



CANDIDATE
NAME

CENTRE
NUMBER

--	--	--	--	--

CANDIDATE
NUMBER

--	--	--	--

0417/13

May/June 2020

2 hours

You must answer on the question paper.

No additional materials are needed.

- Answer **all** questions.
- Use a black or dark blue pen.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- You may use an HB pencil for any diagrams, graphs or rough working.

- The total mark for this paper is 100.
- The number of marks for each question or part question is shown in brackets [].
- No marks will be awarded for using brand names of software packages or hardware.

This document has **20** pages. Blank pages are indicated.

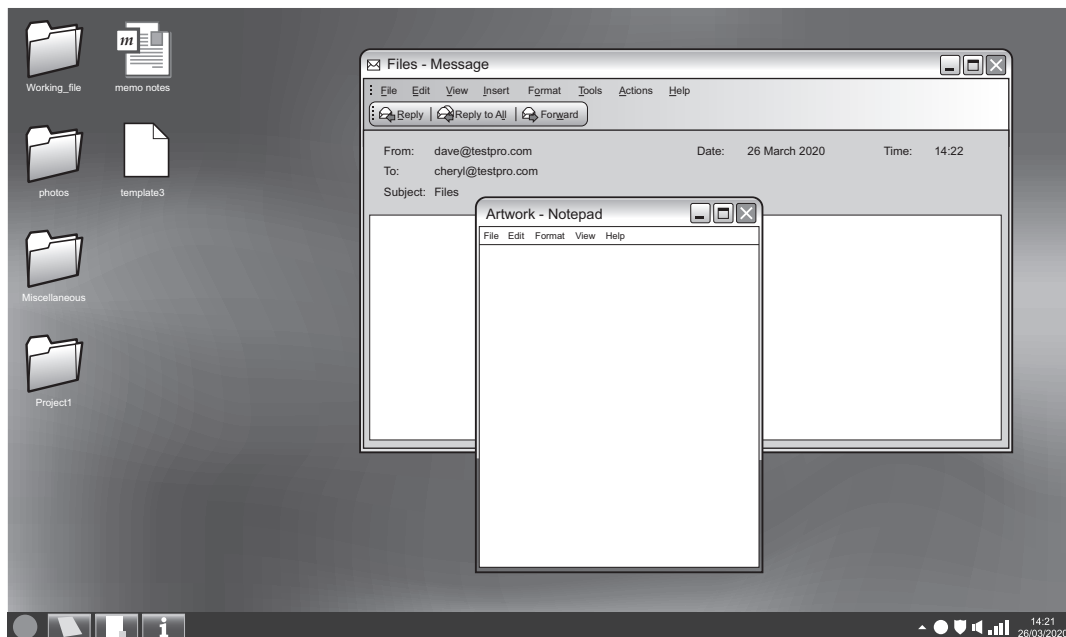
- 1 There are two types of software: applications and system.

Tick (✓) the most appropriate type of software for each of the following.

	Applications (✓)	System (✓)
Device driver		
Linker		
Photo-editing software		
Spreadsheet		

[2]

- 2 (a) Write down the type of interface shown.



[1]

(b) Write down **two** advantages of using this type of interface.

1.....

.....

2.....

.....

[2]

3 A computer system is connected to a LAN and a WAN.

(a) Explain what a LAN is.

.....

.....

.....

.....

[2]

(b) Explain what a WAN is.

.....

.....

.....

.....

[2]

- 4 Mason is the head of a year group at a school. Every term he needs to send to parents a report on their child's progress. This will include a written report and the percentage attendance over the term.

Each term he loads the comments from his tutors into the word processing software. He then adds the attendance data from the database. The report is then printed and sent to parents.

He has decided that in future he will use mail merge to print the reports.

- (a) Give **four** advantages of using mail merge instead of typing the reports.

1.....

 2.....

 3.....

 4.....

[4]

- (b) As it is entered, the data on the database is checked using validation routines. The percentage attendance field uses a range check.

Describe, using the percentage attendance field, the steps that need to be taken to create this validation routine.

.....

[4]

- (c) Before the database can be implemented the validation routines need to be tested.

Describe, using the percentage attendance field, how the validation routine will be tested by Mason.

.....

.....

.....

.....

[4]

- 5 The use of laptop computers and tablet computers by people on the move is becoming very popular.

Describe **four** advantages of using a tablet computer rather than a laptop computer.

1

.....

2

.....

3

.....

4

.....

[4]

- 6 The secretary of the Tawara Rowing Club is organising a presentation evening for its members. A systems analyst is creating a database for the club to store the details of the members. She is also creating a spreadsheet to show who is attending the presentation evening.

The systems analyst has set up the following fields for the database.

Name_of_person	Date_of_birth	Membership_type	Contact_email	Contact_phone_no	Year_joined	Gender
Nor Kwa	2/4/2005	Social	n.kwa@rockict.com	03 2453 5673	2018	F
Adam Mazian	23/5/2003	Social	AdamM@abc.co.my	082 25 4689	2016	M
Ahmed Othman	12/03/2006	Junior	AOthman@cie.org	01223 432678	2018	M
Zara Png	1/12/1997	Senior	Zara@cbc.cn	123 3267 9999	2010	F

- (a) For the following fields write down the most appropriate data type. Each data type must be different. For any numeric field, specify the type of number.

Gender.....

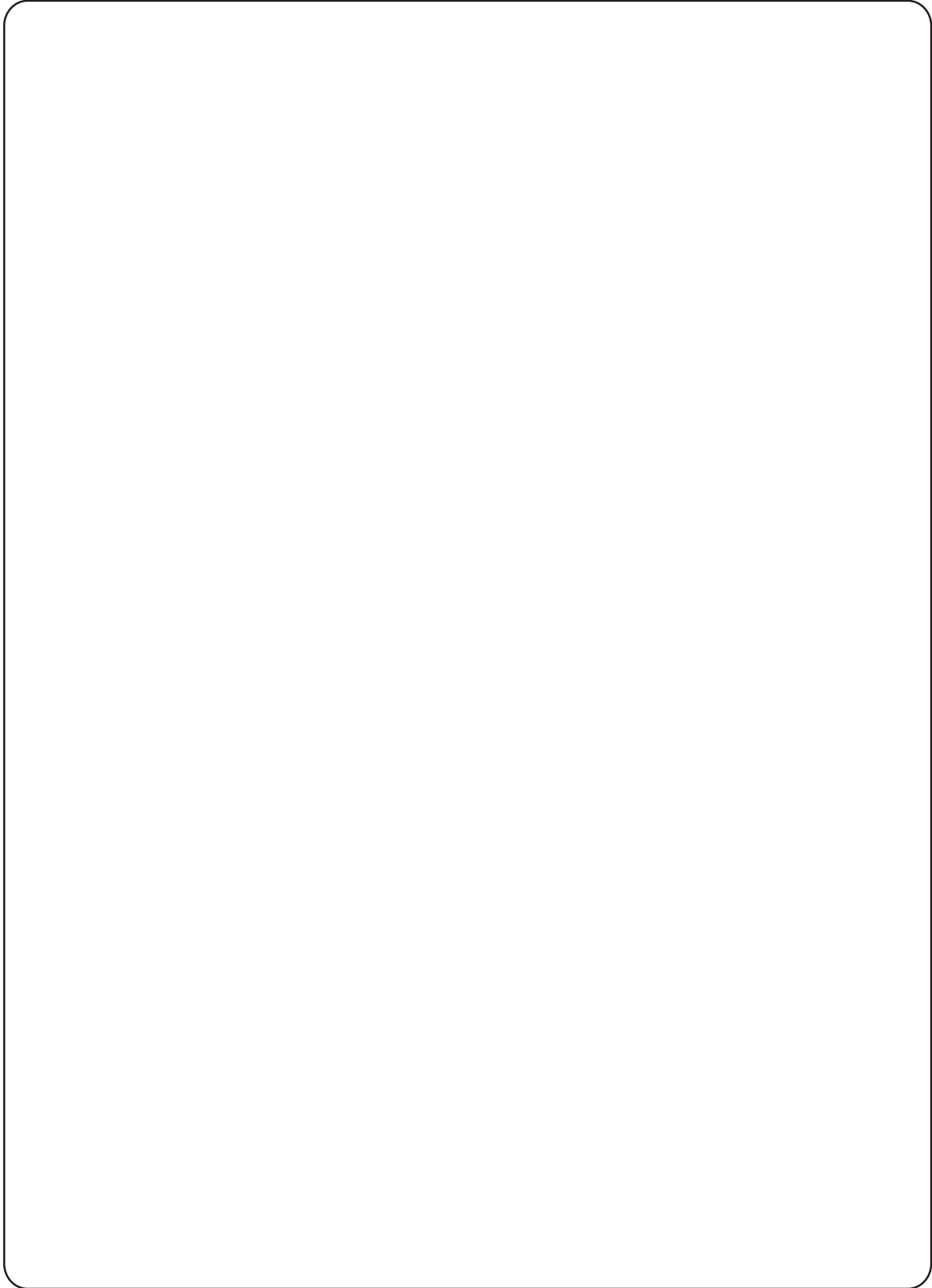
Membership_type.....

Year_joined.....

[3]

- (b) Design an online data entry form which could be used to enter the details of one member, using all the fields shown in the table.

In your design include appropriate spacing for each field and navigational aids. Do **not** include data in the form.



[8]

- (c) A spreadsheet has been created to show which members are attending the presentation evening and who has paid.

Part of the spreadsheet is shown.

	A	B	C	D	E	F	G	H	I	J	K
1	Tawara Rowing Club										
2	Name	Family name	Full name	Type of member	Attending	Number attending	Total owed	Paid		Cost	\$
3	Nor	Kwa	Nor Kwa	Social	Y	2	50	Y		Junior	10
4	Ahmed	Othman	Ahmed Othman	Junior	Y	3	30	Y		Senior	20
5	Zara	Png	Zara Png	Senior	Y	1	20	N		Social	25
6	Adam	Mazian	Adam Mazian	Social	N	0	0	N			

Write down **three** of the formatting features that have been used in the part of the spreadsheet shown.

- 1.....
-
- 2.....
-
- 3.....
-

[3]

- (d)** A formula has been created and placed in cell G3. The formula is:

IF(E3="Y",VLOOKUP(D3,J\$3:K\$5,2)*F3,0)

Explain what the formula does.

This image shows a full page of white paper with ten horizontal dashed lines, typical of primary school handwriting practice paper. The lines are evenly spaced and extend across the entire width of the page. There is no text or other markings on the paper.

[6]

- (e)** The secretary needs to identify different types of members in the club.

Describe the steps he would take to sort the data by type of member so that Junior members are at the top of the list.

[illegible]

[3]

- 7 A train company is improving security on its journeys. They are planning to introduce a facial recognition system for passengers using their trains.
- (a) Discuss the advantages and disadvantages of using facial recognition systems rather than manually checking tickets.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

[6]

- (b) Facial recognition is an example of biometrics. Direct data entry devices can be in three forms. One is biometrics. The second is contactless where the item being read does not touch the reader. The third is physical where the item being read does touch the reader.

Tick (✓) whether the following are the most appropriate examples of biometrics or contactless or physical direct data entry.

	biometrics (✓)	contactless (✓)	physical (✓)
RFID			
Magnetic stripe			
Retina scan			
Voice recognition			

[4]

- 8 One implication of using a computer system is that people can break the law by hacking into other computer systems. Cultural, Ethical and Moral implications can also be issues.

Tick (✓) the most appropriate implication for each of the following statements.

	Cultural (✓)	Ethical (✓)	Moral (✓)
A student has changed the contents of a company website without permission			
Writing computer games that make fun of a country's religion			
Using pictures in a document without acknowledging copyright			
Passing information to a rival company			

[4]

- 9 Lanfen has purchased a new computer. The computer has no internal storage. All the data is stored in the cloud.

Compare and contrast computers that use cloud-based storage and computers that have internal backing storage.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

[6]

- 10** The modern home relies heavily on microprocessor-controlled devices. One of the benefits is that a worker is able to return home to a warm house having set the heater control to switch on at a certain time.

(a) Describe **four** benefits in terms of lifestyle changes that this has produced for the users of such devices.

1.....

.....

2.....

.....

3.....

.....

4.....

.....

[4]

- (b) The worker has set the heater control to switch on at 16:00 for two hours.

Explain how the microprocessor can operate the automatic heater to turn on and off at the correct times.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

[6]

11 Parallel running is a type of implementation.

Name and describe **two** other methods of implementing a new computer system. For each one give an advantage and a disadvantage of this method. Your answers must be different in each case.

Method 1.....

Advantage 1.....

Disadvantage 1.....

Method 2.....

Advantage 2.....

Disadvantage 2.....

[8]

- 12** A student is undertaking research for his studies. He needs to find up-to-date information and has decided to look for it using the internet.

Explain how he would check the reliability of this information.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

[6]

- 13** A school is planning to set up a student work files area. The school is considering allowing students to log in to the student work files area either using the school's intranet or the internet.

Discuss the advantages and disadvantages of using the school's intranet rather than the internet to access this student work files area.

[illegible]

[8]

BLANK PAGE

BLANK PAGE

BLANK PAGE

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced online in the Cambridge Assessment International Education Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at www.cambridgeinternational.org after the live examination series.

Cambridge Assessment International Education is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of the University of Cambridge Local Examinations Syndicate (UCLES), which itself is a department of the University of Cambridge.



Cambridge IGCSE™

INFORMATION AND COMMUNICATION TECHNOLOGY

0417/13

Paper 1 Written

May/June 2020

MARK SCHEME

Maximum Mark: 100

<p>Published</p>

Students did not sit exam papers in the June 2020 series due to the Covid-19 global pandemic.

This mark scheme is published to support teachers and students and should be read together with the question paper. It shows the requirements of the exam. The answer column of the mark scheme shows the proposed basis on which Examiners would award marks for this exam. Where appropriate, this column also provides the most likely acceptable alternative responses expected from students. Examiners usually review the mark scheme after they have seen student responses and update the mark scheme if appropriate. In the June series, Examiners were unable to consider the acceptability of alternative responses, as there were no student responses to consider.

Mark schemes should usually be read together with the Principal Examiner Report for Teachers. However, because students did not sit exam papers, there is no Principal Examiner Report for Teachers for the June 2020 series.

Cambridge International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the June 2020 series for most Cambridge IGCSE™ and Cambridge International A & AS Level components, and some Cambridge O Level components.

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

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		Applications	System	2
	Device driver		✓	
	Linker		✓	
	Photo-editing software	✓		
	Spreadsheet	✓		
	Two marks for four correct ticks One mark for two or three correct ticks Zero marks for one correct tick			

Question	Answer	Marks
2(a)	Graphical User Interface	1
2(b)	Two from: User does not need to learn the commands User-friendly Can locate applications more rapidly	2

Question	Answer	Marks
3(a)	Two from: Local Area Network A network within a building/site/small geographical area Network connected by hubs and switches	2
3(b)	Wide Area Network This network spans a large geographical area	2

Question	Answer	Marks
4(a)	Four from: Fewer errors in the typing the details Faster process as he will have to check the comments and the data from the database Saves time in matching the correct set of comments with the data in the database The process is faster than typing out each student's data Faster to search for a set of students and mail merge than to locate them and type in the details Produces a more professional document Easier/faster to personalise it	4

Question	Answer	Marks
4(b)	Four from: Click on design view Select the attendance field Select the validation rule Enter/type ≥ 0 and ≤ 100 Select validation text/error message Enter appropriate error message/validation text/example i.e. please enter a value between 0 and 100	4
4(c)	Four from: Click on table and field Enter normal data and check Enter abnormal data and check Enter extreme data and check If incorrect, make changes to boundaries If incorrect, make changes to validation text Save the database	4

Question	Answer	Marks
5	Four from: Faster switch on as the operating system does not need to load <u>Lighter and smaller than a laptop computer</u> therefore more portable Don't generate as much heat Battery life tends to last longer Smaller footprint Easier to use the touch screen as the keyboard is not in the way Less susceptible to viruses Less parts//no separate peripherals, such as a mouse Camera is easier to use	4

Question	Answer	Marks
6(a)	<i>Gender</i> Boolean/text/string/alphanumeric <i>Membership_type</i> Text/alphanumeric/string <i>Year_joined</i> Numeric/integer/date Note: each answer must be a different data type.	3

Question	Answer	Marks
6(b)	<p>Two marks for all field names given; one mark for five field names</p> <p>Max six from: Data fills the screen and it looks like an online form Use of navigation buttons Use of drop down lists for Type_of_membership or Year_joined or Gender Use of text/character boxes The Name_of_person, Contact_email and Contact_phone_no fields are larger than the other fields Use of a calendar for Date_of_birth Use of submit/help buttons Appropriate title</p>	8
6(c)	<p>Three from: Bold Centre/right alignment Text/word wrap Merge and centre Increase/decrease size of columns Row height increased</p>	3
6(d)	<p>IF(E3="Y",VLOOKUP(D3,J\$3:K\$5,2)*F3,0)</p> <p>Six from: If the member is attending/if E3 is equal to Y Then locate the type of member using the value in D3 in the range J3 to K5 Return the corresponding value from the second column Multiply the returned value by F3/the number attending Otherwise display 0 in the cell</p>	6
6(e)	<p>Three from: Highlight A3 to H6/column A to column H/A2 to H6 Click Sort Deselect/unselect/uncheck top row is headings if A3 to H6 used//select/check top row is heading if A2 to H6 used Click on sort by Column D//Click on sort by Type of member Sort A to Z/ascending</p>	3

Question	Answer	Marks																				
7(a)	<p>Max five from: examples</p> <p><i>Advantages</i> Facial recognition is unique therefore the correct person is identified Tickets can be lost/stolen whereas your face is always with you The commuter is charged for the ticket therefore more secure Faster throughput/faster to check the commuters Fear of detection reduces fraud</p> <p>Max five from: examples</p> <p><i>Disadvantages</i> Personal liberty infringement as facial data must be stored. Equipment and setup is more expensive than manual system. The time taken to set up a store of facial patterns can be more time consuming A database is needed as many passengers need to be stored Passengers will have to have data stored on the system; this could take a long time to set up If the face is injured/damaged/covered/beard it could be more difficult to read the data</p> <p>A mark can be awarded for a reasoned conclusion</p>	6																				
7(b)	<table><tr><td></td><td>biometrics</td><td>contactless</td><td>physical</td></tr><tr><td>RFID</td><td></td><td>✓</td><td></td></tr><tr><td>Magnetic stripe</td><td></td><td></td><td>✓</td></tr><tr><td>Retina scan</td><td>✓</td><td></td><td></td></tr><tr><td>Voice recognition</td><td>✓</td><td></td><td></td></tr></table> <p>One mark per correct row</p>		biometrics	contactless	physical	RFID		✓		Magnetic stripe			✓	Retina scan	✓			Voice recognition	✓			4
	biometrics	contactless	physical																			
RFID		✓																				
Magnetic stripe			✓																			
Retina scan	✓																					
Voice recognition	✓																					

Question	Answer				Marks
8		Cultural	Ethical	Moral	4
	A student has changed the contents of a company website without permission			✓	
	Writing computer games that make fun of a country's religion	✓			
	Using pictures in a document without acknowledging copyright			✓	
	Passing information to a rival company		✓		
One mark per correct row					

Question	Answer	Marks
9	<p><i>Similarities</i></p> <p>They are both used to store data</p> <p>They are both mass storage</p> <p>Both can be secured by passwords</p> <p><i>Differences</i></p> <p>Internal backing storage – physical storage in the computer</p> <p>Internal backing storage – the user has control of the storage</p> <p>Cloud – automatic backup takes place</p> <p>Cloud – only pay for what you use</p> <p>Internal backing storage – only initial cost is required</p> <p>Internal backing storage – difficult to expand the storage</p> <p>Cloud – can be used on different devices</p> <p>Cloud – needs access to the internet to be used</p> <p>Cloud – <u>due to duplicate copies</u> more chance of the data being hacked</p> <p>Cloud – more chance of it being hacked as it is on all the time</p> <p>Max five marks if only differences have been given in the answer</p>	6

Question	Answer	Marks
10(a)	Four from: People no longer have to do manual tasks therefore more time to do other things To go out of the house when food is being cooked/washing is being done Can control the devices remotely Greater sense of security with automated burglar alarms Use of smart fridges can lead to a healthy diet More time with the family Can do leisure activities when it is convenient Can do their shopping convenient to them Can set timers for washing/cooking	4
10(b)	Six from: Microprocessor constantly checks current time against the start time If the current time is less than the set time nothing happens If they are the same the microprocessor sends a signal to the actuator to turn the heater on The microprocessor calculates the end time by adding 2 hours to the start time The microprocessor checks the current time against the end time When they are equal the microprocessor sends a signal to the actuator to turn the heater off	6

Question	Answer	Marks
11	<p>Two matched from:</p> <p>Direct changeover – 1 mark New system replaces existing system immediately/overnight – 1 mark</p> <p><i>Disadvantage:</i> The old system no longer exists therefore all data could be lost – 1 mark</p> <p><i>Advantage:</i> One from: The benefits are immediate Costs are reduced as only one set of staff are needed Less change of error as the new system will be fully tested</p> <p>Phased implementation – 1 mark New system is implemented part by part – 1 mark</p> <p><i>Advantage:</i> If the current part fails then not all the system is lost – 1 mark</p> <p><i>Disadvantage:</i> One from: More expensive as each part needs to be evaluated before moving on More time consuming as each part needs to be evaluated before moving on</p> <p>Pilot running – 1 mark Whole system is implemented in one branch/one office at a time – 1 mark</p> <p><i>Disadvantage:</i> More time consuming as the changeover is spread out – 1 mark</p> <p><i>Advantage:</i> One from: If the system crashes/fails then only branch/office is affected Cheaper as training is carried branch by branch Less time consuming as training is carried out branch by branch</p>	8

Question	Answer	Marks
12	<p>Six from:</p> <p>Check the credentials of the authors of a website Cross check the data with other websites Check if the site has excessive advertising Check If the advertising is related only to its own products Check the final part of a URLac., .gov, .org government/academic sites are usually fairly reliable Check if site is endorsed by reliable/reputable people/organisations it can be accepted as being reliable/If it has links to other reliable sites Check the site for grammatical/spelling mistakes Compare information from different text books to see if the results are similar Check if it has been recommended by teachers</p>	6

Question	Answer	Marks
13	<p>Max seven from:</p> <p><i>Advantages</i> Intranet is policed/controlled by the school More secure as it needs a password Intranet private network only contains information that is relevant Intranet resides behind a firewall therefore data is more secure Messages can target the correct students Better bandwidth on the intranet Access from external people are barred</p> <p>Max seven from:</p> <p><i>Disadvantages</i> More expensive to set up More time consuming to set up More time spent on administration i.e. passwords May only be viewed within the school More expensive to maintain More time consuming to maintain Will not be able to access school files at home for homework School would need to provide more computers across the school for students to use to access via the intranet</p> <p>One mark can be awarded for a reasoned conclusion</p>	8