

Surname		Other Names	
Centre Number		Candidate Number	
Candidate Signature			

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General Certificate of Secondary Education  
June 2004



**INFORMATION AND COMMUNICATION TECHNOLOGY 3522/FR**  
**SPECIFICATION B (FULL COURSE)**  
**Foundation Tier**

Monday 24 May 2004 1.30 pm to 3.00 pm

**F**

For Examiner's Use	
Number	Mark
1	
2	
3	
4	
5	
6	
7	
8	
TOTAL	
Examiner's Initials	

<p><b>No additional materials are required.</b> You may use a calculator.</p>
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Time allowed: 1 hour 30 minutes

**Instructions.**

- Use a blue or black ink or ball-point pen.
- Fill in the boxes at the top of this page.
- Answer **all** the questions in the spaces provided.

**Information**

- The maximum mark for this paper is 120.
- Mark allocations are shown in brackets.

Answer **all** questions in the spaces provided.

**1** Roboshop sell robots.

A secretary is writing a letter using wordprocessing software. The letter looks like this:

Roboshop  
Unit 12  
Xenon Industrial Estate  
Acton  
AC1 2DH

01247 343434

12/05/2004

Dear Mr Pettiford,

Paragraph 1

{

Alternatively, you could purchase robot R35. This is available immediately from stock. By purchasing robot R35, you would receive a higher specification robot at a lower price.

Paragraph 2

{

Many thanks for your order for robot R32. This is now out of stock. New stocks will be not available for at least 6 months.

Paragraph 3

{

Please consider our offer and let me know if you wish to purchase robot R35. I will reserve one of these for you for one week.

Yours sincerely,

*J Wood*

J Wood

- (a) The secretary is going to rearrange the letter so that Paragraph 1 is between Paragraph 2 and Paragraph 3.

Write the labels of these operations in order to show how the secretary could do this.

Label	Operation
A	paste
B	cut
C	position the cursor between Paragraph 2 and Paragraph 3
D	highlight Paragraph 1

Label

(2 marks)

- (b) (i) The secretary has a picture of a robot that has been saved on disk. The secretary is going to put this picture in the letter. Describe how the picture of the robot can be put into the letter.

.....

.....

.....

.....

(2 marks)

- (ii) The secretary wants to improve the appearance of the letter. Tick **three** boxes to show other features of wordprocessing software that could be used to improve the appearance of the letter.

	Tick <b>three</b> boxes
bullets	
bold	
landscape	
colour	
different fonts	
sort	

(3 marks)

QUESTION 1 CONTINUES ON THE NEXT PAGE

Turn over ►

- (c) The secretary wants to send an e-mail to the manufacturer that makes the robots.

Tick **three** boxes to show how the secretary could find out where to send the e-mail.

	Tick <b>three</b> boxes
Look in the telephone book	
Move an e-mail received from the manufacturer to another folder	
Click 'reply' on an e-mail received from the manufacturer	
Use the address book in the e-mail software	
Look at the manufacturer's web site	
Click 'delete' on an e-mail received from the manufacturer	

(3 marks)

- (d) At the end of the e-mail, the secretary inserts a signature.

Tick **three** boxes to show what would be a part of the e-mail signature.

	Tick <b>three</b> boxes
the name and address of the manufacturer	
the secretary's signature written using a pen and paper	
Roboshop's address and telephone number	
the secretary's name	
a hyperlink to Roboshop's web site	
a wizard	

(3 marks)

- (e) Very large files can be attached to e-mails.  
These files are sometimes zipped (compressed) to reduce their size.

- (i) Give **one** advantage of zipping very large files that are attached to e-mails.

.....  
.....

(1 mark)

- (ii) Describe what must be done before a zipped file can be used.

.....  
.....

(1 mark)

**TURN OVER FOR THE NEXT QUESTION**

**Turn over ▶**

- 2 A plumber uses a computer to estimate the cost of refitting a bathroom for a customer. This is part of the information displayed on the monitor.

	A	B	C	D
1	<b>Materials</b>	<b>Unit Cost</b>	<b>Quantity</b>	
2	Bath	£400.00	1	£400.00
3	Bath taps	£100.00	2	£200.00
4	Basin	£90.00	1	£90.00
5	Basin taps	£75.00	2	£150.00
6	Shower unit	£100.00	1	£100.00
7	Copper pipe (2 metres)	£25.00	6	£150.00
8	Total cost of materials			£1090.00
9	Labour costs			£500.00
10	Total cost of materials and Labour			£1590.00
11	VAT at 17.5%			£278.25
12	Total cost to customer			<b>£1868.25</b>

- (a) Tick **one** box to show the type of software the plumber has used.

	Tick <b>one</b> box
multimedia	
operating system	
virus checker	
spreadsheet	
web browser	

(1 mark)

- (b) The type of data in cell reference A5 is text.

- (i) Write the cell reference of another cell that contains text.

..... (1 mark)

- (ii) Write the cell reference of a cell that contains a number.

..... (1 mark)

- (iii) Write the formula in each of these cells.

Cell reference	Formula
D3	
D10	

(2 marks)

- (iv) The formula in D8 uses a SUM function.  
Write down this formula.

.....  
(1 mark)

- (c) Tick **three** boxes to show the advantages to the plumber of using the software.

	Tick <b>three</b> boxes
The plumber can rely on the software to produce accurate calculations if it has been set up correctly	
The customer can be given a neatly printed estimate	
If the unit costs change, then VAT and the total costs remain the same	
The customer would be more impressed by a handwritten estimate on a scrap of paper	
The software can be set up so that it can be used to produce estimates for any customer	
The plumber can avoid paying tax if the customer pays in cash	

(3 marks)

- (d) The plumber is going to buy a new standalone computer to run the software.  
The plumber looks at adverts in the newspapers to find a suitable computer.

- (i) Name **two** input devices the computer could have.

Input device 1: .....

Input device 2: .....

(2 marks)

- (ii) Tick **three** boxes to show backing storage the computer could have.

	Tick <b>three</b> boxes
RAM memory	
floppy disk	
modem	
the network	
CD-R	
hard disk	

(3 marks)

- (iii) The plumber buys a scanner.

State **one** task the plumber could do with a scanner.

.....

.....

(1 mark)

- 3 A hospital keeps information about patients in a database on a computer.  
This is part of the database.

Patient Number	Patient Name	Gender	Admission Date	Doctor
0232	McLoughlin	M	07/02/2004	Clarke
0617	Iqbal	F	07/01/2004	Stevens
0825	Morgan	F	20/03/2004	Stevens
0713	Rooney	M	15/03/2004	Clarke
0324	Wrig75	F	04/01/2004	Harrison
0611	Feather	M	17/04/2004	Stevens

The information about a patient is written on a form by the doctor.  
The information on the form is input to the computer by a clerk.

- (a) An error has been made. A **Patient Name** has been input incorrectly.

(i) Circle the **Patient Name** that has been input incorrectly. (1 mark)

- (ii) Tick **two** boxes to show verification checks that should detect this error.

	Tick <b>two</b> boxes
The clerk inputs the <b>Patient Name</b> then inputs the information on the next form	
When the <b>Patient Name</b> has been input, the clerk checks again that the <b>Patient Name</b> on the monitor is the same as that on the form	
The check digit is re-calculated when the <b>Patient Name</b> is input	
The <b>Patient Name</b> is input twice. The computer checks that the two <b>Patient Names</b> input are the same. If they are not the same, the computer tells the clerk	
The <b>Patient Name</b> is input by the doctor as the doctor is more accurate than the clerk	

(2 marks)

- (iii) Tick **two** boxes to show validation checks that should detect this error.

	Tick <b>two</b> boxes
name check	
type check	
range check	
table look-up	
input check	

(2 marks)



- (b) The **Patient Number** is the key field.

Tick **two** boxes to show essential features of a key field.

	Tick <b>two</b> boxes
A key field cannot be empty	
A key field must have a different value in every record	
A key field must be in every column in a table	
A key field must be the same as every other key field in a database	
A key field must be in every column in a database	

(2 marks)

- (c) Patients' **Gender** is coded.

Tick **two** boxes to show the advantages of coding information.

	Tick <b>two</b> boxes
The coded information takes up less space on backing storage	
The coded information is secret	
The clerk can input the coded information faster	
The doctor can send the coded information by e-mail	
Patients do not know what is wrong with them	

(2 marks)

- (d) Write down the **Patient Names** in the order they would appear after the database has been sorted into ascending order on the **Patient Name** field.

Patient Name

(2 marks)

- (e) State **two** fields, other than the **Address**, which could be included in a patient's record. Give **one** reason why the hospital would find each field useful.

Field 1: .....

Reason the hospital would find the field useful: .....

.....

Field 2: .....

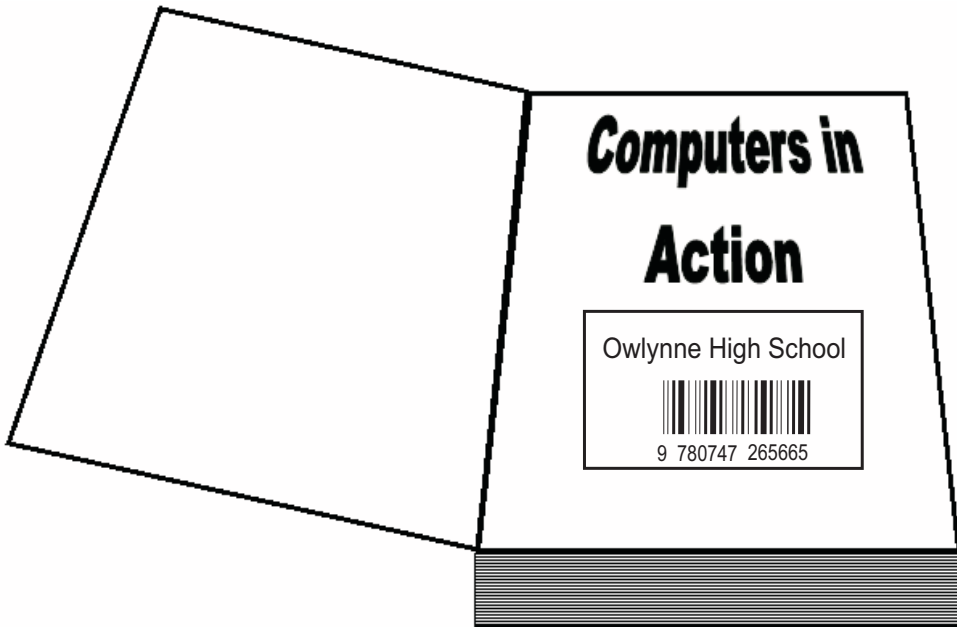
Reason the hospital would find the field useful: .....

.....

(4 marks)

Turn over ▶

4 Books in a school library are identified by a bar code inside the front cover.



(a) Complete the sentences using words from this list:

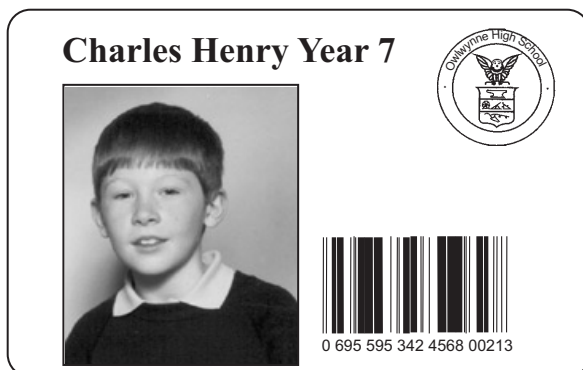
- mouse
- keyboard
- joystick
- sensor
- bar code reader

Bar codes can be input most accurately using a .....

If the bar code is damaged, the number printed under the bar code is entered using a

..... (2 marks)

(b) Each pupil at the school has a library card.



A pupil borrows a book from the school library.  
The librarian scans the bar code on the library card and the bar code on the book.

Tick **one** box to show why the bar code on the library card and the bar code on the book are both scanned when a book is borrowed from the library.

	Tick <b>one</b> box
The library card can be used to collect air miles	
There is no need to identify the pupil when a book is borrowed	
Pupils have to review the books they read	
The bar code on the book identifies the pupil	
To record who has borrowed a book, both the pupil and the book must be identified	

(1 mark)

- (c) When the book is returned to the library, the bar code on the book is scanned but the bar code on the library card is not scanned.

Tick **two** boxes to show why only the bar code on the book is scanned.

	Tick <b>two</b> boxes
The bar code on the book is used to find the connection between the book and the borrower, and delete it	
The bar code on the library card will be out of date	
The bar code on the book will be damaged	
It does not matter who returns the book	
It does not matter which book is returned	

(2 marks)

- (d) The library catalogue can be accessed using computers in the school library.

Tick **two** boxes to show tasks a pupil could do using library catalogue software.

	Tick <b>two</b> boxes
Find books written by an author	
Find books on a topic, such as history or geography	
Buy books using the Web	
Find out what books other pupils have borrowed	
Cancel library fines	

(2 marks)

**QUESTION 4 CONTINUES ON THE NEXT PAGE**

**Turn over ►**

- (e) The library software runs on a LAN (Local Area Network). Users can print book lists.

Draw a labelled diagram of the LAN. You should show on the diagram a fileserver and at least three computers connected to the LAN.

(3 marks)

- (f) Complete the sentences using words from this list:

parents  
librarians  
the headteacher  
the network manager  
the school secretary

Technical documentation could be useful to .....

User documentation could be helpful to .....

(2 marks)

- (g) Tick **three** boxes to show when the use of a computer system in the library is justified.

	Tick <b>three</b> boxes
There are over 1500 pupils at the school	
Pupils only have access to the school library in English lessons	
The school library has over 10 000 books	
There are 30 pupils at the school	
There are 100 books in the school library	
Many pupils will use the computers to access the Internet, and for doing coursework and homework	

(3 marks)

**TURN OVER FOR THE NEXT QUESTION**

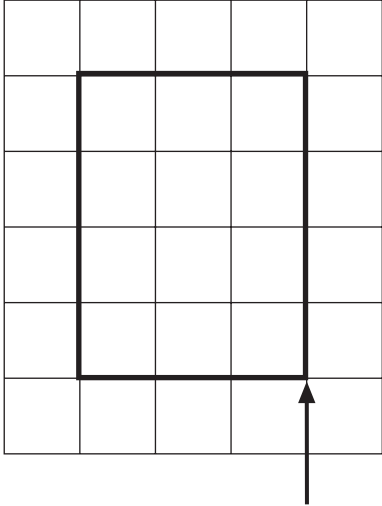
**Turn over ▶**

5 (a) A student writes a program in Logo.

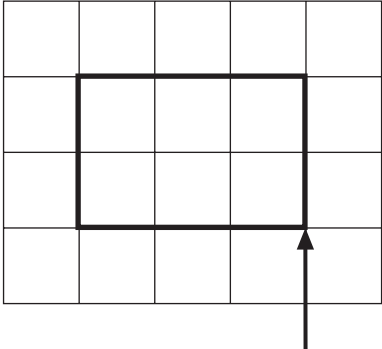
These are examples of Logo instructions.

Instruction	What the instruction does
clearscreen	clears the screen
forward 5	moves the pen forward 5 squares
left 90	turns the direction of the pen ninety degrees to the left
right 45	turns the direction of the pen forty-five degrees to the right

This shape is produced by these Logo instructions. The grid is not produced but is shown to help you.

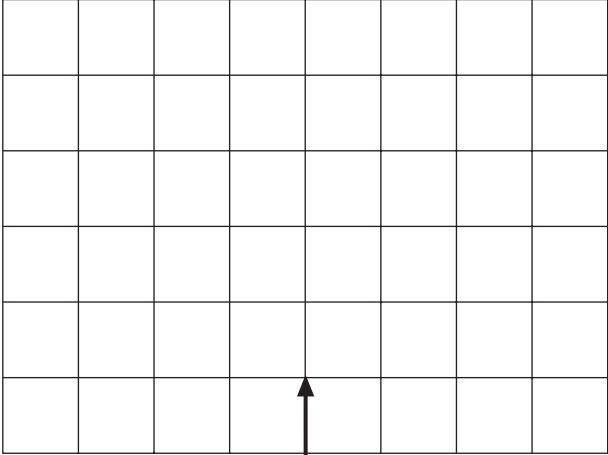
Display	Logo instructions
 <p style="text-align: center;">start here</p>	<pre>clearscreen forward 4 left 90 forward 3 left 90 forward 4 left 90 forward 3 left 90</pre>

(i) Write the Logo instructions to produce this shape.

Display	Logo instructions
 <p style="text-align: center;">start here</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>

(3 marks)

(ii) Draw the shape these Logo instructions would produce.

Display	Logo instructions
 <p style="text-align: center;">↑ start here</p>	<pre> clearscreen forward 4 left 90 forward 2 left 90 forward 3 right 90 forward 1 left 90 forward 1 left 90 forward 3           </pre>

(3 marks)

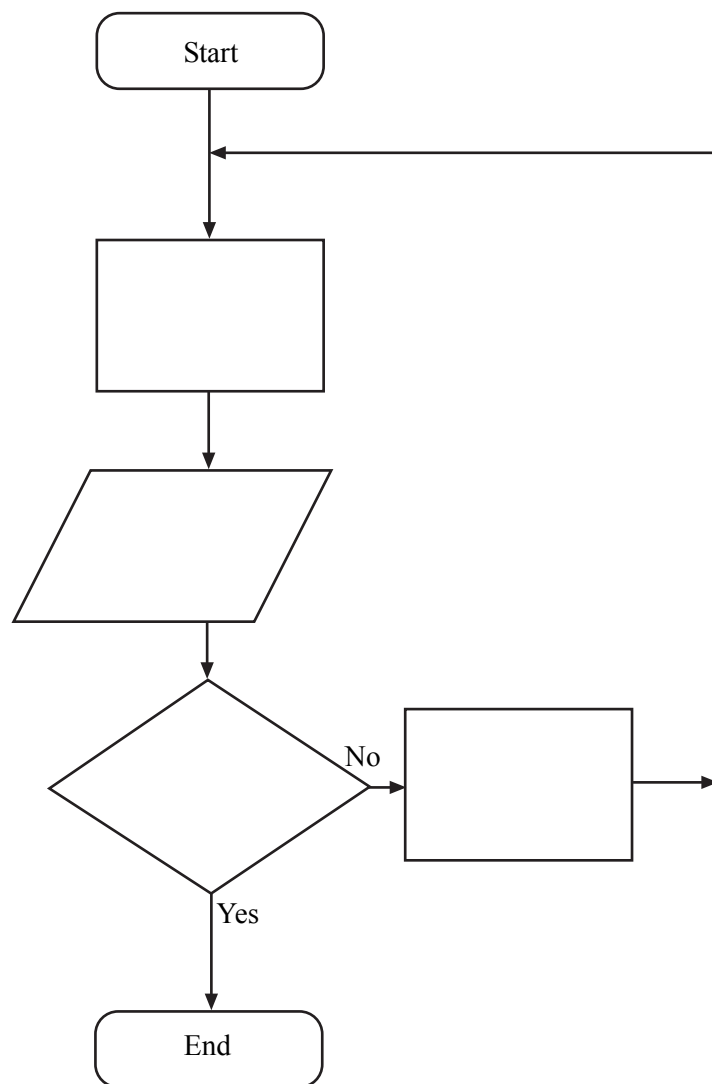
QUESTION 5 CONTINUES ON THE NEXT PAGE

Turn over ►

- (iii) Some Logo instructions should display a square but they do not work.

Write the labels of these statements in the boxes of the flowchart to show a method of developing and testing Logo instructions.

Label	Statement
A	The picture produced is displayed on the screen
B	Change the Logo instructions
C	Is the picture a square?
D	Run the Logo instructions



(3 marks)

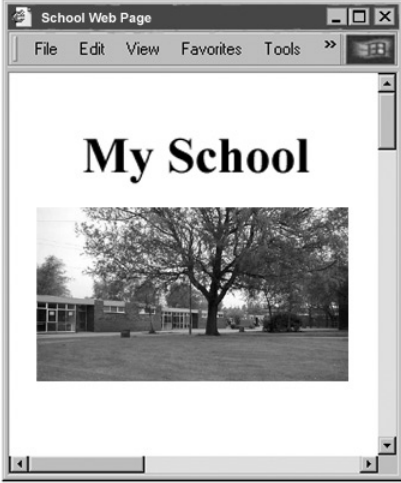


(iv) Tick **one** box to show why a Logo program should start with clearscreen.


	Tick <b>one</b> box
Clearscreen is put at the end because if it is at the start the screen will be cleared after the shape has been drawn	
If the screen is not cleared, the new shape may be drawn on top of shapes that have already been drawn	
Clearscreen allows different colours to flood the screen	
If the screen is not cleared, the new shape will be drawn on a blank screen	
Clearscreen is only used before quitting Logo	

(1 mark)

(b) A student is building a school web page using HTML (Hyper Text Mark-up Language). A web browser produces this display from this HTML.

Display	HTML
	<pre> &lt;START&gt; &lt;HEAD&gt; &lt;TITLE&gt;School Web Page&lt;/TITLE&gt; &lt;/HEAD&gt; &lt;BODY&gt; &lt;H1&gt;My School&lt;/H1&gt; &lt;IMG SRC="my school.jpg"&gt; &lt;/BODY&gt; &lt;END&gt;                     </pre>

Complete the HTML that a web browser would use to produce this display. The picture to be displayed is saved as a file called "mypicture.jpg"

Display	HTML
	<pre> &lt;START&gt; &lt;HEAD&gt; &lt;TITLE&gt; .....&lt;/TITLE&gt; ..... ..... &lt;H1&gt; .....&lt;/H1&gt; &lt;IMG SRC=" ..... "&gt; &lt;/BODY&gt; &lt;END&gt;                     </pre>

(5 marks)

Turn over ▶

- 6 (a) When students log on to a network from a computer connected to it, they have to enter a username and a password.

- (i) Tick **three** boxes to show which statements are true.

	Tick <b>three</b> boxes
Different users cannot have the same password	
Username are set by the network manager but a password can be changed by a student	
Two students can have the same name but they will not have the same username	
A list of usernames and passwords are published on the Web	
Username and passwords help keep students' files private and secure	
Different users can have the same username	

(3 marks)

- (ii) Tick **three** boxes to show sensible rules about passwords.

	Tick <b>three</b> boxes
You should choose a password that is hard for someone else to guess	
You should tell your friends your password in case you forget it	
You should write your username and password in the front of your diary	
You should never tell anyone else your password	
You should use your pet's name as a password	
You should change your password frequently	

(3 marks)

- (iii) A student is changing a password.  
The student enters the new password.  
The computer asks the student to enter the new password again.  
Explain why a new password has to be entered twice.

.....

.....

(1 mark)

(b) A student sometimes saves work on the hard disk of the computer being used on the network.

(i) Tick **three** boxes to show why this work is not secure.

	Tick <b>three</b> boxes
If there is a virus attack, the computer will not be protected as it is on the second floor	
If the computer is switched off, all the data in RAM memory is lost	
If the building burns down, the computer could be destroyed	
Another student using the computer could delete the work	
There is a backup of the file server but not the computer the work is saved on	
The computer is not constructed to military standard specifications	

(3 marks)

(ii) Complete the sentence using a word from this list:

- paste
- format
- copy
- field
- merge

A backup is a ..... of students' work on backing storage.

(1 mark)

(iii) Describe **one** way students could make a secure backup of their work.

.....

.....

.....

.....

(2 marks)

(c) A student downloads some software from the Web and tries to install it on one of the computers on the network.

The computers have been set up so that students are prevented from installing software. Give **one** reason why the computers have been set up in this way.

.....

.....

(1 mark)

(d) Students using computers connected to the network find that Internet access is very slow. Give **one** reason why Internet access could be slow.

.....

.....

(1 mark)

Turn over ►

7 An accountant uses a computer at home and another computer at work.

(a) The accountant usually works from home, but occasionally travels by car to the firm's head office in a large city.

(i) Tick **one** box to name this way of working.

	Tick <b>one</b> box
e-commerce	
teleworking	
multimedia	
downloading	
networking	

(1 mark)

(ii) Give **one** reason why this way of working can help improve the environment.

.....

.....

(1 mark)

(iii) Tick **two** boxes to show advantages to the accountant of this way of working.

	Tick <b>two</b> boxes
At home, the accountant's working hours are more flexible	
The firm does not monitor the accountant's work at home, so the accountant does not need to work	
The accountant will be warmer at work as a hot desk is provided	
The accountant does not have to waste time travelling to work every day	
The accountant has the use of a computer at work and a computer at home	

(2 marks)

(iv) Tick **two** boxes to show disadvantages to the accountant of this way of working.

	Tick <b>two</b> boxes
This way of working is boring	
The accountant feels out of touch compared with colleagues who work at the firm's head office every day	
It can take longer to get work done at home as there can be more distractions	
The accountant will have to pay more to travel to work	
The accountant will be provided with out-of-date computer equipment	

(2 marks)

- (b) Describe **one** health hazard due to using a computer, and explain how this could be avoided.

Health hazard: .....

.....

How to avoid the health hazard: .....

.....

(2 marks)

- (c) The accountant runs these applications on a computer at the same time: a web browser, a wordprocessor, and e-mail software.

- (i) Complete the sentence using words from this list:

- background processing
- formatting
- multi-tasking
- on-line searching
- real time processing

Running more than one application on a computer at the same time is known as

.....

(1 mark)

- (ii) Tick **three** boxes to show why it is useful to be able to run more than one of these applications at the same time.

	Tick <b>three</b> boxes
Some websites let users contact them using a hyperlink to e-mail	
A word processor is the only way to create web pages	
Internet Service Providers will only allow access to the Web if all this software is running at the same time	
Files that have been compressed can be downloaded faster	
A word processor can be used to write e-mail messages	
Some e-mails contain hyperlinks to web sites	

(3 marks)

**QUESTION 7 CONTINUES ON THE NEXT PAGE**

**Turn over ▶**

(d) The Internet can be accessed throughout the world.

Give **three** reasons why people in developing countries may find it hard to access the Internet.

Reason 1: .....

.....

Reason 2: .....

.....

Reason 3: .....

.....

*(3 marks)*

15

8 Cotex is a mail order company.

(a) Cotex want to sell customers' names and addresses to an advertising agency.

(i) Give **one** reason why an advertising agency would want to buy customers' names and addresses.

.....  
.....  
(1 mark)

(ii) Give **one** reason why customers might not want Cotex to sell their names and addresses to an advertising agency.

.....  
.....  
(1 mark)

(iii) Give **one** reason why it could be illegal for Cotex to sell customers' names and addresses to an advertising agency.

.....  
.....  
(1 mark)

(b) By mistake, a customer receives a bill for £1,000,000 from Cotex.  
The customer telephones Cotex and speaks to a customer services assistant.

(i) The assistant tells the customer that the computer has made the mistake.  
Give **one** reason why it is unlikely that the computer has made the mistake.

.....  
.....  
(1 mark)

(ii) The assistant appears to know the details of every customer that telephones Cotex.  
Explain how the assistant can appear to know the details of each customer.

.....  
.....  
(1 mark)

QUESTION 8 CONTINUES ON THE NEXT PAGE

Turn over ►

(c) Some people say computers are more intelligent than people.

(i) Tick **two** boxes to show tasks people can do that computers cannot do.

	Tick <b>two</b> boxes
Do the ironing	
Make cars	
Total the shopping bill at a checkout	
Experience religious insights and prayer	
Control the production of soft drinks	

(2 marks)

(ii) Tick **two** boxes to show tasks computers can do better than people.

	Tick <b>two</b> boxes
Control the operation of traffic lights	
Design new clothes	
Recall census data	
Decide what colour to paint a room	
Help a friend	

(2 marks)

(iii) Tick **three** boxes to show reasons why computers are more efficient than people.

	Tick <b>three</b> boxes
Computers can repeat a task over and over again without making errors	
The complexity of some computers is approaching that of biological life forms	
Computers are always right	
Computers know everything	
Computers can accurately recall more information much faster than people	
Computers can work 24 hours every day	

(3 marks)

(iv) Tick **three** boxes to show reasons why people are more intelligent than computers.

	Tick <b>three</b> boxes
People tell computers what to do by writing computer programs	
Computers are inanimate and have no life force	
People find it hard to make furniture of a consistent quality	
People have a sense of purpose	
People sometimes feel overwhelmed and do not know what to do	
When people are ill they may not be able to concentrate	

(3 marks)

**END OF QUESTIONS**