GradeMax

CAMBRIDGE
International Education

Cambridge IGCSE™

INFORMATION AND COMMUNICATION TECHNOLOGY **0417/12**

Paper 1 Theory **February/March 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.

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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.

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Mark scheme abbreviations

/ 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 response, then place **R** to show that the whole answer has been read.
Any blank pages place **one** SEEN annotation
Read the sentence **before** marking it

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.

Question	Answer	Marks
1	SD Card Flash memory	**2**

Question	Answer	Marks
2(a)	*Applications* **One** from: This provides the services that the user requires to solve a task Allows the user to perform a task *System* **One** from: This provides the services that the computer requires to operate Controls the hardware and software This provides a link between the user and the hardware Acts as a platform for other software to run	**2**
2(b)(i)	**Two** from, for example: Word processing software Spreadsheet Database management system Applets	**2**

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Question	Answer	Marks
2(b)(ii)	**Two** from: Compilers Linkers Device drivers Operating system Interpreters Utilities	**2**

Question	Answer	Marks
3	*Analogue data* Max **three** from: Is continuous In waveform Low bandwidth Needs to be converted to be processed/read/stored by a computer *Digital data* Max **three** from: Is discrete In the form of 1s and 0s/binary Uses sampling to capture the data High bandwidth Can be processed by a computer without conversion	**4**

Question	Answer	Marks
4	**Four** from: Controls all CPU operations Controls the input and output devices Controls the movement of data within the computer Retrieves instructions Retrieves data from memory Decodes instructions Executes instructions sent from the hardware and software Carries out calculations and comparisons Makes logical decisions Registers/stores the results from the ALU	**4**

Question	Answer	Marks
5	**Two** from: Command Line/CLI Dialogue based Graphical user/GUI	**2**

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Question	Answer	Marks
6(a)	**Two** from: Looking at a screen to control devices Point device at a building/object and info is displayed Gaming AR glasses in healthcare Immersive learning Layering filters in social media	**2**
6(b)	**Two** from: AR uses a real-world setting whereas VR only enhances a fictional reality AR can be accessed with a smartphone whereas VR usually requires a headset device AR enhances both the virtual and real world whereas VR is completely computer generated/virtual world	**2**

Question	Answer	Marks
7(a)(i)	**Two** from: This is the system that displays questions for the user to answer The user answers with Y/N type answers User interface displays the results	**2**
7(a)(ii)	**Two** from: This is a collection of facts and rules Created from information provided by experts	**2**
7(b)	**Four** from: The user interface asks questions The user answers the questions with Y/N answers The expert system asks further questions based on the answers given The inference engine searches the knowledge base using the rules base Probabilities would be given of the likelihood of finding water An explanation system explains how the expert system arrives at the solution Results are displayed on the user interface	**4**

Question	Answer	Marks
8(a)	**Two** from: It's a fraudulent practice of making phone calls/leaving voice messages The caller pretends to be from a reputable company Forces individuals to reveal personal information Voice mail/VOIP/phone call phishing	**2**
8(b)	**Two** from: Never give out personal information to the caller Ring the bank/company on a known number Hang up and do your own investigation Block their number Don't answer the call if you do not recognise the number	**2**

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Question	Answer	Marks
9	*Similarities* Max **two** from: Both are used in design Both are documents produced by the developers The results generated affect the implementation of the software *Differences* Max **five** from: Test plan is about the test being carried out It is a short term plan whereas a test plan is a long term plan Used on one piece of software whereas a test plan can be used on multiple pieces of software Shows the test objectives Carried out by the test manager/team whereas a test plan is carried out by the project manager Test plan describes how to test/when to test/who will test Test strategy is more detailed Shows the methods to be used to test it The test strategy is a set of instructions/guidelines which explain the test design The test strategy determines how the test should be carried out States what type of technique to follow and which module to test Created before the test plan	**6**

Question	Answer	Marks
10(a)	**Two** from: Prevents errors when data is being copied from one medium to another Comparing the data against the original If a second person carries out the checking then it ensures errors are not missed	**2**
10(b)	**Three** matched pairs: Format check Check that the format is dd/mm/yyyy Range check Month ranges from 01 to 12//Day range 01 to 31 Length check Exactly 8//Exactly 10 characters Character check The date of birth can only contain integers Type check The characters are all numbers **The answer must relate to the question**	**6**

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Question	Answer	Marks
11(a)	*Advantages* Max **five** from: All the peripherals are separate therefore easier to customise to user's needs All the peripherals are separate therefore it is easier to repair Connected to the mains electricity therefore no battery issues Tends to have a stronger internet signal as it can use wired connections More expandable Has a physical/larger keyboard makes it easier to enter data/fewer data entry mistakes Has a larger screen makes it easier to read the documents *Disadvantages* Max **five** from: More difficult to move around Has a larger footprint Has trailing leads therefore can be a safety issue If there is a power outage the unit will lose power instantly whereas the tablet may operate for longer The tablet can use wifi and 4/5/6G whereas the desktop tends to use wifi or wired	**6**
11(b)(i)	**Two** from, for example: Keyboard Mouse Touch screens Scanners Digital Cameras Microphones	**2**
11(b)(ii)	**Two** from, for example: Printer Monitor/projector Speakers/headphones	**2**

Question	Answer	Marks
12	*Stored* Max **three** from: The data gets stored on remote servers accessed by the cloud within data centres The server is leased/rented on a monthly basis to the user A user's data is stored in logical pools *Managed* Max **three** from: The data is managed by a third-party cloud provider Cloud service providers manage and maintain data transferred to the cloud This usage can be increased/decreased and the customer is billed according to the usage only	**4**

Question	Answer	Marks
13	Max **three** from, for example: The device can prevent users from leaving the house Use of this device leads to the user becoming lazy Using this device user becomes obese Using this device the user becomes de-skilled Using this device it affects well-being/mental health The device may stop working/malfunction The device leads to over reliance The device leads to false alarms The device could be over-sensitive The device can order items that you do not want/need Max **two** for naming valid smart devices	**4**

Question	Answer	Marks
14(a)	**Three** from: A class definition name starts with a full stop/period A class is used for adding or changing a style within CSS/stylesheet Classes are subtypes within an element Classes are user-defined whereas a style is pre-defined Classes are defined in a stylesheet whereas styles are defined in the head section of the web page Limited number of styles	**3**
14(b)	Presentation//Styles	**1**

Question	Answer	Marks
15(a)	**Two** from: *The younger the audience:* The more images rather than text Large font/text Bright colours *The older the audience:* More formal language is used More formal font **Answer must relate to the age**	**2**
15(b)	**Two** from: The content needs to be precise/correct The language/tone used needs to be appropriate The level of knowledge of the users/audience needs to be taken into consideration Keeping to the point in the content Respects the audience Content matches their experiences and expectations Complexity of the content Correct use of video/audio/images	**2**

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Question	Answer	Marks
16(a)	**Four** from: Unsolicited email Sent in bulk Sent to an indiscriminate recipient list Sent by bots Email is not personalised May have many spelling/grammar errors Max **two** from: May ask to buy something May ask for passwords/financial/personal information May ask to carry out the task immediately May ask you to click on a link	**4**
16(b)	**Two** from: Don't post your email address on public websites/social media Untick the box allowing your email to be used for marketing purposes Don't reply to spam emails Don't click links in the spam email Use a spam filter Block the sender's email address	**2**

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