CAMBRIDGE
International Education

Cambridge IGCSE™

INFORMATION AND COMMUNICATION TECHNOLOGY **0417/11**

Paper 1 Theory **May/June 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 May/June 2024 series for most Cambridge IGCSE, Cambridge International A and AS Level and Cambridge Pre-U components, and some Cambridge O Level components.

This document consists of **11** printed pages.

PUBLISHED

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.

Mark scheme comments

/ separates alternative words / phrases within a marking point
// separates alternative answers within a marking point
underline actual word given must be used by candidate (grammatical variants accepted)
max indicates the maximum number of marks that can be awarded
( ) the word / phrase in brackets is not required, but sets the context

Note: No marks are awarded for using brand names of software packages or hardware.

- Examiners must ensure that annotations are placed to show that the whole answer has been seen
- Annotations MUST be placed in white space close to where the mark is awarded
- Before submitting a script please check all ticks match marks
- If you have not placed any annotation near the end of a long answer then place R to show that the whole answer has been read
- Read the full sentence/answer before marking it
- 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 then attempt to mark it.

Please make sure you have read the most up to date (10th May) AE guide.

Question	Answer	Marks
1	Motherboard ROM	**2**

Question	Answer	Marks
2(a)	Encryption	**1**
2(b)	Control	**1**
2(c)	Hacking	**1**
2(d)	(An) interview	**1**

Question	Answer	Marks
3(a)	Password: 6IRrg08& **Two** from: No obvious sequence of numbers/letters Long password Strong password Hard to guess Not directly related to personal details	**3**
3(b)	**One** from: Changing password regularly Use of anti-spyware/anti-malware Be aware of shoulder surfing	**1**

Question	Answer	Marks
4	**Four** from: Block and report unwanted users Do not meet an online contact face to face Always tell an adult if you plan to meet in person Avoiding the distribution of inappropriate images when sending to new friends Avoiding the use of inappropriate language Respecting confidentiality/personal/sensitive data of new friends Never reveal personal images Keep personal data private Set account privacy settings Turn off current location	**4**

Question	Answer	Marks
5(a)	**Two** from: Experts can operate the user interface faster Does not require a high resolution monitor Requires less processing power to run the CLI	**2**
5(b)	**Two** from: Graphical User Interface (GUI) Dialogue based Gesture based	**2**

Question	Answer	Marks
6	Max **five** from: ***Advantages*** Simpler interface for employees Less equipment is required therefore it is cheaper More flexibility/can dress casually for the employee as they do no need to be in front of a camera No issues with lip sync Can do other tasks as there is no camera/cannot be seen More privacy as the viewers cannot see inside your home/office Max **five** from: ***Disadvantages*** Doesn't let you have visual aids during calls Cannot see the body language of the people in the conference Cannot tell if the employees are paying attention Fewer features than video-conferencing Less personal as you cannot see the person Harder to control the meeting as you do not know who is speaking next	**6**

Question	Answer	Marks
7(a)	**Two** from: Data can be stored on the laptop Does not require the use of external storage devices when transferring data to and from the office Employee does not have to use his own equipment saves the employee money Would only be used by the employee therefore improves security	**2**
7(b)	**Two** from: Laptop can be lost/stolen in transit Laptop can be more easily damaged Risk of uploading/downloading a virus/malware by use of own devices Security could be compromised if own storage devices are used Device could be used for other work/personal activities (causing security problems)	**2**

Question	Answer	Marks
7(c)	**Four** from: Navigation buttons to move to next page Help button to get help with filling in the form Drop down lists to enter the address/name Auto-complete to speed up the process to add addresses Character boxes to make it easier to type in the data Good use of white space to make it easier to read Layout of form to make it easier to read Easy to understand instructions to help fill out the form correctly Use of radio buttons/tick boxes for gender Font size to make it easier to read Font style so it is easier to read Well designed layout to make it easier to fill in	**4**
7(d)	**Four** from: Regularly rest the eyes Sit at arm's length from the screen Use a foot rest Use a wrist rest Arrange the workspace so that there is enough space to work Use an ergonomic chair/mouse/keyboard Maintain correct posture Use blue light glasses Ensure the room lighting matches the screen brightness Keep the laptop screen clear of dust and dirt	**4**

Question	Answer	Marks
8(a)	**Two** from: Gaming Example of walk through systems Example of training systems	**2**

Question	Answer	Marks
8(b)	Max **Six** from: People can be trained allowing them to practice over and over until they have perfected a particular task People can be trained in a virtual environment without risk to themselves/others Allows training in dangerous situations where it is impossible to practice the real thing Can give people a much more interactive experience when they are trained Allows people to retain knowledge much better than reading about it in a book/training room Allows people to walk through to check for potential errors/tested before the design is implemented Designs can be modified quickly therefore better objects can be made Confusion between real life and the game Causes headaches/eye strain/motion sickness/falling over Can become addicted to gaming with this system	**6**

Question	Answer	Marks
9(a)	**Three** from: Uses prescribed (knowledge-based) criteria to solve a problem The criteria in the rules base are applied to the inputted data Part of the database of knowledge It contains facts/descriptions of objects Used in searching the knowledge base	**3**
9(b)	**Three** from: This determines how to apply the knowledge in the knowledge base to the facts presented at the user interface Processes the knowledge base to find the diagnoses/solution It performs this task in order to deduce new facts which are subsequently used to draw further conclusions The inference engine is the active component of an expert system It provides a methodology for reasoning	**3**

Question	Answer	Marks
10	**Four** from: The microprocessor receives the data A preset value for the distance is stored in the microprocessor The microprocessor compares this data to the minimum distance/preset value If the data is less than the preset value the microprocessor sends a signal to the actuator The actuator applies the brakes If the data is more than the preset value the microprocessor does nothing Process is continuous	**4**

Question	Answer	Marks
11(a)	Max **two** from: **Similarities** Both are methods of implementation Both involve the changing of the whole of the old system to a new system Max **three** from: **Differences** With parallel running both systems operate together until the old one is removed With direct changeover the new system is implemented immediately With direct changeover benefits are immediate With parallel running the changeover is safer as the old system is still operating for a while With direct changeover costs are reduced as only one set of staff need to be employed/as there is only one system in operation With direct changeover the system has to be more thoroughly tested before becoming operational	**4**
11(b)	Max **four** from: Compare the final solution with the original task to ensure that all elements of the solution have been met Identify any limitations of the software these are the problems that may have occurred during the testing/implementation Identify any necessary improvements that need to be made following testing and implementation, errors may be found that need to be improved Evaluate the user's responses to using the new software following the beta testing the users report back and these comments need to be taken into consideration	**4**

Question	Answer	Marks
12(a)	**Three** from: A type of credit card theft A digital copy of the credit card is made with data placed on a new blank card An unauthorised copy is made of the data Uses a concealed electronic scanner	**3**
12(b)	**Two** from: Use of personal identification number/PIN Use of chipped cards Inspect the credit card reader you are using Use an RFID protector Sign up for text alerts on the account Not using your credit card if you feel unsafe/suspicious websites Don't let your card leave your sight Use third party/smartphone electronic payment systems	**2**

Question	Answer	Marks
13(a)	Visual verification	**1**
13(b)	**Four** from: Data is processed lawfully/fairly Data processing must be transparent The purpose of collecting the data must be specified/explicit/legitimate Personal data must be adequate/relevant/not excessive Personal data must be accurate/kept up to date Personal data must not be kept for longer than is necessary Personal data must be processed in a secure manner Data can only be used for medical purposes Data must be protected	**4**

Question	Answer	Marks
13(c)(i)	**One** from: The age of the patient changes every year The data would need to updated regularly Time consuming to keep changing the age on the database	**1**
13(c)(ii)	**One** from: Use the field date of birth Use a calculated field from date of birth	**1**
13(d)(i)	**Two** from: Range check Character check Length check Type check Format check Presence check Check digit	**2**
13(d)(ii)	Max **three** from: A primary key is unique A primary key helps identify the record A primary key cannot be a null value Creates relationships Only one primary key per table Max **three** from: A foreign key can have a null value A foreign key is a key in a table which is a primary key in another table A foreign key enforces referential integrity Found in relational databases	**4**