

Surname						Other Names					
Centre Number						Candidate Number					
Candidate Signature											

For Examiner's Use

General Certificate of Secondary Education
June 2008

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

F



Tuesday 20 May 2008 1.30 pm to 3.00 pm

<p>You will need no other materials. You may use a calculator.</p>

Time allowed: 1 hour 30 minutes

Instructions

- Use black ink or black ball-point pen.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Answers written in margins or on blank pages will not be marked.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The maximum mark for this paper is 120.
- The marks for questions are shown in brackets.
- You are reminded of the need for good English and clear presentation in your answers.

For Examiner's Use			
Question	Mark	Question	Mark
1		5	
2		6	
3		7	
4		8	
Total (Column 1) →			
Total (Column 2) →			
TOTAL			
Examiner's Initials			



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

- 1 A graphic designer has been asked to produce a range of stationery for the TXC company. The graphic designer produces a draft of what a letter from the company could look like.

TXC ← **A**

Unit 13, Croydon Trading Estate, Gallway SD14 9NM

← **B**

Dear Xxxxxxx,

Xxxxx xxxxxxxxxxx xxxxxx x xxxxxxxxxxxxxxx x
 xxxxxxx xxxxx xxxxxxxxxxx xxxxxxx xxxxxxxxxxx
 xxxxxxxxxxxxxx xxxxxxxx xxxxxxxxxxxxxxxx ← **C**

Xxxxx xxxxxxxxxxx xxxxxx x xxxxxxxxxxxxxxx x
 xxxxx xxx xxxxx xxxxxxxxxxx xxxxxxx xxxxxxxxxxx
 xxxxxxxxxxxxxx xxxxx xxxxx xxxxxxxxxxxxxxxx

Xxxxx xxxxxxxxxxx xxxxxx x xxxxxxxxxxxxxxx x
 xxxxxxx xxxxx xxxxxxxxxxx xxxxxxx xxxxxxxxxxx
 xxxxxxxxxxxxxx xxxxxxxx xxxxxxxxxxxxxxxx

Yours sincerely,

Mandy Shuttleworth ← **D**

Mandy Shuttleworth
 Operations Manager






- 1 (a) (i) Tick **one** box to show the exact thickness of the line at **B**.

	Tick one box
½ pt	<input type="checkbox"/>
1 pt	<input type="checkbox"/>
3 pt	<input type="checkbox"/>
6 pt	<input type="checkbox"/>
3 pt	<input type="checkbox"/>

(1 mark)








1 (a) (ii) Tick **one** box to show the style of the line at **B**.

	Tick one box
	
	
	
	
	

(1 mark)

1 (a) (iii) Tick **one** box to show the arrows on the line at **B**.

	Tick one box
	
	
	
	
	

(1 mark)

1 (b) Complete the sentences using words from this list:

- centred
- left justified
- airbrushed
- right justified
- indented
- underlined

1 (b) (i) The logo at **A** is (1 mark)

1 (b) (ii) The text at **C** is (1 mark)

1 (b) (iii) The signature block at **D** is (1 mark)

Question 1 continues on the next page

Turn over ▶



1 (c) Describe how to indent a whole paragraph of text.

.....

.....

.....

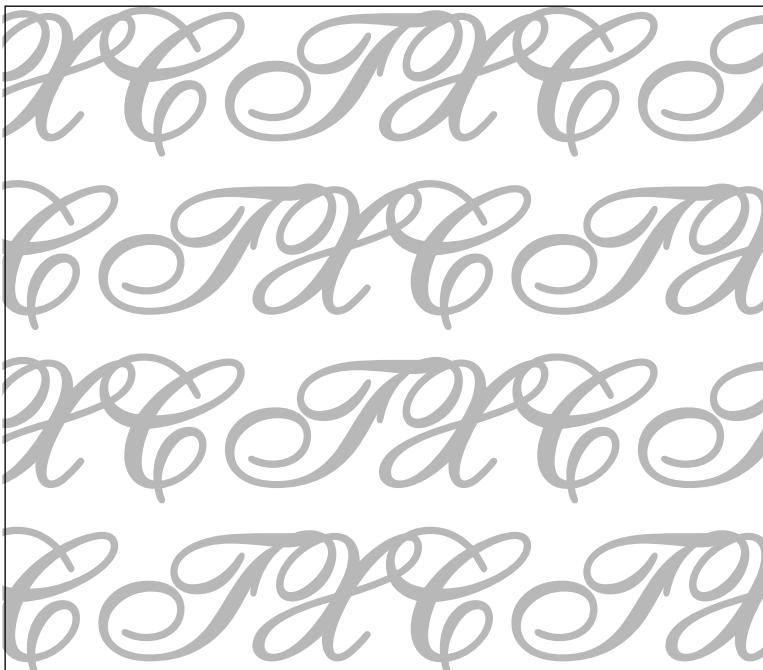
.....

(2 marks)

1 (d) When a letter is printed, the orientation could be Portrait or Landscape. Use diagrams to show what is meant by Portrait and Landscape.

(2 marks)

1 (e) The TXC logo at A will be reproduced in a lighter colour, enlarged and repeated to produce this pattern.



1 (e) Complete the sentences using words from this list:

selection

rotate

fill

airbrush

pencil

1 (e) (i) The TXC logo can be repeated using the tool followed by copy and paste. (1 mark)

1 (e) (ii) The colour of the TXC logo can be changed using the tool. (1 mark)

1 (f) Name the type of item shown in each of the following using words from this list:

art shape

autoshape

clip art

cut art

extreme art

word art

1 (f) (i)



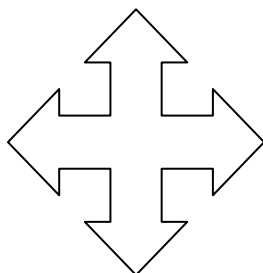
Name: (1 mark)

1 (f) (ii)



Name: (1 mark)

1 (f) (iii)



Name: (1 mark)



- 2 A student has a desktop computer at home. The desktop computer system includes the following.

Label	
A	printer
B	mouse
C	screen
D	scanner
E	keyboard
F	processor box

Label	
G	1 Megabyte RAM memory
H	100 Gigabyte hard disk drive
I	DVD drive
J	modem
K	router
L	flash memory stick

- 2 (a) (i) Write down the labels of **two** input devices. Write **one** label in each box.

Input device 1:

Input device 2:

(2 marks)

- 2 (a) (ii) Write down the labels of **two** output devices. Write **one** label in each box.

Output device 1:

Output device 2:

(2 marks)

- 2 (a) (iii) Write down the labels of **two** backing storage devices. Write **one** label in each box.

Backing storage device 1:

Backing storage device 2:

(2 marks)

- 2 (a) (iv) Write in the box the label of the part of the computer that contains the RAM memory, hard disk drive and DVD drive.

(1 mark)

- 2 (b) At the student's home, several computers can access the Internet at the same time.

- 2 (b) (i) Write in the box the label of the part of the computer that is needed to access the Internet.

(1 mark)



- 2 (b) (ii) Write in the box the label of the part of the computer that is needed for several computers to have access at the same time.

(1 mark)

- 2 (c) Tick **two** boxes to show how to increase the speed at which the student's computer can access the Internet.

	Tick two boxes
Upgrade the keyboard	
Increase the amount of RAM memory	
Use a different search engine	
Upgrade the router and modem	
Use a joystick	

(2 marks)

- 2 (d) The computer has 1 Megabyte of RAM memory.
Tick **one** box to show the number of Kilobytes in 1 Megabyte.

	Tick one box
24 Bytes	
1024 Bytes	
1000 Kilobytes	
1024 Kilobytes	
100,024 Bytes	

(1 mark)

- 2 (e) The file myletter.doc is saved on the hard disk. The full path name is:
C:\Documents and Settings\My Documents\Personal\Friends\myletter.doc

Tick **three** boxes to show which of the following are true.

	Tick three boxes
The file myletter.doc is saved in a folder called 'Friends'	
The file myletter.doc is likely to be a spreadsheet document	
The file name myletter.doc is invalid	
The file myletter.doc is likely to be a word processor document	
The file name myletter.doc is unique on the desktop computer	
The full path name is unique on the desktop computer	

(3 marks)

Turn over ▶

15



- 3 A finance officer uses a spreadsheet to record sales from an equipment shop. This is part of the spreadsheet.

	A	B	C	D
1	Sales	13/06/2008		
2				
3	Description	Price	Quantity Sold	Sales Value
4	Trolley jack	£24.50	6	£147.00
5	Digital thermometer	£70.00	5	£350.00
6	Generator	£500.00	3	£1500.00
7	Pressure Washer	£120.25	4	£481.00
8	Drill	£55.00	10	£550.00
9				
10			Total Sales Value =	£3,028.00

- 3 (a) The cells in the spreadsheet contain different types of data. Complete the sentences using words from this list:

text
an equation
currency
a formula
a date
a calculation

- 3 (a) (i) The content of cell A5 is (1 mark)
- 3 (a) (ii) The format of cell B1 is (1 mark)
- 3 (a) (iii) The content of cell D5 is (1 mark)
- 3 (a) (iv) The format of cell D5 is (1 mark)



3 (b)

Label	Formula
A	=SUM(D4:D10)
B	=B7*C7
C	=C6*D6
D	=SUM(D4:D8)
E	=A7*B7*C7

3 (b) (i) Write in the box the label of the formula in cell D7.

(1 mark)

3 (b) (ii) Write in the box the label of the formula in cell D10.

(1 mark)

3 (c) The price of a generator is reduced to £400.00.

3 (c) (i) Describe how the spreadsheet should be edited.

.....

.....

.....

.....

(2 marks)

3 (c) (ii) When the spreadsheet was edited, the values displayed in some cells changed automatically.

Write in the box the cell reference of **one** cell that changed automatically.
*(1 mark)***Question 3 continues on the next page****Turn over ▶**

3 (c) (iii) Tick **one** box to show why a cell would change automatically when another cell is edited.

	Tick one box
Spreadsheet cells are all linked	
The cell contains a formula that refers to the other cell	
All the cells know what is happening in other cells	
The cell contains a description that refers to the other cell	
The spreadsheet contains a graph	

(1 mark)

3 (d) The finance officer uses the spreadsheet to generate different types of graph.

3 (d) (i) Write down the type of graph using words from this list:

- scatter
- pie
- bar (or column)
- line
- stem and leaf

Type of graph:

.....



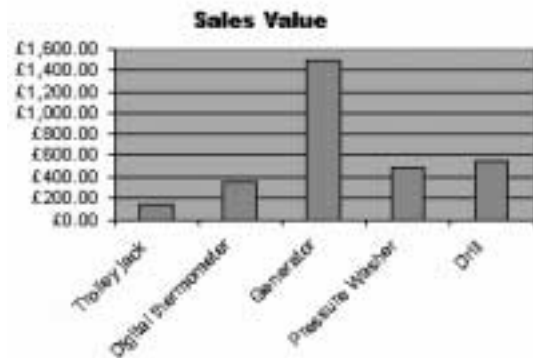
(1 mark)

3 (d) (ii) Write down the type of graph using words from this list:

- scatter
- pie
- bar (or column)
- line
- stem and leaf

Type of graph:

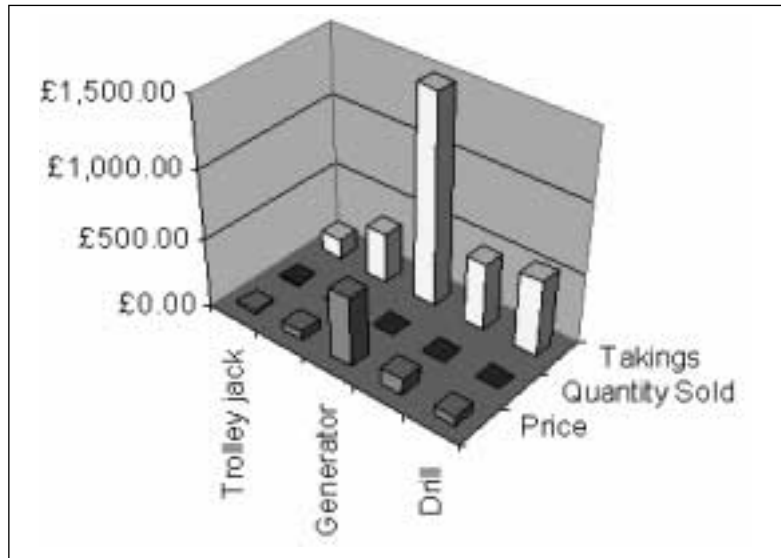
.....



(1 mark)



3 (d) (iii) Tick **three** boxes to show why the graph below is not very useful.



	Tick three boxes
The graph is printed in black and white	<input type="checkbox"/>
All the data cannot be seen as one column is blocking out another	<input type="checkbox"/>
Three dimensional graphs are not very useful	<input type="checkbox"/>
Some of the labels are missing	<input type="checkbox"/>
The scale used does not show the quantity sold	<input type="checkbox"/>
Only the finance officer understands it	<input type="checkbox"/>

(3 marks)

15

Turn over ▶



4 A Jazz Band uses a database to keep membership records. This is a part of the database.

Name	MemberNumber	Instrument
Hassini	2015	Guitar
Milner	0365	Saxophone
Flanagan	0112	Clarinet
Afzal	8231	Piano
Jowett	0112	Clarinet

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

player
record
code
field
file

4 (a) (i) All the data about a member is called a
(1 mark)

4 (a) (ii) An item of data about a member is called a
(1 mark)

4 (b) Tick **two** boxes to show other data about each member that should be included.

	Tick two boxes
Telephone number	
Age	
Date of birth	
Bank balance	
Medical record	

(2 marks)



4 (c) The **MemberNumber** 0112 is used twice.

4 (c) (i) Tick **two** boxes to show why this must be a mistake.

	Tick two boxes
All members who play the same instrument must have the same MemberNumber	
MemberNumber is the key field	
The key field must be a number	
The content of the key field must be unique	
All members with the same name must have the same MemberNumber	

(2 marks)

4 (c) (ii) Write down a valid **MemberNumber** for Jowett.

.....
(1 mark)

4 (d) Sort the part of the database shown below into ascending order on the **Name**.

Name
Hassini
Milner
Flanagan
Afzal
Jowett

Write the sorted database in this table.

Name

(2 marks)

Question 4 continues on the next page

Turn over ▶



- 4 (e) A questionnaire is to be designed for new members to fill in when they join the band. The questionnaire will be used for data capture. The data written on the questionnaire will be input to the computer.
- 4 (e) (i) Tick **two** boxes to show the ways that data written on the questionnaire can be input to a computer.

	Tick two boxes
Using a magnetic stripe card	
Using MICR (Magnetic Ink Character Recognition)	
Using a bar code	
Using a keyboard	
Using OCR (Optical Character Recognition)	

(2 marks)

4 (e) (ii) Design the questionnaire.

(4 marks)

15

Turn over ▶

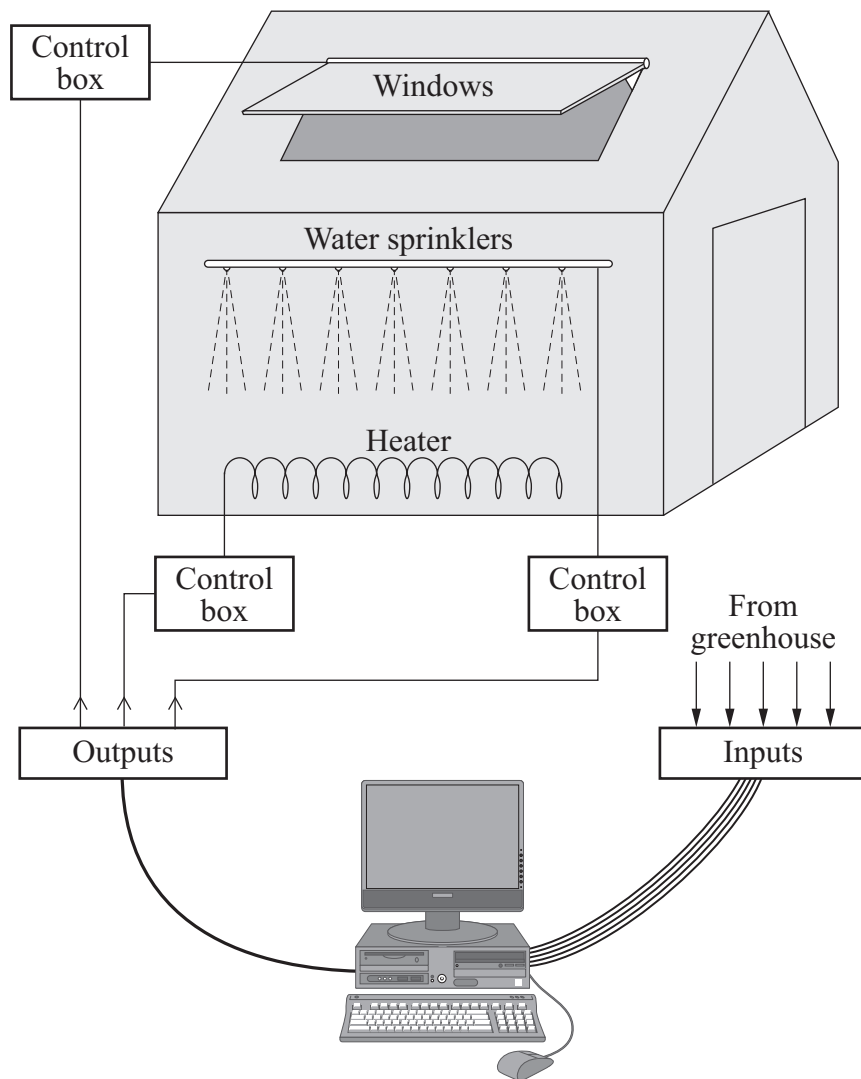


5 A garden centre uses a computer controlled greenhouse to grow plants. The computer is in the garden centre office which is remote from the greenhouse.

The computer can:

- turn the heater on or off
- turn the water sprinklers on or off
- open or close the windows.

The plants will die if the temperature is too hot or too cold, or the humidity is too wet or too dry.



5 (a) Tick **two** boxes to show what the computer can do to make the greenhouse hotter.

	Tick two boxes
Turn the heater off	
Close the windows	
Close the door	
Turn the heater on	
Plant tomatoes in the greenhouse	

(2 marks)

5 (b) Tick **two** boxes to show what the computer must know in order to control the greenhouse so the plants will grow.

	Tick two boxes
The best way to build a greenhouse	
The best temperature for plant growth	
The best humidity for plant growth	
How often to open the windows	
The best amount of daylight for plant growth	

(2 marks)

5 (c) Tick **two** boxes to show what data must be input to the computer from the greenhouse.

	Tick two boxes
The temperature in the greenhouse	
The temperature outside the greenhouse	
Whether it is raining	
Whether the sun is shining	
The humidity in the greenhouse	

(2 marks)

5 (d) Complete the sentences using words from this list:

- actuators
- tractors
- agricultural workers
- sensors
- digital cameras

5 (d) (i) To collect data from the greenhouse, the computer uses.....
(1 mark)

5 (d) (ii) To alter the temperature and humidity in the greenhouse, the computer
uses
(1 mark)

Turn over ▶



- 5 (e) Tick **three** boxes to show what is involved when feedback is used to maintain the correct humidity for the plants in the greenhouse.

	Tick three boxes
A sensor records the humidity and this is input to the computer	
The computer adjusts the water sprinklers to increase or decrease the humidity	
The computer opens the door to reduce the humidity	
A sensor records the colour of the sky	
The computer continually reacts to the input from sensors	
A sensor records how well the plants are growing	

(3 marks)

- 5 (f) Tick **three** boxes to show the advantages to the garden centre in using a computer controlled greenhouse.

	Tick three boxes
The growing conditions are always the best	
The greenhouse is monitored all day every day	
The soil in the greenhouse is sterilised regularly	
There is less wastage of water and heating than with manual systems	
The stock control system is automated	
It is more expensive to install a computer control system	

(3 marks)

- 5 (g) The garden centre relies on the computer control system and so staff do not visit the greenhouse very often. If the computer control system breaks down, the garden centre might not know soon enough to prevent the plants dying.

Describe how the computer control system can be set up to alert staff if there is a breakdown.

.....

(1 mark)



- 6 (a) Complete the sentences using words from this list:
 the application software
 a dialogue box
 an icon
 the keyboard
 the operating system

- 6 (a) (i) When a computer is turned on, the first program to run is

.....
 (1 mark)

- 6 (a) (ii) A spreadsheet can be opened by double clicking on

.....
 (1 mark)

- 6 (b) Data is entered into the computer from a questionnaire. This data is verified and then validated.

- 6 (b) (i) Tick **two** boxes to show verification checks.

	Tick two boxes
One person enters the data from the questionnaire; another person enters the data from the same questionnaire; the computer checks that both people have entered the same data	
The person entering the data looks to see that what is written on the questionnaire is the same as the data displayed on the screen	
A table lookup can be used, for example, to check spelling	
A type check can be used, for example, to check there are no numbers in someone's name	
The person who filled in the questionnaire is asked to sign it	

(2 marks)

Question 6 continues on the next page

Turn over ▶



- 6 (b) (ii) Tick **one** box to show the purpose of verification.

	Tick one box
To make sure that the data entered into the computer is the same as the data on the questionnaire	
To make sure that the data entered into the computer is numeric	
To make sure that the data written on the questionnaire is accurate	
To make sure that the data entered into the computer is realistic	
None of the above	

(1 mark)

- 6 (c) A range check has been set up in a spreadsheet to accept numbers within the range 0 to 10. The spreadsheet is being tested.

Tick **three** boxes to show tests that should be done and their expected outcome.

	Tick three boxes
Enter the letter B and this is accepted	
Enter the number -6 and this is accepted	
Enter the number 15 and this is accepted	
Enter the number 12 and this is rejected	
Enter the number 4 and this is accepted	
Enter the number 0 and this is accepted	

(3 marks)



6 (d) ISBN numbers are used to identify books. ISBN numbers have a check digit which is used for validation.

6 (d) (i) The ISBN number 0-415-19463-6 has a check digit of 6, and the ISBN 0-582-27544-X has a check digit of X. Write down the value that X represents.

.....
(1 mark)

6 (d) (ii) Tick **three** boxes to show which of these statements are true.

	Tick three boxes
The same ISBN number will have the same check digit	
The computer recalculates the check digit when an ISBN is input to see if a mistake has been made typing it in	
The computer always ignores the check digit	
Different ISBN numbers can have the same check digit	
Different copies of the same book will have different ISBN numbers	
ISBN numbers can be used to identify videos	

(3 marks)

6 (e) A desktop computer is not working properly and a technician has been asked to repair it. The technician sets up the computer and switches on the power at the electric socket. The screen remains blank and does not show any activity.

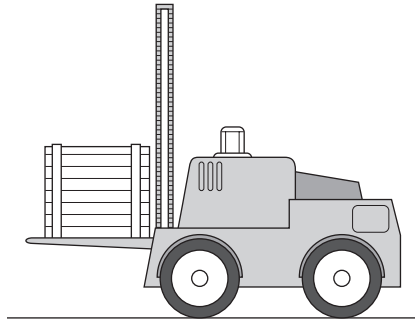
Tick **three** boxes to show what the technician should check.

	Tick three boxes
The zip drive has a disk in it	
The computer has been switched on at the processor box	
The computer has a DVD drive	
The screen has been switched on	
All the cables are firmly plugged into the correct sockets	
There are no USB cables plugged into the computer	

(3 marks)



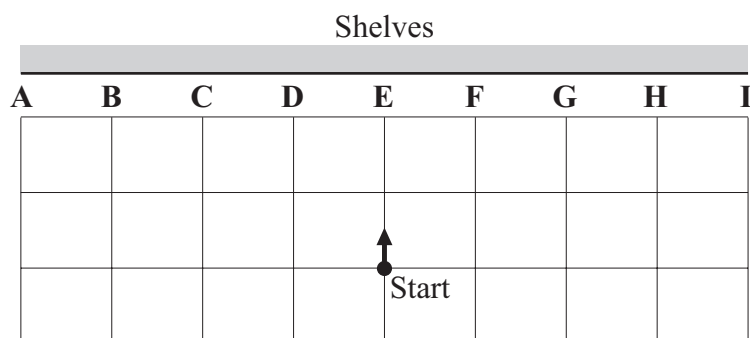
7 A computer controlled fork lift truck is used in a warehouse.



These are examples of instructions that can be used to control the fork lift truck.

Instruction	What the fork lift truck does
L90	Turn left 90 degrees
R90	Turn right 90 degrees
F3	Move forward 3 units
U3	Lift the forks to the third shelf
Push	Move the load onto the shelf
Pull	Take the load off the shelf

This is a floor plan of the warehouse.



Beginning at the Start shown, these instructions make the fork lift truck take the load off the 4th shelf at position H.

F2
R90
F3
L90
U4
Pull



7 (a) Write the instructions so that the fork lift truck puts a load on the 3rd shelf at position C. Begin at the Start shown.

.....
.....
.....
.....
.....
.....

(3 marks)

7 (b) Write the instructions so that the fork lift truck takes the load off the 2nd shelf at B and puts it on the 5th shelf at E. Begin at the Start shown.

.....
.....
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(3 marks)

Question 7 continues on the next page

Turn over ▶



7 (c) When the fork lift truck was at the Start shown it was given these instructions:

- F2
- L90
- F3
- L90
- U5
- Push

7 (c) (i) Explain why these instructions do not place the load on the 5th shelf at B.

.....

.....

(1 mark)

7 (c) (ii) Describe what happens to the load.

.....

.....

(1 mark)

7 (d) The fork lift truck takes goods out of the warehouse through doors that open and close automatically.
Write down the labels in order to show what happens when the fork lift truck goes through the automatic doors. Labels can be used more than once.

Label	
A	The fork lift truck goes through the doors
B	The computer tells the motors to open the doors
C	The sensor on the door does not detect the fork lift truck and tells the computer
D	The computer tells the motors to close the doors
E	The sensor on the door detects the fork lift truck and tells the computer

Label

(3 marks)



7 (e) Tick **two** boxes to show the effects of using a computer controlled fork lift truck.

	Tick two boxes
Stock checks can be carried out more frequently.	
There are fewer jobs for people if computer controlled fork lift trucks are used	
Goods in the shops will be more expensive	
People in other warehouses may have to work longer for less money to compete with warehouses that use computer controlled fork lift trucks	
A computer controlled fork lift truck is more environmentally friendly	

(2 marks)

7 (f) The fork lift truck can be controlled by the computer or it can be controlled by a human operator.

7 (f) (i) Give **one** advantage to the warehouse owners if a computer controlled fork lift truck is used.

.....

.....

(1 mark)

7 (f) (ii) Give **one** disadvantage to the warehouse owners if a computer controlled fork lift truck is used.

.....

.....

(1 mark)



8 To keep ICT hardware and software up-to-date, it is regularly upgraded. Hardware is often replaced every three years, and software is often replaced more frequently.

8 (a) Tick **three** boxes to show the effects of regularly upgrading ICT software and hardware.

	Tick three boxes
There are more TV channels than there used to be twenty years ago	
Employees are quickly deskilled	
Businesses go bankrupt	
Old software may not be able to process files produced by new software	
A large quantity of old ICT hardware needs to be disposed of	
Playing computer games improves your ability to concentrate	

(3 marks)

8 (b) Tick **three** boxes to show how businesses can ensure that the development of their ICT systems is sustainable.

	Tick three boxes
Regularly retrain employees	
Refurbish or recycle old ICT hardware	
Sack older employees and give their jobs to new University graduates	
Erect a windmill in the car park to generate electricity for the business	
Do not allow employees to travel to work by car	
Plan spending to allow for regular replacement of hardware and software	

(3 marks)



8 (c) Some businesses give old ICT hardware to charities to send to schools in developing countries.

8 (c) (i) Tick **three** boxes to show the advantages of doing this.

	Tick three boxes
Children can go to school every day	
Children can develop the skills needed to modernise their own country	
Children can use educational software which will help them to learn	
ICT hardware is used for longer before it is thrown out	
Children can learn Art	
Children can learn Mathematics	

(3 marks)

8 (c) (ii) Tick **three** boxes to show the disadvantages of doing this.

	Tick three boxes
The ICT hardware may not be useable because schools in developing countries may not have an adequate electricity supply	
Satellite TV signals cannot be received in developing countries	
Mobile phones cannot be used in developing countries	
Money spent on transporting old ICT hardware may be better spent on providing a clean water supply	
Developing countries use cabled networks rather than wireless networks	
ICT skills may not be useful to children in developing countries as there are few local jobs that require these skills	

(3 marks)

Question 8 continues on the next page

Turn over ▶



8 (d) Members of some religious groups refuse to use computers.
Discuss the advantages and disadvantages of refusing to use computers.

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.....

.....

.....

(3 marks)

15

END OF QUESTIONS

