

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/H
(SPECIFICATION B) (FULL COURSE)
Higher Tier

H



Tuesday 20 May 2008 1.30 pm to 3.30 pm

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

Time allowed: 2 hours

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			



3522/H

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 xxxxxxxxxxxxxx x
 xxxxxxx xxxxx xxxxxxxxxxx xxxxxxx xxxxxxxxxxx
 xxxxxxxxxxxxxx xxxxxxx xxxxxxxxxxxxxx ← **C**

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

Xxxxx xxxxxxxxxxx xxxxxx x xxxxxxxxxxxxxx x
 xxxxxxx xxxxx xxxxxxxxxxx xxxxxxx xxxxxxxxxxx
 xxxxxxxxxxxxxx xxxxxxx xxxxxxxxxxxxxx

Yours sincerely,
Mandy Shuttleworth
 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) The text at **C** is aligned so that it is left justified.
Describe the alignment of the logo at **A**.

.....

(1 mark)

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

.....

(2 marks)

Question 1 continues on the next page

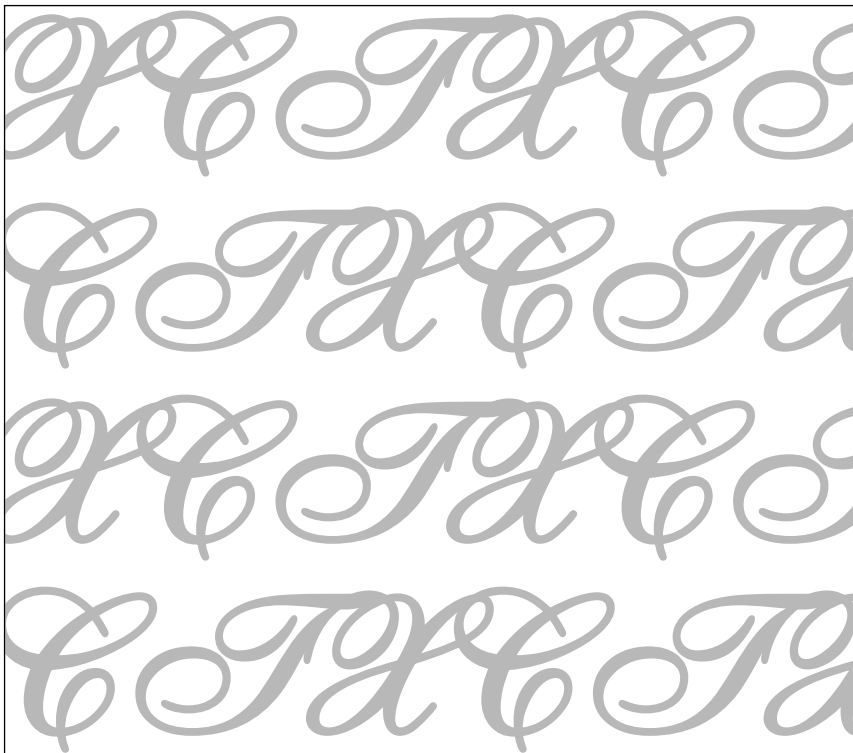
Turn over ▶



- 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) (i) Describe how the colour of the TXC logo could be changed.

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

(2 marks)

1 (e) (ii) Describe how the TXC logo can be enlarged.

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

(2 marks)

1 (e) (iii) Describe how the TXC logo can be repeated to produce the pattern.

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

(3 marks)

15

Turn over ▶



- 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 in the box the label of **one** input device that is in the table.

(1 mark)

- 2 (a) (ii) Write down the name of **one** input device that is **not** in the table.

.....

(1 mark)

- 2 (b) (i) Write in the box the label of **one** output device that is in the table.

(1 mark)

- 2 (b) (ii) Write down the name of **one** output device that is **not** in the table.

.....

(1 mark)

- 2 (c) (i) Write in the box the label of **one** backing storage device that is in the table.

(1 mark)

- 2 (c) (ii) Write down the name of **one** backing storage device that is **not** in the table.

.....

(1 mark)

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

- 2 (d) (i) Write in the box the label of the device that is needed to access the Internet.

(1 mark)



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

(1 mark)

- 2 (e) Describe **two** ways to increase the speed at which the student's computer can access the Internet.

Way 1:.....

Way 2:.....

(2 marks)

- 2 (f) 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)

- 2 (g) (i) Describe **one** way in which RAM memory and a hard disk are similar.

.....

(1 mark)

- 2 (g) (ii) Describe **one** way in which RAM memory and a hard disk are different.

.....

(1 mark)



- 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:

an equation
currency
a formula
a date
a number

3 (a) (i) The content of cell D5 is (1 mark)

3 (a) (ii) The format of cell D5 is (1 mark)

3 (b) Write down the formula in cell D10.

..... (2 marks)



- 3 (c) (i) The price of a generator is reduced to £400.00. When the spreadsheet was edited, the values displayed in some cells changed automatically. Write down the cell references of **two** cells that changed automatically. Write **one** cell reference in each box.

Cell reference 1:

Cell reference 2:

(2 marks)

- 3 (c) (ii) Explain why the values displayed in these cells changed automatically.

.....

.....

.....

.....

(2 marks)

- 3 (d) The finance officer uses the spreadsheet to generate a 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) Tick **one** box to show which of the following is true.

	Tick one box
It is easy to see the approximate sales value of each item of equipment	<input type="checkbox"/>
It is easy to see which equipment made the most profit	<input type="checkbox"/>
It is easy to see which equipment sold the largest quantity	<input type="checkbox"/>
It is easy to see the price of the equipment	<input type="checkbox"/>
It is easy to see the date	<input type="checkbox"/>

(1 mark)

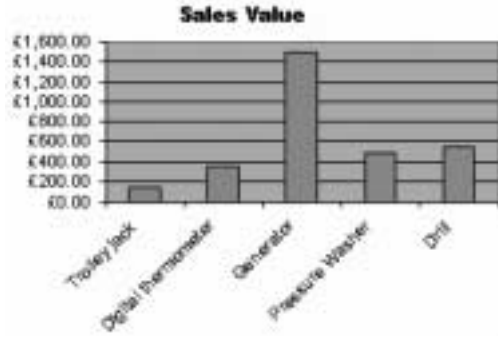
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3 (e) The finance officer uses the spreadsheet to generate another graph.

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

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



Type of graph:

.....

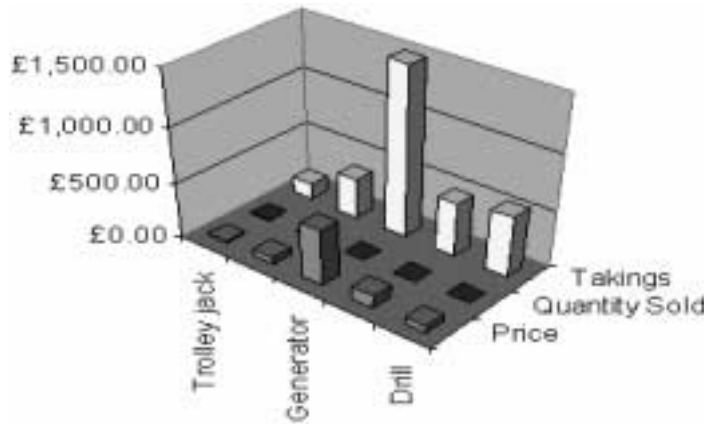
(1 mark)

3 (e) (ii) Tick **one** box to show which of the following is true.

	Tick one box
It is easy to see the approximate sales value of each item of equipment	<input type="checkbox"/>
It is easy to see which equipment made the most profit	<input type="checkbox"/>
It is easy to see which equipment sold the largest quantity	<input type="checkbox"/>
It is easy to see the price of the equipment	<input type="checkbox"/>
It is easy to see the date	<input type="checkbox"/>

(1 mark)

3 (f) The finance officer uses the spreadsheet to generate another graph.



Give **three** reasons why this graph is not very useful.

Reason 1:.....

.....

Reason 2:.....

.....

Reason 3:.....

.....

(3 marks)



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) State **two** other items of data about each member that could be included.

Item of data 1:

Item of data 2: (2 marks)

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

4 (c) (i) Explain why this must be a mistake.

.....

.....

.....

.....

(2 marks)

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

..... (1 mark)

Question 4 continues on the next page

Turn over ▶



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

Name
Hassini
Milner
Flanagan
Afzal
Jowett

Write the sorted database in this table.

Name

(2 marks)

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) Describe **two** ways that information written on a data capture form can be input to a computer.

Way 1:

.....

Way 2:

.....

(2 marks)



4 (e) (ii) Design the questionnaire.

(4 marks)

15

Turn over ▶

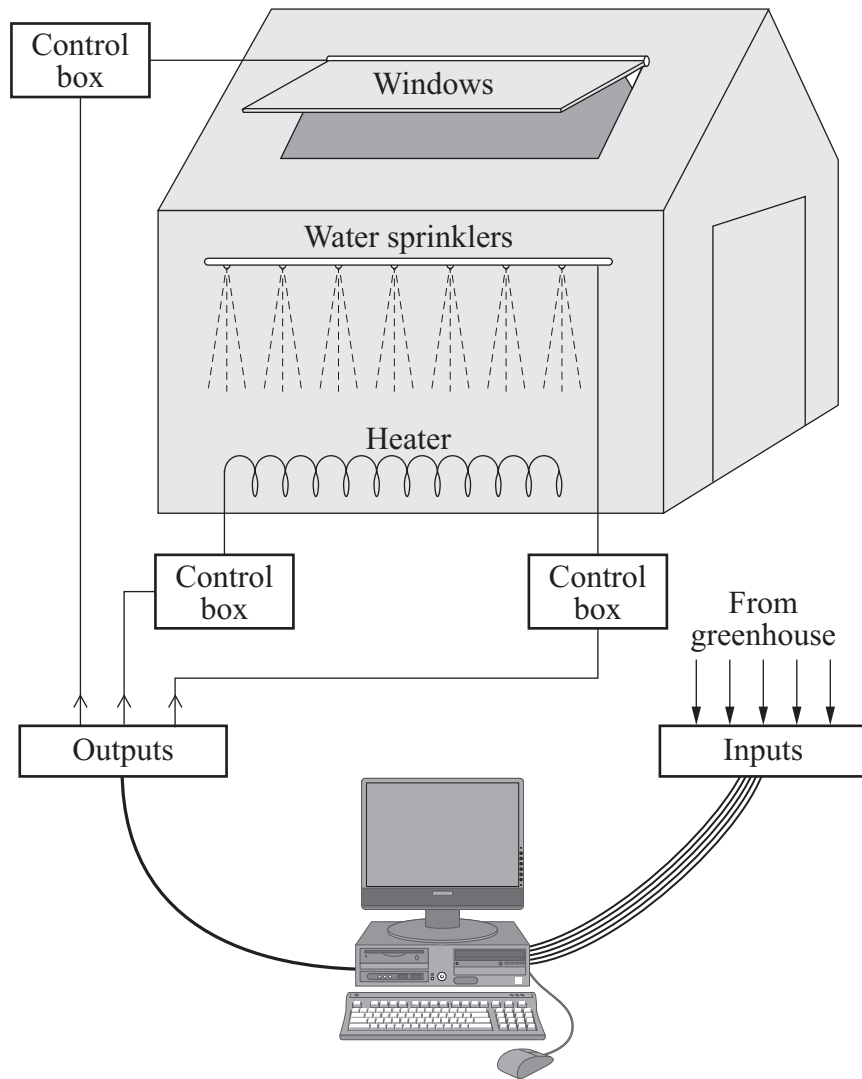


5 A garden centre uses a computer controlled greenhouse to grow plants. The computer is in the garden centre office which is remote from the greenhouse.

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) Describe **one** action the computer can do to make the greenhouse hotter.

.....

.....

(1 mark)



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) Describe **one** item of data that must be input to the computer from the greenhouse.

.....

.....

(1 mark)

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)

5 (e) In the context of the computer controlled greenhouse, describe what is meant by *feedback*.

.....

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(3 marks)

Turn over ▶



5 (f) Discuss the advantages and disadvantages to the garden centre in using a computer controlled greenhouse.

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(4 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.

.....

.....

.....

.....

(2 marks)

15



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

6 (a) (i) Tick **one** box to show a verification check.

	Tick one box
One person enters the data from the questionnaire; the same person enters the same data again	
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	
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	

(1 mark)

6 (a) (ii) Describe **one** other verification check.

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.....

.....

.....

(1 mark)

6 (a) (iii) State the purpose of verification.

.....

.....

(1 mark)

Question 6 continues on the next page

Turn over ▶



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

6 (b) (i) Tick **two** boxes to show tests that should be done and their expected outcome.

	Tick two 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 0 and this is accepted	

(2 marks)

6 (b) (ii) Complete the sentence to describe **one** other test and its expected outcome.

Enter the number and this is

(1 mark)

6 (c) ISBN numbers are used to identify books. ISBN numbers have a check digit which is used for validation. The check digit is the right hand digit of the ISBN.

Each digit of an ISBN has a weight. If the check digit is correct, the sum of each digit multiplied by its weight can be divided by 11 with no remainder.

For the ISBN 0-415-19463-6, this is how the calculation is done:

Digit	0	-	4	1	5	-	1	9	4	6	3	-	6
Weight	10		9	8	7		6	5	4	3	2		1
Digit*Weight	0		36	8	35		6	45	16	18	6		6

The sum of each digit multiplied by its weight

$$= 0+36+8+35+6+45+16+18+6+6$$

$$= 176$$

The sum divided by 11 is 16 remainder 0.

Because the sum of each digit multiplied by its weight can be divided by 11 with no remainder, the check digit is **CORRECT**.



- 6 (c) (i) For ISBN 1-405-80210-3, complete the calculation and state whether the check digit is CORRECT or NOT CORRECT.

Digit	1	-	4	0	5	-	8	0	2	1	0	-	3
Weight	10		9	8	7		6	5	4	3	2		1
Digit*Weight													

The sum of each digit multiplied by its weight

.....

.....

.....

The sum divided by 11 is remainder

State whether the check digit is CORRECT or NOT CORRECT

.....

(4 marks)

- 6 (c) (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)

Question 6 continues on the next page

Turn over ▶



6 (d) 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.

6 (d) (i) Tick **one** box to show what the technician should check.

	Tick one box
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 PDA is not attached to the computer	
There are no USB cables plugged into the computer	

(1 mark)

6 (d) (ii) Describe **one** other check the technician should make.

.....

.....

(1 mark)



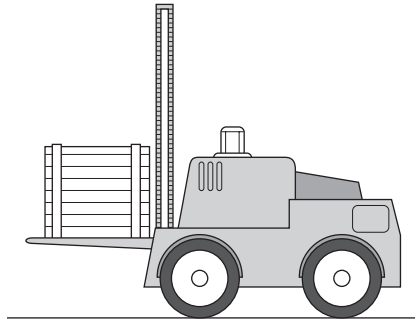
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ANSWER IN THE SPACES PROVIDED**

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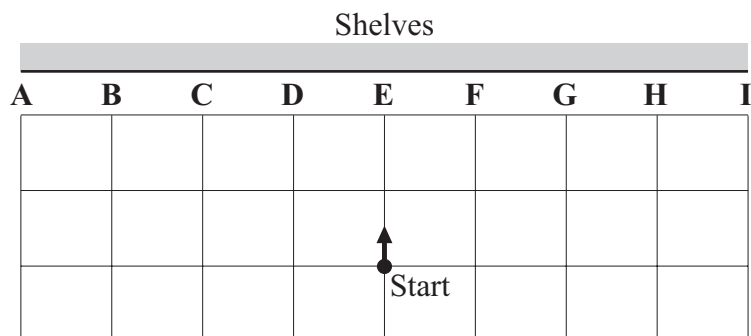
7 A computer controlled fork lift truck is used in a warehouse.



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.

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.....
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(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)



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) (i) Tick **two** boxes to show the effects of regularly upgrading ICT software and hardware.

	Tick two boxes
There are more TV channels than there used to be twenty years ago	
Employees are quickly deskilled	
Businesses go bankrupt	
A large quantity of old ICT hardware needs to be disposed of	
Playing computer games improves your ability to concentrate	

(2 marks)

8 (a) (ii) Describe **one** other effect of regularly upgrading ICT software and hardware.

.....
(1 mark)

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

	Tick two boxes
Regularly retrain employees	
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	

(2 marks)

8 (b) (ii) Describe **one** other way businesses can ensure the development of their ICT systems is sustainable.

.....
(1 mark)



There are no questions printed on this page

