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INFORMATION AND COMMUNICATION TECHNOLOGY   **0417/11**

Paper 1 Written   **October/November 2017**

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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This document consists of **9** printed pages.

Question	Answer	Marks
1(a)	Dot matrix printer	1
1(b)	Ink Jet printer	1
1(c)	Laser printer	1
1(d)	3D printer	1

Question	Answer	Marks
2(a)	a hub	1
2(b)	a router	1
2(c)	a bridge	1
2(d)	a switch	1

Question	Answer			Marks
3		true (✓)	false (✓)	2
	Answers to multiple choice exam papers can be read using an Optical Mark Reader.	✓		
	MICR reads the information on a credit card.		✓	
	The chip on a credit card is read by a PIN reader.		✓	
	An RFID chip can be used to track stock.	✓		
	4 correct answers – 2 marks 2 or 3 correct answers – 1 mark 0 or 1 correct answer – 0 marks			

Question	Answer				Marks
4		Design (✓)	Implementation (✓)	Evaluation (✓)	4
	Comparing the outcomes with the original task requirements			✓	
	Change over to the new system		✓		
	Identifying any limitations and necessary improvements to the system			✓	
	Selecting validation routines	✓			

Question	Answer	Marks
5(a)	Any **four** from: The SSD is lighter in weight than the HDD therefore the laptop will be lighter and more portable The speed of access in SSD is a lot quicker The speed of data transfer in SSD is a lot quicker There is less chance of the data becoming corrupted as it can save whilst the laptop is moving It is a smaller device therefore the laptop will be smaller/thinner SSD uses less energy Less chance of impact damage	**4**
5(b)	Any **three** from: As the elements are separate units there is more choice of devices/can be replaced if fails Can be easier to upgrade Easier to reduce glare on screen as it is separate Laptop more expensive for same performance Lower chance of it being stolen/lost	**3**

Question	Answer	Marks
6	Any **four** from: The internet is a public network whereas an intranet is a private network/restricted access An intranet is policed or managed whereas the internet has no rules The data on an intranet is moderated whereas the internet is not moderated An intranet is more secure than the internet Internet has greater amount of information than an intranet	**4**

Question	Answer	Marks
7(a)	Any **five** from: **Advantages** Robots can work in environments where humans would have difficulty i.e. cooler and less light Can work without breaks/non-stop/can work 24/7 Less expensive in the long run Overall wage bill is reduced as there are fewer workers Productivity is higher Less mistakes are made/more accurate Allow humans to do more skilled work than picking the tablets Greater consistency Any **four** from: **Disadvantages** Expensive to maintain (only if Less expensive in the long run has not been given) Expensive to purchase/set up Replace labour, leads to increased redundancy payments If the bar code damaged the human would read the number but robot cannot think for itself A mark can be awarded for a reasoned conclusion Maximum 7 marks.	7
7(b)	Any **six** from: Can be read at a greater distance Don't need to be positioned in line of sight Can be updated easier Read at faster rate More reusable/more robust Larger storage capacity Greater security Cannot misread if RFID grouped together	6

Question	Answer	Marks
8	<u>Unauthorised</u> access to <u>computer systems</u> 1 mark Any **one** from: 1 mark Data on the computer system can be corrupted, edited, deleted, viruses added Data on the computer system can be copied/stolen/misused Data on the computer system can be accessed/read	2

Question	Answer	Marks
9	Any **three** from: She has not much space left on her hard disk even though she had previously Her computer is performing routine tasks a lot more slowly. Pop ups keep appearing on her screen at random. Her friends keep telling her that emails about strange things are being sent by her Random reboots Software errors Recycle bin not working Computer hanging Anti-virus stops working	3

Question	Answer	Marks
10(a)	Any **three** from: Use of strong passwords Do not use pet names Do not use personal information Do not use birthdates Do not use a password they have used before Do not use company name	3
10(b)	Any **three** from: Conforms to company rules Hard to guess Stop shoulder surfing Hard to crack	3
10(c)	Double data entry	1

Question	Answer	Marks
11(a)	**For example:** =IF(B2>=75,"Making progress", IF(B2>=50,"Satisfactory",IF(B2>=0,"Needs improvement"))) **or** =IF(B2>=75,"Making progress", IF(B2>=50,"Satisfactory","Needs improvement")) **or** =IF(B2<=49,"Needs improvement", IF(B2<=74,"Satisfactory","Making progress")) 1 mark for IF(…) 1 mark for B2>=75, 1 mark for B2>=50, / 1 mark for B2<=49, 1 mark for second IF(…) 1 mark for all of the outputs being correct;	5

Question	Answer	Marks
11(b)(i)	<table><tr><td>Test data</td></tr><tr><td>e.g. any number between 75 and 100</td></tr><tr><td>e.g. any number between 50 and 74</td></tr><tr><td>Either 0 or 49</td></tr><tr><td>Either 50 or 74</td></tr></table>	**4**
11(b)(ii)	Any **two** from: To prove the system works as designed So that the system can be implemented correctly/modify the system if errors show up Trapping all errors Meets the user's expectations/requirements	**2**
11(c)	Any **three** from: Select cells A1 to B21 Insert chart/click on the chart icon Select bar chart Add/edit titles/label the axes/legend	**3**

Question	Answer				Marks
12(a)		behaviour (✓)	content (✓)	presentation (✓)	**4**
	To format whole web pages			✓	
	Consists of navigation pointers.		✓		
	Defined by the CSS			✓	
	To enter scripting language to a web page	✓			
12(b)	Any **two** from: HyperText Transfer Protocol Secure Secure version of HTTP All data is encrypted Secure protocol identifier Any **two** from: Uniform Resource Locator A reference/identify to a resource on the WWW/internet Used as a simple way of addressing a resource	**4**

Question	Answer	Marks
13	**Prolonged use of the keyboard** RSI/carpal tunnel syndrome Any **one** from: Use a wrist rest Regular breaks to relax the hands Stretching exercises Use of an ergonomically designed keyboard **Looking at a monitor for a long period of time** Eye strain/headache/dry eyes Any **one** from: Resting the eyes by looking in the distance Cutting down on glare Making sure the screen is at eye level Use of blue screen technology Use of flat screen technology **Sitting too long in one position** Back problems/DVT Any **one** from: Foot rest Taking breaks Ergonomic/adjustable chair	6

Question	Answer	Marks
14(a)	Book_ID	1
14(b)	Borrower_ID	1
14(c)	One to Many/Many to One	1
14(d)	Any **two** from: Data is only stored once/avoids data duplication Saves storage space Complex queries can be carried out using several tables Better security Avoids inconsistent records/less errors	2
14(e)	<table><tr><td>Field name</td><td>Data type</td></tr><tr><td>Cost_of_Book</td><td>Numeric/currency/real/fixed point decimal</td></tr><tr><td>Borrower_name</td><td>Text/alphanumeric</td></tr><tr><td>Telephone_contact</td><td>Text/alphanumeric</td></tr><tr><td>Date_due _Back</td><td>Date/(date/time)</td></tr></table>	4

Question	Answer	Marks
15	Any **four** from: **Advantages** Helps to prevent illegal materials from being shown Helps to prevent pornography (for minors) Helps to prevent discussion groups that incite hatred, racism, etc Ensure copyright laws are enforced Remove the Dark Net Safeguards the vulnerable Any **four** from: **Disadvantages** Unsuitable material is easily available in other ways The rise of mobile communications lessens the impact of the internet Freedom of speech is restricted Very difficult to enforce as the internet spans continents Maximum 5 marks	**5**

Question	Answer	Marks
16	To be marked as a level of response: Level 3 7–8 marks Candidates will give **reasoned** benefits **and** drawbacks. 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. Level 2 4–6 marks Candidates will give both benefits **and** drawbacks. The issues raised **may** be justified. 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 may only give **either** benefits **or** drawbacks. Candidate might not give reasons. Answers may be simplistic with little or no relevance Level 0 0 marks Response with no valid content	**8**

Question	Answer	Marks
16	**Examples** **Drawbacks** Loss of control of the data… …as the data is controlled by a data storage provider …the user needs to be able to trust the service provider and its staff …security issues with the storing of the data with the provider …fire/flood/electricity spikes can affect data without the user knowing If data is not encrypted… …can lead to security issues due to loss of control/hacking If connection is lost then the cloud cannot be accessed… …data could be lost due to this If there is a mass/lot of data the data could be split over several servers… …may have problems retrieving the data …may lead to security issues …data may be lost during the saving process Cost of storing data may be higher than physical methods… …most computers have storage so don't need to purchase one …private clouds can be expensive Difficult to delete all copies of a file… …as the data is stored/backed up several times **Benefits** The data is accessible anywhere… …helps to migrate data from one device to another …helps to synchronise data Don't have to buy storage devices… …some devices do not have hard discs/storage …cheaper than buying storage devices …the cloud can be used for all storage requirements More storage space than using physical devices… …the cloud has lots of storage Don't have to manage the storage… …the service provider manages the storage …user does not have to worry about security measures as service provider secures data Allows many users to access the data… ... as the data is stored centrally Only pay for the storage you use… …much of the space on the hard disc may be wasted The data is regularly backed up	