



INFORMATION AND COMMUNICATION TECHNOLOGY

0417/11

Paper 1 Written

May/June 2019

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 2019 series for most Cambridge IGCSE™, Cambridge International A and AS Level and Cambridge Pre-U components, and some Cambridge O Level components.

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 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(i)	MICR	1
1(ii)	PIN pad	1
1(iii)	Bar code reader	1
1(iiii)	RFID reader	1

Question	Answer	Marks			
2		verification	validation	proofreading	4
	Reading through the data without reference to the original copy			✓	
	A range check is an example of this		✓		
	Checks that data is reasonable		✓		
	A way of preventing errors when data is copied from one medium to another	✓			

Question	Answer	Marks
3	Sound card	1
	Processor	1

Question	Answer				Marks
4		dot matrix	laser	3D	4
	This printer uses continuous stationery.	✓			
	This printer uses toner.		✓		
	This printer is most suitable for a quiet environment.		✓		
	This printer produces solid objects.			✓	

Question	Answer		Marks
5(a)	Two from: Wand/joystick Pressure mats Data gloves/gloves with sensors Head mounted device(HMD)/Microphones Steering wheels/consoles Pedals Paddles Cameras Motion sensors		2
5(b)	Two from: Headset/head mounted displays/goggles Speaker/headphones Monitor/projector Olfactory devices Haptic/tactile Virtual Retina Display (VRD)		2

Question	Answer			Marks
5(c)		VR	Robotics	2
	Inserting a car engine into a real car.		✓	
	Training a medical student to carry out an operation using a computer simulation.	✓		
	Control a production line to manufacture pasta.		✓	
	Taking a tour of a house before it has been built.	✓		
2 marks for 4 correct ticks 1 mark for 2 or 3 correct ticks 0 marks for 0 or 1 correct tick				

Question	Answer	Marks
6	<p>Six from:</p> <p>Benefits The user is not restricted to the predetermined options//the GUI uses icons and set menus The user has more control over the computer settings//in GUI computer settings are protected from the user Uses less memory than GUI Requires less processing power for the interface More processing power is made available for the task</p> <p>Drawbacks The commands used have to be learnt The commands used have to be remembered The commands used have to be typed in/entered exactly Have to remember the exact path/correct name of application More prone to errors on data entry Commands have to be typed in//in a GUI can use touchscreens/mice Tends to be used by specialist people//GUI is more user-friendly and can be used by non-experts</p> <p>To gain full marks both benefits and drawbacks are required</p>	6

Question	Answer	Marks
7(a)	<p>Four from:</p> <p>The smart watch picks up radio signals At least three satellites are used Satellites transmit/send radio signals to the Earth Software in the smart watch interpret the signals Triangulation takes place/smart watch is located</p>	4

Question	Answer	Marks
7(b)	<p>Four from:</p> <p>The wearer does not have to carry maps of the area//more portable More up to date than printed maps Navigation errors are reduced as the satellite gives pinpoint accuracy The system can be used to calculate an accurate route The system may give other information GPS allows user to zoom in</p>	4

Question	Answer	Marks
8(a)	<p>Three from:</p> <p>Cropped the image Add text Resized the image Brightened the image Change the resolution</p>	3
8(b)	<p>Four from:</p> <p>Compress the images individually within the document Zip the document/export as RAR Save the document as a PDF Remove the cropped elements in the images Reduce the resolution of the images Remove the images and send the documents and images separately</p>	4

Question	Answer	Marks
8(c)	<p>Eight from:</p> <p>Advantages of a smartphone Smaller/lighter therefore easier to carry/more portable Easier to use than a laptop whilst on the move/laptop needs to be on a flat surface Has a video/digital camera built in therefore can be used instead of a camera/laptop uses a webcam The position of the camera is better than the webcam on a laptop/laptop webcam would be difficult to use as a digital camera/video camera Juan is more likely to have the smartphone with him Can easily be used as a dictaphone/a laptop would need specialist software to be used to record voice A laptop needs the use of other equipment like a camera then it becomes more cumbersome to carry around</p> <p>Disadvantages of a smartphone Very difficult to use to type up the report as the screen is smaller Difficult to type up the report using a smaller keyboard/online keyboard Due to screen/keyboard size more errors in typing Data cannot be saved to an external device therefore needs connectivity to Wi-Fi or data network/laptop can use external devices to store data Some software is compatible with smartphones but not all//less functions on the software Wi-Fi signals or data network are less reliable in remote areas/laptop can be used as a standalone computer Less memory than a laptop A laptop has a more powerful processor than a smartphone The software in a laptop tends to be more compatible with a PC therefore easier to transfer files</p> <p>To gain full marks both advantages and disadvantages are required</p>	8

Question	Answer	Marks
9(a)	<p>Two from:</p> <p>Comma separated value Data saved in text format Used with spreadsheets/databases Generic file format</p>	2

Question	Answer	Marks
9(b)	Two from: Portable network graphics Raster graphics file format Uses lossless compression Used for storing images on the internet	2
9(c)	Two from: Container that holds any type of data Stored in a compressed format Used to save storage in the computer//reduce attachment sizes on email	2

Question	Answer	Marks
10(a)	Four from: Click at the start of the line 'in 1885...'/after the heading Select (page) layout Select 2 columns Apply from this point forward Click line between the columns	4
10(b)	Four from: Highlight the heading Increase the font size Select layout Select paragraph and select spacing after Change letters from upper case	4
10(c)	Orphan	1

Question	Answer	Marks
11(a)	<p>Four from:</p> <p>Personal data is data relating to a <u>living</u> individual/person The person can be identified either from the data or from the data in conjunction with other information. Allow a mark for any example such as: name, address, date of birth, place of birth, bank details The data can be sensitive: Allow a mark for any example e.g. racial, ethnic, medical, religious, relating to a trade union, mental health, sexual, relating to criminal offences</p>	4
11(b)	<p>Six from:</p> <p>Know how to block and report unwanted users Never arrange to meet anyone alone Always tell an adult if you plan to meet someone Report unwanted/abusive messages Meet in a public place Avoid the misuse of images Avoid showing images of her in school uniform Avoid showing personal images Avoid showing full name/address/personal data Use appropriate language Respect confidentiality</p>	6

Question	Answer	Marks
12(a)	<p>Three from:</p> <p>Public network/not policed International network of networks WAN/wide area network Worldwide/global/international Public information system Web, email, gophers, social networking, video conferencing are services provided by the internet (must have at least two examples to gain a mark)</p>	3

Question	Answer	Marks
12(b)	<p>Three from:</p> <p>Internal restricted access network/secure network Uses same protocols as the internet Private network Used within an organisation e.g. school Limited resources</p>	3
12(c)	<p>Six from:</p> <p><u>Vast amount</u> of information available More up to date information is available as information in books may be outdated Wider range of information from every level of society/scholarly to research Information can be found quicker using specialist search engines Information can be researched at home rather than using research libraries Don't have to waste time going to the library Don't have to spend money going to the library Ability to discuss topics far easier with people from around the world Ability to get wider range of opinions. Allows emailing therefore sending/collecting information far quicker than manual methods Data is digital therefore can be easier to transfer to documents Online conferencing can be carried out</p>	6

Question	Answer	Marks
13(a)	<p>Four from:</p> <p>An image is taken of the front of the vehicle An algorithm isolates the number plate from the image Colour brightness and contrast are changed to make the number plate easier to read Each character is read using OCR software Each character is decoded using OCR software Number plate and date/time data is stored in a database The number plate is searched in the database Comparison is made with number plates stored in the database Identifies the car</p>	4
13(b)	<p>Two from:</p> <p>Another vehicle/pedestrian could obstruct the view of the camera The number plate may be too dirty to read The number plate may use illegal characters/font It may be a motor cycle with the number plate side on/at the back Characters are misread – e.g. 0 and O, 1 and I, 2 and Z Position of characters/grouping of characters</p>	2

Question	Answer	Marks
14	<p>To be marked as a level of response:</p> <p>The candidate must complete L1 to get into L2 and L2 to get into L3</p> <p>Level 3 [7–8 marks] Candidates will address both aspects of the question and discuss/consider different advantages/disadvantages. The issues raised will be justified. There will be a reasoned conclusion. The information will be relevant, clear, organised and presented in a structured and coherent format.</p> <p>Level 2 [4–6 marks] Candidates will address both aspects of the question and discuss/consider different advantages/disadvantages although development of some of the points will be limited to one side of the argument. There will be a conclusion. For the most part the information will be relevant and presented in a structured and coherent format.</p> <p>Level 1 [1–3 marks] Candidates may only address one side of the argument, and give basic advantages or disadvantages. Answers may be simplistic with little or no relevance.</p> <p>Level 0 [0 marks] Response with no valid content</p> <p>Answers may make reference to e.g.:</p> <p>Advantages</p> <p>Prevention of double booking The data is updated immediately The person booking the seats knows immediately if the seat is taken The successful booking is known immediately Bookings can be made 24/7 There are more booking lines than in a manual booking system The customer needs to add an email address therefore special offers/promotions can be sent from time to time Easier to see which tickets are available using onscreen plans/colour coding used for booked and different seat prices Easier to reserve seats than in a manual booking system E-tickets can be produced therefore less chance of tickets being lost in the post.</p>	8

Question	Answer	Marks
14	Disadvantages The customer needs an email address The customer needs a debit/credit card Requires the customer to have a smartphone for e-tickets Customers need an internet connection Expensive to set up/maintain More difficult to cancel a booking Server crash or too many bookings can cause long delays Manual system cannot be used as a backup Easier to make mistakes in the booking	