>by the user(s)</u> **In order to gain full marks the comparison must both similarities and differences**	**4**
10(b)	**Two** from: • Format (check) • Length (check) • Range (check) • Type/character (check)	**2**

Question	Answer	Marks
11	**Six** from: *Inputs* • Insert card • System reads the details on the card • Select the language you would like to use • Enter PIN • Select print (mini statement) option • Select Account • Select 'confirm' *Processing* • Checks the card is correct/valid • Checks the account number is correct • Check the PIN is correct • If incorrect three times then card is retained • Checks the correct account selected • Sends a signal to/communicates with the bank • Bank computer creates the statement • Details of the amount in the account are sent to ATM • Details are sent to the printer **To gain full marks the description must have at least two answers for inputs and at least two answers for processing**	**6**

Question	Answer	Marks
12(a)	**Two** from: • Places a hard break in the location selected • Could remove widows/orphans	**2**
12(b)	**One** from: • The word does not appear in the dictionary • The word is written in Latin and the dictionary is in English. **One** from: • Add the word to the dictionary • Set the dictionary to allow scientific names/Latin • Set (the dictionary) to ignore the word	**2**