General Certificate of Secondary Education
June 2004

INFORMATION AND COMMUNICATION TECHNOLOGY 3521/F
SPECIFICATION A (FULL COURSE)
Foundation Tier

AQA

ASSESSMENT and
QUALIFICATIONS
ALLIANCE

Monday 24 May 2004 1.30 pm to 3.00 pm

F

No additional materials are required.
You may use a calculator.

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 80.
- Mark allocations are shown in brackets.

3521/F

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

1 (a) From the box given below, choose **three** that are **input devices**.

Input device 1: ....

Input device 2: ....

Input device 3: ....

(3 marks)

CD-ROM	Light pen
DVD ROM	Monitor
DVD RAM	Mouse
Graphics digitiser	Plotter
Hard disk	ROM
Keyboard	Sensor
Laser printer	Speaker

(b) Name **one** other input device **not** given in the box above.

....

(1 mark)

(c) From the box given above, choose **two** that are **output devices**.

Output device 1:..

Output device 2:..

(2 marks)

(d) Name **one** other output device **not** given in the box above.

....

(1 mark)

(e) From the box given above, choose **two** that are **storage media**.

Storage media 1: ....

Storage media 2: ....

(2 marks)

$\frac{}{9}$

2 A company sells books, magazines and CDs on the Internet.

(a) Describe **three** advantages of selling books on the Internet rather than from a shop.

Advantage 1:...

....

....

Advantage 2:...

....

....

Advantage 3 ....

....

....

(3 marks)

(b) Describe **two** disadvantages of selling books on the Internet rather than from a shop.

Disadvantage 1: ....

....

....

Disadvantage 2: ....

....

....

(2 marks)

$\overline{5}$

TURN OVER FOR THE NEXT QUESTION

3 A form tutor uses a spreadsheet to investigate the cost of taking pupils on a day trip to a theme park. The spreadsheet is shown below.

	A	B	C	D
1	**Theme Park Plan**			
2	**Date of trip**	**27 July 2004**		
3	**Number of pupils**	30		
4				
5	**Item**		**Cost**	
6	Coach		£100.00	
7	Entry (per pupil)	£8.95	£268.50	
8	Lunch (per pupil)	£3.95	£118.50	
9				
10		**Total cost**	£487.00	
11				
12	**Total cost per pupil**		£16.23	
13				

(a) (i)   The cost of the coach is increased. Name the cell whose contents would have to be changed.

Cell: ....
(1 mark)

(ii) Name the **two** cells whose contents would change automatically as a result.

Cell 1: ....

Cell 2: ....
(2 marks)

(b) Give **three** cell formats that have been used in this spreadsheet.

Format 1:...

Format 2:...

Format 3:...
(3 marks)

(c) Give **two** advantages of using a spreadsheet to work out the cost of the trip, compared with working out the cost by hand.

Advantage 1:...

....

Advantage 2:...

....
(2 marks)

8

4 In the space below, finish the design of a Data Capture Form for people applying to join a Video Rental Club. Care should be taken to include suitable fields and enough space to fill in their details.

Vic's Videos

First Name

(8 marks)

5 A supermarket stores food it needs to keep cool in large chilling cabinets. The temperature of these must be kept between 1 °C and 4 °C. If the temperature rises too high the chilling units in these cabinets are turned on. The supermarket manager uses a feedback and monitoring system to control the temperature of the chilling cabinets.

(a) Using the **letter** next to the phrases given below, complete the flowchart to show how this system works.
The first box has been completed for you.

A: Turn on the chilling units
B: Remove the chilling units
C: Read the temperature inside the chilling cabinet
D: Is the temperature less than 4 °C?
E: Is the temperature at least -2 °C?
F: Turn off the chilling units
G: Is the temperature greater than 1 °C?
H: Print out the temperature
I: Open the supermarket

START

C

No

Yes

No

Yes
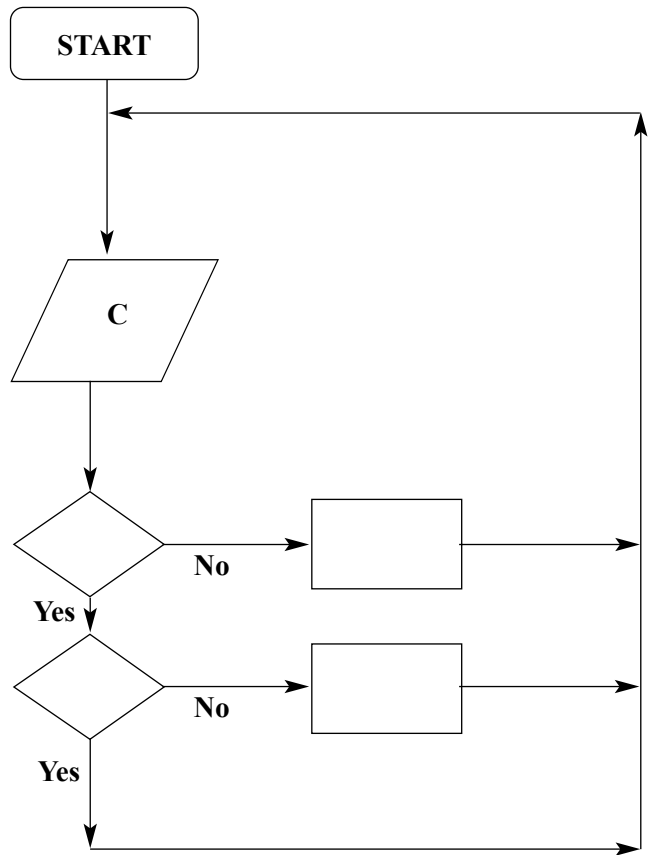
(4 marks)

(b) What device would be used to read the temperature inside the chilling cabinets?

....
(1 mark)

(c) How often should the temperature be read?

....
(1 mark)

(d) Why does the flowchart **not** have a FINISH box?

....
(1 mark)

7

6 A garden centre wants to use a software package to improve its advertising leaflet. This leaflet will give details of the garden centre's opening hours, contact details and a range of the products it sells.

(a) State the best type of software to use to improve the leaflet.

....

(1 mark)

(b) Name **four** features of the software that make it suitable for improving the leaflet. Give a different reason for each.

Feature 1: ....

Reason 1: ....

....

Feature 2: ....

Reason 2: ....

....

Feature 3: ....

Reason 3: ....

....

Feature 4: ....

Reason 4: ....

....

(8 marks)

9

TURN OVER FOR THE NEXT QUESTION

7 In the table below, tick **three** boxes to show tasks that are carried out by operating systems.

	Tick **three** boxes
Word processes important documents	
Manages time allocations for tasks	
Allocates memory for storing programs	
Validates all data in a spreadsheet	
Handles input and output operations	
Detects viruses	

(3 marks)

3

8 Sarah Brown wants to change her password which gives her access to the school network. She has thought of four possible new passwords which are:

Sarah
Brown456
MTV999
Qszxfg7596

(a) State which of these passwords would be the **most secure** and give a reason for your choice.

Password: ....
(1 mark)

Reason: ....

....
(1 mark)

(b) State which of these passwords would be the **least secure** and give a reason for your choice.

Password: ....
(1 mark)

Reason: ....

....
(1 mark)

(c) The school also uses virus protection software to help prevent the loss of data from its network.

(i) Explain what is meant by the term virus. ....

....

....
(2 marks)

(ii) Describe how a virus might get onto the school network. ....

....

....
(1 mark)

(d) As an added security measure the school is looking at installing data encryption software.

Describe what is meant by data encryption. ....

....

....
(1 mark)

Turn over ▶

9 A graphic design company is buying a computer system which will be used to produce detailed designs for a wide range of products. The company has been advised to buy a system with the following hardware specification:

At least 1 Gigabyte of RAM
21-inch high resolution colour monitor
At least 200 Gigabyte hard disk
At least 3 GHz processor
CD-R

Explain why each of these is necessary for this application.

(a) At least 1 Gigabyte of RAM

....

....

(1 mark)

(b) 21-inch high resolution colour monitor

....

....

(1 mark)

(c) At least 200 Gigabyte hard disk

....

....

(1 mark)

(d) At least 3 GHz processor

....

....

(1 mark)

(e) CD-R

....

....

(1 mark)

5

10 A computerised seat booking system is going to be installed in a cinema. The system will use a graphical user interface (GUI).

(a) Give **three** factors that should be considered when designing the new user interface.

Factor 1: ....

    ....

Factor 2: ....

    ....

Factor 3: ....

    ....

(3 marks)

(b) Name **two** other types of user interface that could have been used.

User interface 1: ....

User interface 2: ....

(2 marks)

$\overline{5}$

TURN OVER FOR THE NEXT QUESTION

Turn over ▶

11 A computer system controls a robot turtle. At the front, the turtle holds a pen. When the turtle moves, the pen leaves a line on the paper beneath it.

The turtle is moved by typing commands into the computer system.

The commands which are used to move the turtle are as follows:

PENUP
PENDOWN
FORWARD distance   (in mm)
BACKWARD distance   (in mm)
LEFT angle   (in degrees)
RIGHT angle   (in degrees)

PENUP would lift the pen up from the paper. No line would be drawn until there is a PENDOWN command.

PENDOWN would put the pen down onto the paper and a line would be drawn until there is a PENUP command.

FORWARD 5 would move the turtle forward 5 mm.

BACKWARD 5 would move the turtle backward 5 mm.

LEFT 45 would turn the turtle left through an angle of 45 degrees.

RIGHT 45 would turn the turtle right through an angle of 45 degrees.

The inner shape is square with each side 30 mm long. There is a gap of 10 mm between the sides of the 30 mm square and the sides of the 50 mm square.

50 mm

Command List

PENUP
PENDOWN
FORWARD 10
FORWARD 30
FORWARD 50
FORWARD 60
RIGHT 90
LEFT 90

50 mm   30 mm

30 mm

30 mm   30 mm   50 mm

30 mm

10 mm   50 mm

Using **only** the commands in the Command List opposite, write down the set of instructions needed to draw this shape. You may need to use some of the commands in the list more than once.

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

....

(6 marks)

6

Turn over ▶
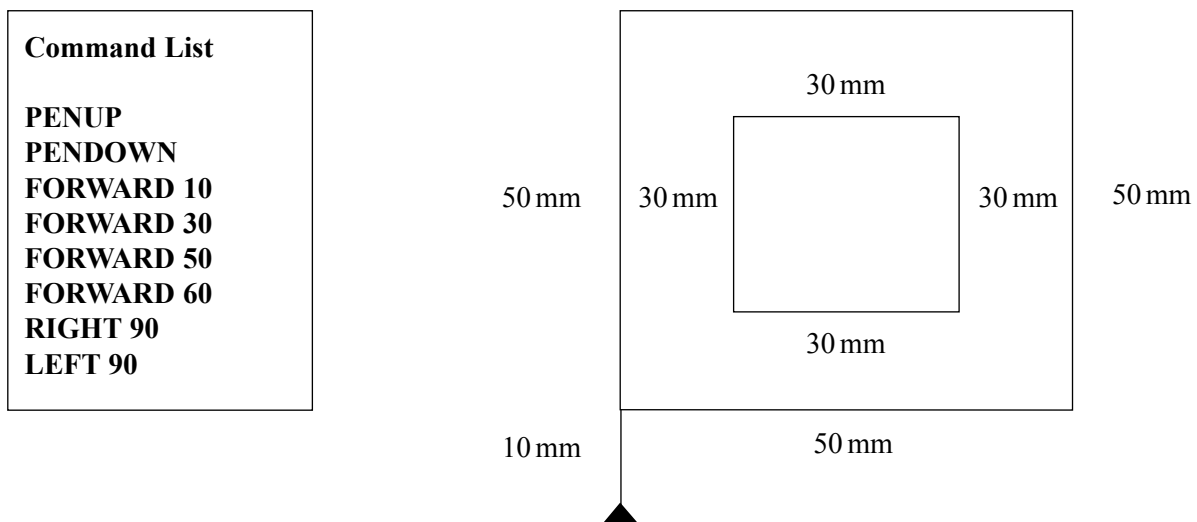
12   The increasing use of e-mail as a means of communication is sometimes replacing the more traditional methods such as telephone and post.

(a)   Describe what is meant by e-mail. ....

....

....

(2 marks)

(b)   Give **three** advantages of using e-mail as a means of communication compared to using **post**.

Advantage 1:...

....

Advantage 2:...

....

Advantage 3:...

....

(3 marks)

(c)   Give **two** disadvantages of using e-mail as a means of communication compared to using the **telephone**.

Disadvantage 1: ....

....

Disadvantage 2: ....

....

(2 marks)

END OF QUESTIONS

THERE ARE NO QUESTIONS PRINTED ON THIS PAGE

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