Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

INFORMATION AND COMMUNICATION TECNOLOGY   **0417/12**

Paper 1 Written   **May/June 20**[Comments]

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.

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Cambridge is publishing the mark schemes for the May/June 20[Comments] series for most
Cambridge IGCSE®, Cambridge International A and AS Level and Cambridge Pre-U components, and some
Cambridge O Level components.

Question	Answer	Marks
1(a)	Any **two** from: – Weighing scales – Keyboard/key pad – Bar code scanner/reader – Chip reader/card reader – Magnetic stripe reader – Pin pad – Light sensor (on conveyor belt) – Touch screen	**2**
1(b)	Any **two** from: – Printer – Screen/monitor – Speaker/buzzer – Warning light/lamp	**2**

Question	Answer			Marks
2		true (✓)	false (✓)	**2**
	A router is required to allow a LAN to connect to the internet	✓		
	A web browser displays a web page	✓		
	An intranet has restricted access	✓		
	ISP means Internal Service Provider		✓	
	4 correct answers 2 marks 2 or 3 correct answers 1 mark 1 or 0 answers no marks			

Question	Answer				Marks
3		technical (✓)	user (✓)	both (✓)	4
	Error messages		✓		
	Hardware requirements			✓	
	Program listing	✓			
	Purpose of the system			✓	

Question	Answer	Marks
4(a)	Crop	1
4(b)	Resize	1
4(c)	Text Wrapping	1
4(d)	Rotate	1

Question	Answer	Marks
5(a)	The sensor reads analogue data The microprocessor can only process digital data Analogue to Digital Converter is needed to convert the data	3
5(b)	Any **three** from: − More likely to be reliable as it is known that the device will work − It is cheaper than paying full development costs − It is quicker to get into operation as the device has been built − Lower maintenance costs as faults will be known − Lower costs for training staff	3

Question	Answer	Marks
6(a)	Any **two** from: − Scan the pen drive for errors − Medium is full − Virus found on the file − Bad sector/unable to save − Device not recognised − Read error	**2**
6(b)	**Differences** Max **three** from: − Not every computer has a CD drive, but most PCs have a USB port − A CDR can slip between papers and can be easily lost − Pen drive are small and can easily slip out of a pocket − Pen drive stores more data − Pen drive is more robust − Pen drive can be overwritten/edited/data erased − Pen drive is solid state whereas CDR is optical **Similarities** − Pen drive and CDR are storage devices − CDR and pen drive are portable	**4**

Question	Answer	Marks
7(a)	proximity sensor	**1**
7(b)	Any **three** from: – Sat nav/GPS to help the driver travel between two points – Auto-parking systems – Automatic windscreen wipers that operate automatically – Cruise control – Lane drift systems – Automatic braking systems/ABS – Tyre deflation alert – Automatic lights/lights that shine round corners – Frost warning system – Fuel level indicator – Hand-brake alert – Airbag systems – Automatic maintenance alert – Expert diagnostic systems – Auto-gear change systems	**3**
7(c)	**Advantages** Max **four** from: – The journey becomes a lot safer as the driver uses the devices to help, whilst they focus on driving – If the driver falls asleep then the car remains in control – If the temperature is colder outside then the windscreen clears quickly – The ABS stops the driver sliding on ice – Automatic (full beam) lights stop other drivers getting dazzled – Automatic lights (full beam) shows the road ahead in different conditions – Cost of repair reduced as it tells the driver of problems immediately. – The GPS can guide the driver on shortest/quickest route **Disadvantages** Max **four** from: – The driver relies too heavily on the device and can become over reliant/You are legally responsible for the car – The device may fail and put the driver/pedestrians in danger – Sometimes the device is more of a hindrance than a help e.g. parking sensors in traffic jams – Can increase the price of the car – Very difficult for the driver to repair the car himself – GPS can take the driver a long way out of his way when trying to avoid hold ups – The driver can believe the GPS and drive into the river/narrow road. – Air bags can accidentally trigger is there is a small collision/they have a life span – Excessive number of devices/devices left activated can lead to battery drain Allow one mark can be awarded for a reasoned conclusion.	**6**

Question	Answer	Marks
8(a)	<table><tr><td></td><td>tick (✓)</td></tr><tr><td>Control unit</td><td></td></tr><tr><td>Graphics program</td><td></td></tr><tr><td>Inference engine</td><td>✓</td></tr><tr><td>RFID</td><td></td></tr><tr><td>Rules base</td><td>✓</td></tr><tr><td>Search engine</td><td></td></tr></table>	2
8(b)	Any **three** from: – An expert system may help the doctor make a more accurate diagnosis – An expert system uses data from many experts therefore it contains more knowledge than a single doctor – Cheaper than regularly re-training the doctor – The expert system's knowledge may be more up to date than the knowledge of a single doctor – Cheaper than employing many specialists – The diagnoses given are more consistent	3

Question	Answer	Marks
9(a)	Any **four** from: − Open database − Create new table of pupil data − Create new table of examination data − Select primary and foreign keys − Link the two database tables using a primary/foreign key... − ...and a foreign/primary key − Set up the relationship − Import the data for the pupils from the pupil records − Import the data from the examinations from the examination boards	**4**
9(b)	<table><tr><th>Field name</th><th>Data type</th></tr><tr><td>*Examination_ID*</td><td>Text</td></tr><tr><td>*Name_of_subject*</td><td>Text</td></tr><tr><td>*Examination_level*</td><td>Boolean</td></tr><tr><td>*Date_of_exam*</td><td>Date</td></tr></table>	**4**
9(c)	Date_of_exam>26/06/2018 or Date_of_exam>=27/06/2018 1 mark for Date_of_exam 1 mark >26/06/2018 or 1 mark >=27/06/2018	**2**
9(d)	1 mark for name of suitable check and 1 mark for description of suitable check **Examination_ID** Length check The data must be exactly 6 digits /characters **Date_of_exam** Range check The dates must be a range specified Or Format check/picture check Must be in the form 2 digits slash 2 digits slash 4 digits	**4**

Question	Answer	Marks
10(a)	Max **two** from: − Appropriate field spacing − Use of white space and is clearly a hard copy membership card − Size of photograph – not too small − Title of the Leisure Centre − Additional elements like bar code/ signature And 1 mark for the photograph And 1 mark for three items or 2 marks for all five items	**5**
10(b)	Any **five** from: − Create a master document (membership card) − Create/use a data source − Check the membership cards for errors − Place tags in the document − Link the fields with the tags − Select the records to merge − Merge the records and save − Check the data on the cards is correct − Preview/Print the cards	**5**

Question	Answer	Marks
11(a)	Max **two** from: − Select range/(A6 to B14) − Click on the name box/select define name − <u>Type/enter</u> in the name of the range And 1 mark for an example of a suitable name	**3**
11(b)	VLOOKUP(B18, named range,2) 1 mark for VLOOKUP( ) 1 mark for B18, 1 mark for use of named range from part (a) 1 mark for ,2	**4**

Question	Answer	Marks
12(a)	Observation Questionnaire Examination of documents	**3**
12(b)	Any **two** matched pairs: − The interviewee may be uneasy with the questioning… − ….as it is not anonymous − Time consuming to interview <u>all</u> the users… − …the interviewers are carried out one at a time − Both the interviewee and the interviewer have to be free at the same time… − …which can cause time problems − May be a language problem… − …this increases the time explaining all sections − May give an answer they think the interviewer is trying to elicit… − …the interviewer could be biased/leading questions − Disillusioned workers may give an answer that jeopardises the project… − …they could give a biased view/too vocal − They cannot give the answer they want… − …as the interview is not anonymous/due to peer pressure − Costly to the employers… − …time for the worker being off job	**4**

Question	Answer	Marks
13(a)	<table><tr><th>Job description</th><th>tick (✓)</th></tr><tr><td>Car production workers</td><td></td></tr><tr><td>Delivery drivers</td><td>✓</td></tr><tr><td>Payroll workers</td><td></td></tr><tr><td>Programmers</td><td>✓</td></tr><tr><td>Typists</td><td></td></tr><tr><td>Website designers</td><td>✓</td></tr></table>	3
13(b)	**Compressed hours** Any **two** from: − The worker completes the normal working hours per week… − …but works for fewer days − For example, a 40-hour week compressed into 4 days not 5 **Flexible hours** Any **two** from: − Workers complete the same number of hours over a working week… − …but can choose when to start and end in agreement with the manager − Allows for workers to complete the school run or miss rush hour	4

Question	Answer	Marks
14(a)	Double data entry Visual verification	2
14(b)	Any **one** from: − Visual verification involves the data being compared with the original copy − Double entry involves re-entering the data Any **one** from: − Proofreading only involves reading through the document − Proofreading is <u>looking</u> for spelling mistakes/grammar	2

Question	Answer	Marks
15	Any **two** from: − Spam could contain viruses − Spam could contain spyware that record your key depressions… − ...this could send messages out to alert others that the email address is live − Spam can fill up your inbox − Spam may have links to fraudulent websites	2

Question	Answer	Marks
16	To be marked as a level of response: **Level 3 (7–8 marks):** Candidates will give reasoned advantages and disadvantages. There will be a reasoned conclusion. They will relate the answer to both Bluetooth and WiFi. The information will be relevant, clear, organised and presented in a structured and coherent format. **Level 2 (4–6 marks):** Candidates will expand on advantages/disadvantages relating the answer to both Bluetooth and WiFi. Some of the points may be one sided. There may be a conclusion. For the most part the information will be relevant and presented in a structured and coherent format. **Level 1 (1–3 marks):** Candidates only list an advantage/disadvantage. Candidates only refer to Bluetooth or WiFi. Answers may be simplistic with little or no relevance. **Level 0 (0 marks)** Response with no valid content *Answers may make reference to, for example:* Bluetooth is more useful when transferring data between two devices whereas WiFi is more suited to full scale networks Bluetooth does not buffer The devices connected via Bluetooth should be near to each other whereas WiFi has a larger range Less data tends to be transferred with Bluetooth Bluetooth uses a lower bandwidth Eg sound data (phones) or file transfer (computers) WiFi has better security than Bluetooth Cost of Bluetooth is cheaper than WiFi Bluetooth has a shorter password Bluetooth devices are battery operated which needs to be replaced or recharged but WiFi do not necessarily use batteries To connect to the network need a Bluetooth adapter but WiFi needs a WiFi adapter, a wireless router and a wireless access point Bluetooth range is approx. 20m whereas WiFi is approx. 100m Bluetooth is simple to use and setup but WiFi is more complex Bluetooth/Wifi are both wireless can't fall over the wires/move around the house Saves money (on cables) as both do not require wires Bluetooth is more energy efficient than wifi in some cases 3% of the energy	**8**