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Cambridge Assessment International Education

Cambridge IGCSE™

INFORMATION AND COMMUNICATION TECHNOLOGY **0417/12**

Paper 1 Theory **February/March 2023**

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

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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 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.

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Question	Answer	Marks
1(a)	**One** from: Software are programs/apps used by a computer Software is used to control the operation of a computer Software are programs/apps for processing of electronic data	**1**
1(b)	Applications System	**2**

Question	Answer	Marks
2	**B** Laser printer	**1**

Question	Answer	Marks
3	**Three** from: Purpose of the system/program/software Limitations of the system Program listing/coding Program language used Program flowcharts/algorithms System flowchart Hardware requirements Software requirements File structures List of variables Input format Output format Sample runs/test runs Validation routines/rules	**3**

Question	Answer	Marks
4(a)	Fast to find the information needed More relevant websites are at the top of the list The amount of information found is reduced making it easier to find relevant information	**3**
4(b)	**Four** from: Block/report unwanted users Do not arrange to meet online strangers face to face Do not meet people you do not know alone Do not disclose personal data Do not use your real name for the social media name Do not post images that can link directly to you Do not post inappropriate images Do not use inappropriate language Respect people's confidentiality/privacy Set status to private	**4**

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Question	Answer	Marks
5	**Six** from: Interactive user interface asks questions about the route The user answers the questions with Yes/No answers The towns and areas visited/start/end point are typed/entered into the interactive user interface Answers lead to other questions The inference engine searches… …the knowledge base… …uses the rules base The knowledge base is searched for suitable routes between two points Suggested/probable routes and schedules are displayed	**6**

Question	Answer	Marks
6	**Two** from, for example: Keyboard Headphones Printer Smart phone	**2**

Question	Answer	Marks
7(a)	**Two** from: It is unique It cannot be a null value Identifies a record	**2**
7(b)	**Two** from: Is needed to act as a link in relationships It is only present in relational databases It is a primary key in another table	**2**

Question	Answer	Marks
8	**Four** from, for example: Can control the heating from your smartphone so that you come home to a warm house Smart TVs allow programs to be recorded remotely Smart TVs allow view on demand via the internet Money saving due to reduced utility bills as heating is only turned on when needed Smart fridges allow food to be automatically added to the food order Increased sense of security in the home due to monitoring the CCTV remotely The smart device sends alerts to your phone/portable device Can control the power to devices from anywhere in the home therefore saves money	**4**

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Question	Answer	Marks
9(a)	**One** from: Holds/to enter the information of a web page Create the structure of the web page	**1**
9(b)	**One** from: Presentation Styles **One** from: To display elements within the web page Holds the css/stylesheet Defines the format of a web page through styling elements Maintains the consistency of the elements in the web page **One** from: Behaviour Scripting **One** from: For scripting language to control elements within the web page Holds the forms/image galleries Adds Interactive content of the web page Adds functionality	**4**

Question	Answer	Marks
10	**Three** from: Quick to select options Small footprint Improved hand/eye coordination Allows the user to use zoom and pinch making item selection quick	**3**

Question	Answer	Marks
11(a)	**Two** from: Pop up messages can appear on the computer screen Causes the computer processing to slow down Causes the computer to crash Deletes/corrupts files/programs/data	**2**
11(b)	**Three** from: Download/use up to date anti-virus software Regularly scan the computer for viruses Only open email attachments from people you trust Scan all portable storage media before downloading files/software	**3**
11(c)(i)	System files	**1**

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Question	Answer	Marks
11(c)(ii)	Max **two** from: Scan the computer for viruses If a virus is found in the file… …it alerts the user that the file needs to be quarantined Re-scan the computer to check for further viruses Max **two** from: Allows the user to accept/reject the quarantining of the file/ The file is moved to a hidden directory The user does not have access to the quarantined file	**3**

Question	Answer	Marks
12(a)	**Four** from, for example: Use of videos/animation relating to the topic Use images relating to the topic Consistent layout across all the slides Balance of pictures and text Balanced use of white space and content Use bullet points as easier to absorb information Balance of size between headings and text Use of interactive elements Use of background music/sound	**4**
12(b)	**Two** from: Copyright is a type of intellectual property It gives the owner of the copyright the exclusive right to make copies of the work It allows the owner to give permission for others to use the work	**2**

Question	Answer	Marks
13	**Two** from: Cheaper than buying the Blu-ray player Streaming works on different internet connected devices Streaming uses a simpler interface	**2**

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Question	Answer	Marks
14	**Four** from: **Similarities** Both are internal memory Both are primary storage The data on both can be read Both are directly accessed by the CPU **Differences** RAM is volatile//ROM is non-volatile RAM data can be read from and written to//ROM is read only RAM is temporary memory//ROM is permanent memory ROM stores the start up instructions whereas RAM is used to store the current program/instruction **To gain full marks the comparison must have correct answers for both similarities and differences**	**4**

Question	Answer	Marks
15	**Six** from: **Advantages** Benefits are immediate whereas with parallel running it takes time for the new system to be fully running With direct they only have to pay for one set of staff therefore saves costs Costs are saved as only one computer system is needed With direct the maintenance is cheaper as there is only one set of computers Data is only entered once so saves duplication of data The new system is checked thoroughly before implementation **Disadvantages** Staff have to be trained and be fully ready to use the new system before it is implemented Staff cannot be trained on the new system whereas in parallel both systems are running If there is a problem, then all the data can be lost; this could be disastrous for the company whereas in parallel there is the original system With direct staff cannot be trained gradually **To gain full marks the description must have correct answers for both advantages and disadvantages**	**6**

Question	Answer	Marks
16(a)	Microphone Camera Pressure sensor	**3**

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Question	Answer	Marks
16(b)	**Six** from: **Benefits** Saves time in having to check the number plates manually Less errors as the recognition system is automatic Saves money as there is no need to check the number plates manually Secure system as it only allows stored vehicles **Drawbacks** All vehicles need to be added to the database If the number plate is obscured/dirty it is difficult to read Some number plates cannot be read due to odd font/sideways Data needs to be kept up to date Expensive to setup/maintain the system **To gain full marks the discussion must have correct answers for both benefits and drawbacks**	**6**

Question	Answer	Marks
17(a)	Visual verification – 1 mark Re-reading the document referring to the original – 1 mark Double data entry – 1 mark **One** from: One person types in the data again referring to the original document A second person types in the data from the original document and the two entries are compared **Allow one mark for the method and one mark for the corresponding description**	**4**
17(b)(i)	Checks that the data has been entered/present into the field	**1**
17(b)(ii)	**One** from: Checks the input data does not contain invalid characters Checks the data contains the correct data type	**1**

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