



**Cambridge Assessment International Education**  
Cambridge International General Certificate of Secondary Education

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**INFORMATION AND COMMUNICATION TECHNOLOGY**

**0417/11**

Paper 1 Written

**May/June 2019**

MARK SCHEME

Maximum Mark: 100

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**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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This syllabus is regulated for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **15** 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 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)	<p><b>Two</b> from:</p> <p>Wand/joystick            Pressure mats            Data gloves/gloves with sensors            Head mounted device(HMD)/Microphones            Steering wheels/consoles            Pedals            Paddles            Cameras            Motion sensors</p>	2
5(b)	<p><b>Two</b> from:</p> <p>Headset/head mounted displays/goggles            Speaker/headphones            Monitor/projector            Olfactory devices            Haptic/tactile            Virtual Retina Display (VRD)</p>	2

Question	Answer			Marks
5(c)		<b>VR</b>	<b>Robotics</b>	<b>2</b>
	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.	✓		
<p>2 marks for 4 correct ticks  1 mark for 2 or 3 correct ticks  0 marks for 0 or 1 correct tick</p>				

Question	Answer	Marks
6	<p><b>Six from:</b></p> <p><b>Benefits</b>            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><b>Drawbacks</b>            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><b>Four from:</b></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><b>Four</b> 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>	<b>4</b>

Question	Answer	Marks
8(a)	<p><b>Three</b> from:</p> <p>Cropped the image            Add text            Resized the image            Brightened the image            Change the resolution</p>	<b>3</b>
8(b)	<p><b>Four</b> 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>	<b>4</b>



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

Question	Answer	Marks
10(a)	<p><b>Four</b> from:</p> <p>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</p>	<b>4</b>
10(b)	<p><b>Four</b> from:</p> <p>Highlight the heading            Increase the font size            Select layout            Select paragraph and select spacing after            Change letters from upper case</p>	<b>4</b>
10(c)	Orphan	<b>1</b>

Question	Answer	Marks
11(a)	<p><b>Four</b> 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>	<b>4</b>
11(b)	<p><b>Six</b> 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>	<b>6</b>

Question	Answer	Marks
12(a)	<p><b>Three</b> 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>	<b>3</b>

Question	Answer	Marks
12(b)	<p><b>Three</b> 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>	<b>3</b>
12(c)	<p><b>Six</b> 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>	<b>6</b>

Question	Answer	Marks
13(a)	<p><b>Four</b> 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>	<b>4</b>
13(b)	<p><b>Two</b> 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>	<b>2</b>

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><b>Level 3 [7–8 marks]</b> 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><b>Level 2 [4–6 marks]</b> 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><b>Level 1 [1–3 marks]</b> 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><b>Level 0 [0 marks]</b> Response with no valid content</p> <p>Answers may make reference to e.g.:</p> <p><b>Advantages</b></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	<b>Disadvantages</b>  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	