Cambridge Assessment
International Education

Cambridge IGCSE™

INFORMATION AND COMMUNICATION TECHNOLOGY **0417/13**

Paper 1 Written **May/June 2021**

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 May/June 2021 series for most Cambridge IGCSE™, Cambridge International A and AS Level components and some Cambridge O Level components.

This document consists of **10** printed pages.

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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.

Question	Answer	Marks
1	<table><tr><td></td><td>Backing storage</td><td>RAM</td><td>ROM</td></tr><tr><td>This is temporary storage used for the application being executed.</td><td></td><td>✓</td><td></td></tr><tr><td>This is volatile memory.</td><td></td><td>✓</td><td></td></tr><tr><td>An example of this storage is an SSD.</td><td>✓</td><td></td><td></td></tr><tr><td>This stores the startup instructions for the computer.</td><td></td><td></td><td>✓</td></tr></table>	4

Question	Answer	Marks
2	Delivery drivers for retail stores Website designers	2

Question	Answer	Marks
3	**Two** from: He may be tired/injured therefore text messaging is easier than trying to talk The text message is sent even though the sender's phone is in limited signal strength Limited signal strength can result in a break of voice A text message is quicker to send	2

Question	Answer	Marks
4	<table><tr><td></td><td>Interviews</td><td>Observation</td><td>Questionnaires</td></tr><tr><td>This method gives a more reliable overview of the whole system.</td><td></td><td>✓</td><td></td></tr><tr><td>This is more time consuming than the other methods.</td><td>✓</td><td></td><td></td></tr><tr><td>Questions on this method cannot be expanded upon when being asked.</td><td></td><td></td><td>✓</td></tr><tr><td>With this method the worker cannot remain anonymous.</td><td>✓</td><td></td><td></td></tr></table>	4

Question	Answer	Marks
5(a)	Web browser	1

Question	Answer	Marks
5(b)	Blog	**1**
5(c)	Wiki	**1**

Question	Answer	Marks
6(a)	Example: Susan_car_database	**1**
6(b)	S:\IGCSE\ICT\ \IGCSE – 1 mark \ICT\ – 1 mark The overall answer must be in this order	**2**
6(c)	**Two** from: The larger it is the longer to transmit the email Some email companies set a limit on attachment file size The time to upload/download would increase with a large file	**2**

Question	Answer	Marks
7(a)	**Two** from: So that other people cannot access the router using the known default password As it is wireless the password could be cracked from outside easily and then used for free by others So that people cannot make changes to/access personal data on the router It would increase security of the data	**2**
7(b)	**Four** from: The computer/device sends data to its wireless adapter The data is converted into radio waves The radio waves are transmitted A wireless adapter receives the radio waves Radio waves are converted into data The computer initiates a handshake with the wireless router The wireless router responds Establishes a session/pairing Wireless router checks the password/key is correct Data is transmitted User has to enter a password/passkey/automatic entry of key for known connections	**4**
7(c)	**Four** from: Create a cloud storage account Ensure sufficient storage in the cloud account Log into the cloud at home Upload/transfer the diagrams from his home computer to the cloud At university: access/login to his cloud storage account At university: download/access the stored diagrams	**4**

Question	Answer	Marks
7(d)	**Four** from: Install security devices/firewalls Use a VPN Install security software/anti-virus/anti-spyware Set up security settings in the router/operating system Data backup in case of data loss/corruption Restrict access to the network infrastructure Train the family in the safe and secure use of the equipment Not opening emails/attachments from unknowns/phishing emails Not downloading files from unknowns/phishing emails Use a dongle to restrict use of software	4

Question	Answer	Marks
8	**Six** from: Student progress can be shown over time using graphs Comparisons between students can be shown using graphs Comparisons with archive data can be shown using graphs Conditional formatting can be used to show how a student is performing compare to other students or past performance Data can be sorted to show the best performers in the class Calculate average marks to enable comparisons Automatic reporting results to parents Filtering students to show those above/below a threshold	6

Question	Answer	Marks
9	**Four** matched pairs: I never send personal data to people I do not know ... ... because people can use it against me … as other people can access my personal details I do not reply by using reply button unless I know the person ... ... because it may be a scam I use a list of known email addresses ... ... so I don't accidently send it to the wrong email address I check before opening an email/email attachment ... ... because it might be a phishing attack I scan both the email and attachment ... ... in order to avoid viruses I never send images of myself to people I do not know ... ... so they cannot recognise me in the street I do not set auto reply to my email system ... ... as this could alert a spammer that the email is active I use email filtering ... ... this stops spam emails I always report any phishing emails ... ... so the authorities can take action I change my email password regularly ... ... so that others cannot access my email account I use a strong password … … so that others cannot access my email account I logout of email after I have finished using it ... ... to stop others gaining access to my emails I keep my password safe … … so that others cannot access my account **To gain full marks at least three matched pairs are required**	8

Question	Answer	Marks
10(a)	<table><tr><td>Question</td><td>Field name (Examples)</td></tr><tr><td>What is the toy?</td><td>**Name_of_toy**</td></tr><tr><td>Who manufactured the toy?</td><td>**Manufacturer**</td></tr><tr><td>What year was it manufactured?</td><td>**Year**</td></tr><tr><td>What price was it bought for?</td><td>**Buying_price**</td></tr></table>	**4**
10(b)	**Four** from: Open the table Select Design View Select the field Select field type Select from the drop down list – double Click decimal places Type in 2	**4**
10(c)	**Six** from *Advantages* Data does not need to be entered a second time as tables are used Records cannot be duplicated but a flat file cannot stop this Saves time when entering data More efficient storage as data is only stored once Simpler to delete/modify details Complex queries can be carried out Complex reports can be created Better security as some tables can be made confidential Avoids inconsistent records More data independence Less inconsistency of data More ability to cater for future requirements *Disadvantages* More complex than a flat file database as more tables are required Takes more time to set up More of a reduction in performance if many tables are needed Slower extraction of data Less robust due to broken keys and records//Each table requires a key field and relationships to other tables Needs specialist personnel to setup the database More processing power needed for complex queries A relational database is more complex to understand that a flat file database **To gain full marks there needs to be advantages and disadvantages**	**6**

Question	Answer	Marks
11	**Eight** from: There needs to be emoticons/clipart to grab the attention The content needs to be relevant to improve their knowledge There must be a balance of information and pictures with more information than pictures The use of white space is less important More hyperlinks to related web pages Fonts must be clear and readable The interface must be simple, clear and intuitive Slideshows, videos and images providing more information High contrast background The students need to be constantly engaged Needs to be interactive The tone of the website needs to be casual The website needs to be able to work on all platforms especially mobile ones The content needs to be kept fresh and updated	8

Question	Answer	Marks
12(a)	Cropping/crop/cut	1
12(b)(i)	**Three** from: Highlight the body text Select layout/page set up Select columns Select more columns Select two columns Click line between Save the document	3
12(b)(ii)	**Four** from: Click insert … … select picture from file Locate the image Load the image Right click and list menu … … click format Format the image Position the image Click wrap text Save the document	4

Question	Answer	Marks
12(c)	**Two** from: Used to make sure that all documents and other materials from an organisation have consistency Set of rules which state how all documents and written communication from an organisation should be formatted Use of branding **Three** from: Use of corporate/same colours Same font Same style of font Margins and white space look similar Graphics are similar Logos are the same Language used is the same on all documents within the organisation Position of the images are the same	**4**

Question	Answer	Marks
13(a)(i)	**Two** from: Saved shortcut Directs the browser to a specific web page It stores the title, URL, and favicon of the corresponding page Allows the user to easily access favourite locations on the Web	**2**
13(a)(ii)	**Two** from: The anchor is a link/placeholder/reference point The anchor links with another part of the web page	**2**
13(a)(iii)	**Two** from: Word/phrase/image When the hyperlink is clicked Links to another document/page/website/top/bottom of the page	**2**
13(b)	**Two** from: Open the website Click on the address bar/URL Select CTRL-D/click on the bookmark/favourite icon/star/add to favourites//Drag URL to bookmarks bar Type in/change the name Add the bookmark	**2**

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Question	Answer	Marks
14	**Six** from: *Advantages* Less expensive per GB/gigabyte of memory Not as easily lost, as larger in size *Disadvantages* Data access time is slower Data transfer rate is slower Affected by magnetic fields They have moving parts therefore less robust Read and write is more noisy Less compact that flash memory Harder to transfer to other devices Requires a special reader **To gain full marks there needs to be advantages and disadvantages**	**6**

Question	Answer	Marks
15	**Four** from: *Advantages* Files can be larger therefore it can save physical storage space More likely to get the music you need More likely to get more up to date music Can be accessed in more places as only need the internet Don't need physical storage space Don't need optical drives to view/listen to movie/audio Can be viewed on mobile devices with internet connection Copyright owners have more control over who can watch the movie/listen to the audio as no physical copy exists to be copied/pirated Don't have to wait for the whole/large file to be downloaded before viewing Physical copies can be lost/stolen/damaged rendering them useless/have to buy again but steamed movies are always available *Disadvantages* Needs a connection to the internet Never own a physical copy of the file The playback is dependent on the internet connection therefore may not be as good a quality A subscription may be needed to be paid therefore may be more expensive **To gain full marks there needs to be advantages and disadvantages**	**4**