Surname		Other Names	
Centre Number		Candidate Number	
Candidate Signature			

General Certificate of Secondary Education
June 2005

**INFORMATION AND COMMUNICATION TECHNOLOGY   3528/H
(SPECIFICATION B)(SHORT COURSE)**
Higher Tier

AQA
ASSESSMENT and
QUALIFICATIONS
ALLIANCE

Monday 23 May 2005   1.30 pm to 3.00 pm

H

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

No additional materials are required.
You may use a calculator.
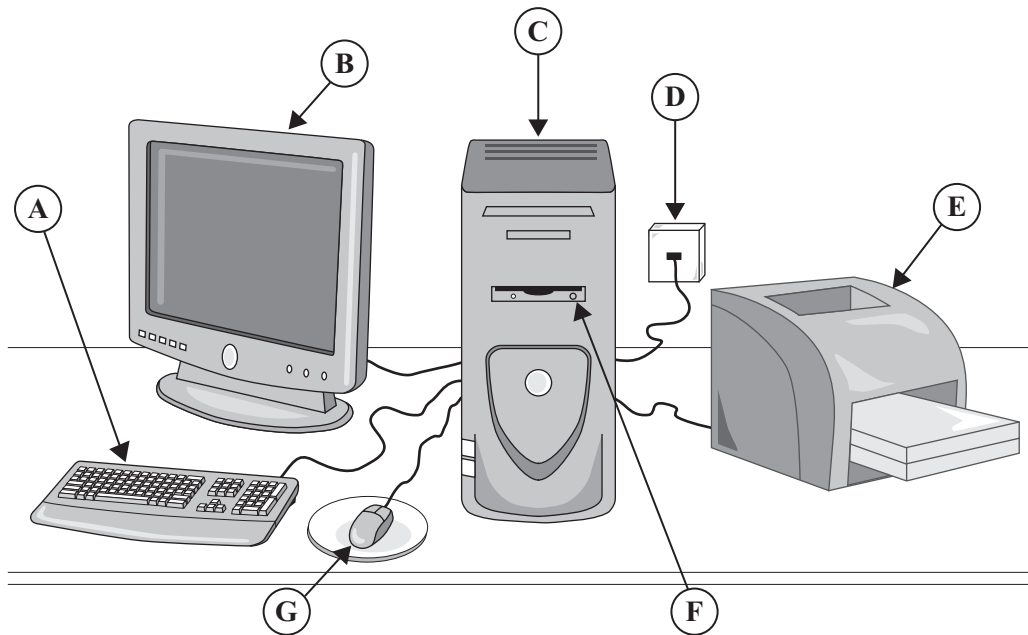
Time allowed: 1 hour 30 minutes

Instructions.
• Use 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 60.
• Mark allocations are shown in brackets.

3528/H

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

1   This is a diagram of a desktop computer system.

(a)   Join each part of the computer system to a task it is used for.   One join has been done for you.

Part of the computer   **Task**

D   •   • selects from a menu

E   •   • contains the processor, memory and hard disk

C   •   • connects to the Internet

G   •   • prints letters and other documents

(3 marks)

(b)   The computer has this software.

Spreadsheet
Web browser
Wordprocessor
Database
E-mail

From the list, write down the type of software that is most likely to be used to:

(i)   work out a budget;

....
(1 mark)

(ii)   buy a book or CD on-line.

....
(1 mark)

(c)   Describe what must be done to prevent loss or corruption of the data on a hard disk.

....

....

....

....

....

....
(3 marks)

8

TURN OVER FOR THE NEXT QUESTION

2   A local supermarket has eight checkouts.

The manager uses a spreadsheet model to find out the average time customers have to queue.
This is a screen display from the model.

	A	B	C
1	Total number of customers waiting	32	
2	Number of checkouts in use	4	
3	Average number of customers at each checkout	8	
4	Time to process a customer at a checkout	3	minutes
5	The average time customers have to queue	24	minutes

(a)   (i)   The manager wants to shorten the average time customers have to queue.
The number of checkouts in use is increased to eight.
Complete the diagram of the screen display to show the effect of this.

	A	B	C
1	Total number of customers waiting	32	
2	Number of checkouts in use	8	
3	Average number of customers at each checkout	4	
4	Time to process a customer at a checkout	3	minutes
5	The average time customers have to queue		minutes

(1 mark)

(ii)   Write down the formula that would be in cell B5.

....

(1 mark)

(iii)   The manager wants to shorten the average time customers have to queue.
Describe **two** ways to achieve this.

Way 1: ....

....

Way 2: ....

....

(2 marks)

(b) The checkouts are connected to the computer in the manager's office.
Some of the data input to the model could be collected using either a manual or an automatic method.

Describe **one** manual and **one** automatic method of collecting the following data.

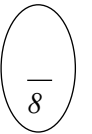Data to be collected: Time to process a customer at a checkout

Manual method: ....

....

Automatic method: ....

....

(2 marks)

(c) Describe how this model could be used to help design a new supermarket.

....

....

....

....

(2 marks)

8

TURN OVER FOR THE NEXT QUESTION

3 XLOG organises international parcel post.
It has offices in London, Manchester, Leeds, Liverpool and Sheffield.
XLOG uses a database to track parcels in transit. This is a part of the database.

Parcel_Number	Customer	Content	Posted_At	Destination
0092	Jones	Clothes	Manchester	Auckland
0297	Patel	CDs	London	Sydney
0453	Bowman	Books	Sheffield	Dijon
0870	Patel	Telephones	Leeds	Berne
0521	Rooney	CDs	Manchester	Toronto
0115	Afzal	Files	Liverpool	Chicago
0033	Delker	CDs	Sheffield	Amsterdam
0676	Rooney	Books	Leeds	Hong Kong

(a) (i) State the name of the key field.

....
(1 mark)

(ii) Explain why a key field is used.

....

....
(1 mark)

(b) An employee tries to add this incorrect record to the database.

Parcel_Number	Customer	Content	Posted_At	Destination
0297	Farthing	CDs	Manchester	Berne

Explain why the database should reject this record.

....

....

....

....
(2 marks)

(c) An employee tries to add this incorrect record to the database.

Parcel_Number	Customer	Content	Posted_At	Destination
0047	Kapila	Manchester	Medicines	Delhi

(i) Explain why the database should reject this record.

....

....
(1 mark)

(ii)   Tick **one** box to show an effect of storing incorrect data in a database.

	Tick **one** box
The records selected by a search condition will always have some records missing	
The database software will run faster	
The database will need more space on the hard disk	
The database software will not run	
Sometimes records that should be selected by a search condition will not be selected	

(1 mark)

(d)   Write down the **Customer(s)** selected using each of these search conditions.

(i)   Search Condition: **Content** is CDs AND **Posted_At** is Manchester

Customer(s) selected:..

(1 mark)

(ii)   Search Condition: **Posted_At** is London OR **Destination** is Amsterdam

Customer(s) selected:..

(1 mark)

$\frac{}{8}$

TURN OVER FOR THE NEXT QUESTION

Turn over ▶

4 (a) A teacher uses wordprocessing software.

Describe **two** differences between word A and word B.

<table>
<tr><td align="center">**word A**
Technology</td><td align="center">**word B**
<u>Technology</u></td></tr>
</table>

Difference 1: ....

....

Difference 2: ....

....

(2 marks)

(b) This object is inserted in a document.

Complete the sentence using a word from this list.

     space
     pie chart
     word art
     font
     style

This is a .... object.

(1 mark)

(c)   The teacher is using presentation software.

B

A

GCSE ICT
- Good skills and knowledge
- Well motivated
- Good progress
- Interesting curriculum
- Excellent coursework
- Good results
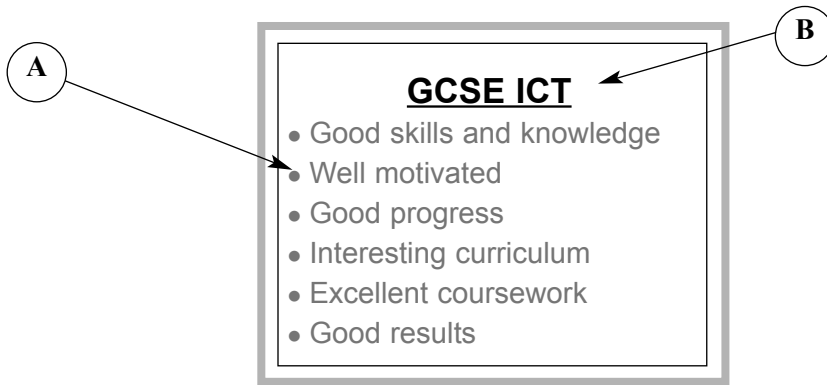
Complete the sentences using words from this list.

> right justified
> bullet
> wizard
> border
> centred

Label **A** points at a ....

Label **B** points at the heading which is ....

(2 marks)

(d)   **Screen A**   **Screen B**

Information and Communication Technology									
GCSE ICT	A	B	C	D	E	F	G	U	Number entered
Percentage awarded each grade	15%	20%	20%	20%	15%	5%	4%	1%	150

Pupils make very good progress in ICT lessons in Key Stage 4 and good progress in Key Stage 3. They listen carefully, work independently, and show interest and sustained concentration. In ICT lessons in Key Stage 3, pupils work through well structured worksheets that ensure they keep records of

stage 4, pupils make very good progress with GCSE coursework tasks that are demanding, and they produce substantial and detailed work. In lessons in Key Stage 3, most pupils co-operate effectively, working in pairs and sharing a computer most of the time. GCSE pupils almost always have sole example, in Key Stage

3, pupils understanding of the logic of a flowchart to control the temperature in a greenhouse is developed through challenging, step-by-step questioning by the teacher. The atmosphere in the classroom is relaxed, and teachers support and encourage their pupils.

GCSE ICT

- Good skills and knowledge
- Well motivated
- Good progress
- Interesting curriculum
- Excellent coursework
- Good results

Give **two** reasons why **Screen B** is better than **Screen A** for presentations to a large audience.

Reason 1: ....

....

Reason 2: ....

....

(2 marks)

5 A robot vacuum cleaner (R) can move around a room cleaning the carpet.
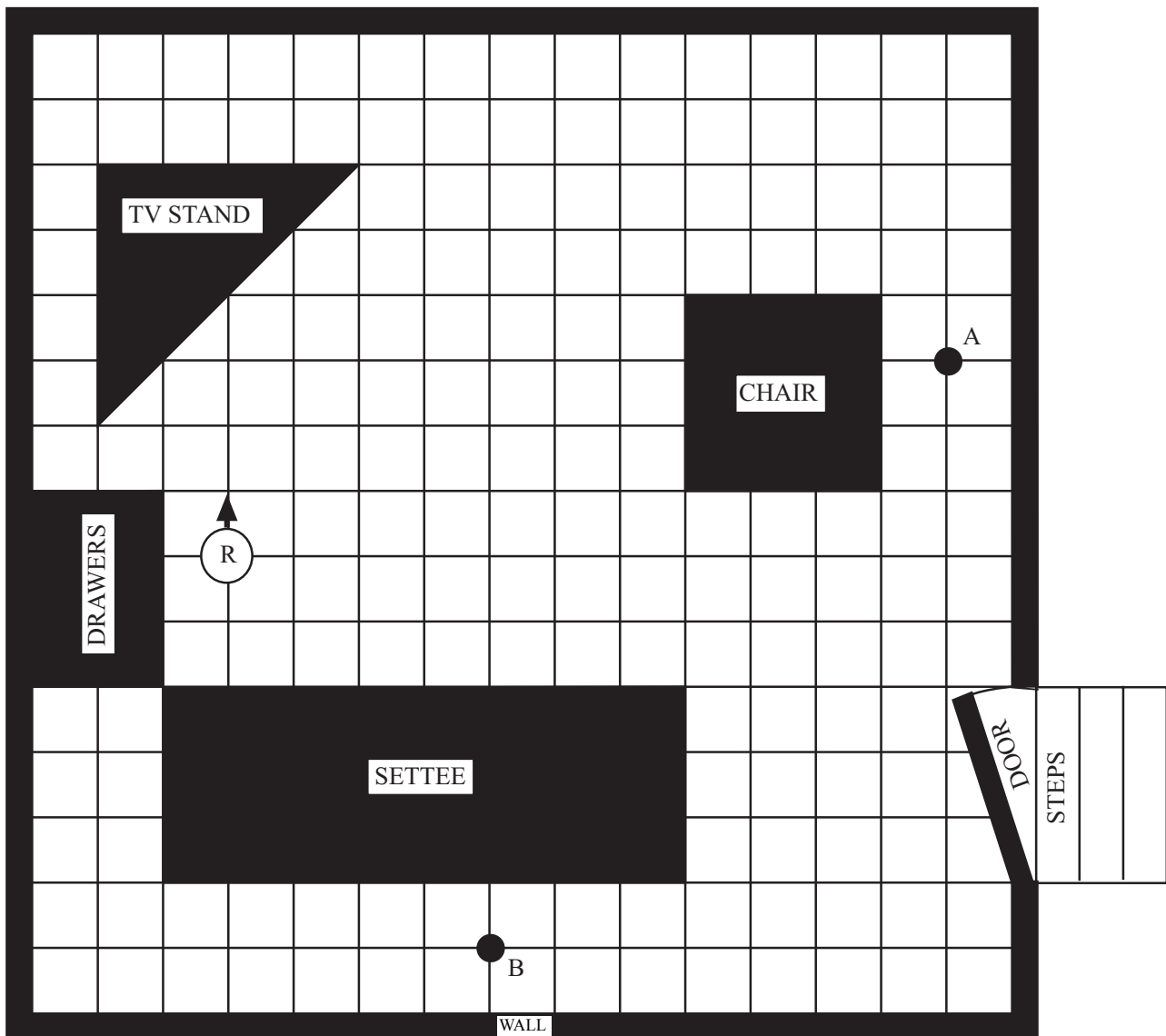
(a) The robot vacuum cleaner can be operated manually from a remote control unit by entering instructions. These are examples of the instructions that can be entered.

Instruction	What the robot vacuum cleaner does
F3	Moves forward 3 squares only
B2	Moves backwards 2 squares only
L	Turns to the left through 90 degrees
R	Turns to the right through 90 degrees

The robot vacuum cleaner is pointing in the direction shown by the arrow.
These instructions would move the robot from the position shown to point A.

R
F11
L
F3

Write the instructions to move the robot from the position shown to point B.

....

....

....

....

....

....

....

....

(2 marks)

(b)   When the door is left open, the vacuum cleaner can go through it and fall down the steps.

(i)   On the diagram, put a cross where you would locate a sensor to detect if there were steps.
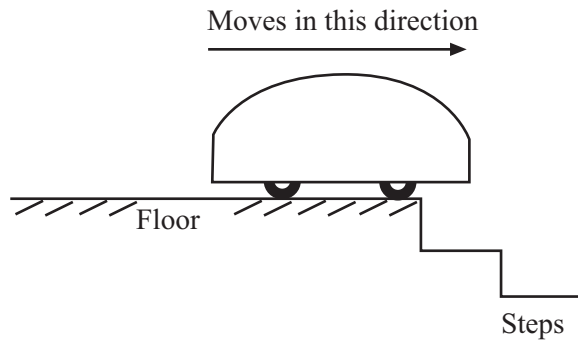
(1 mark)

(ii)   State the type of sensor that should be used to detect the steps.

....

(1 mark)

(iii)   Describe what the robot should do if steps are detected.

....

....

(1 mark)

QUESTION 5 CONTINUES ON THE NEXT PAGE

(iv)   The robot uses feedback to avoid the steps.
       Describe what is meant by feedback.

....

....

....

....

....

....

(3 marks)

$\overline{8}$

6 (a) (i) Tick **one** box to show the name of an input device.

	Tick **one** box
processor	
floppy disk	
mouse	
hard disk	
speakers	

(1 mark)

(ii) Tick **one** box to show the name of an output device.

	Tick **one** box
processor	
floppy disk	
mouse	
hard disk	
speakers	

(1 mark)

(b) Tablet computers and PDAs (Personal Digital Assistants) have touch screens.

Describe **one** way in which a touch screen and a standard monitor screen are different.

....

....

(1 mark)

(c) Draw a diagram of a LAN (Local Area Network) showing a file server and at least three computers connected to the network.
You should show on your diagram other networked and local hardware.

(4 marks)

Turn over ▶

7

7 A council wants to charge motorists when they take their cars into the city centre.
The charge will depend on the length of time a car stays in the city centre.
The council is thinking of using an ICT system to do this.

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

Documentation
Testing
Systems Analysis and Design
Implementation

.... is the production of a detailed plan of the proposed
ICT system.

.... includes installing all the hardware and software.

(2 marks)

(b) To show how the ICT system would calculate the charge for a car, write the labels of the actions
in the order they would be carried out.

The first two labels and the last label have been done for you.

Labels may be used more than once.

Label	Action
A	Record the time
B	Identify the car as it enters the city centre
C	Send the motorist the bill
D	Calculate the charge
E	Calculate the time the car has been in the city centre
F	Identify the car as it leaves the city centre

Label
B
A
C

(2 marks)

(c) Discuss the advantages **and** disadvantages to the council, businesses and the community of using this ICT system.

....

....

....

....

....

....

(3 marks)

7

TURN OVER FOR THE NEXT QUESTION

8 The Internet and the Web give access to large volumes of information, and this is often uncensored. Some countries welcome access to the Internet, but also want to preserve their traditional ways of life. They are concerned about the impact the Internet could have on their ways of life.

(a) Some countries believe that the impact on their traditional ways of life can be avoided, while taking advantage of the business opportunities. They try to achieve this by allowing Internet access only in businesses, but not in people's homes.
Discuss the reasons why this might or might not work.

....

....

....

....

....

....

....

....

(3 marks)

(b) The Internet is part of a trend towards globalisation.
Discuss the advantages **and** disadvantages of globalisation to an individual country.

....

....

....

....

....

....

....

....

....

....

(4 marks)

7

END OF QUESTIONS