

Centre Number	Candidate Number	Name
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UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
International General Certificate of Secondary Education

**INFORMATION TECHNOLOGY** **0418/01**

Paper 1 May/June 2006

Candidates answer on the Question Paper. **2 hours**  
No Additional Materials are required.

**READ THESE INSTRUCTIONS FIRST**

Write your Centre number, candidate number and name on all the work you hand in.  
Write in dark blue or black pen.  
You may use a soft pencil for any diagrams, graphs, or rough working.  
Do not use staples, paper clips, highlighters, glue or correction fluid.

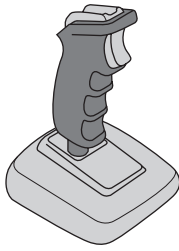
Answer **all** questions.

At the end of the examination, fasten all your work securely together.  
The number of marks is given in brackets [ ] at the end of each question or part question.

	<b>For Examiner's Use</b>

1 Name the objects A, B, C, D and E using the words from the list.

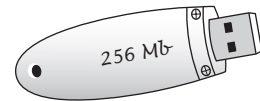
A



B



C



D



E



Bar code reader

CD ROM drive

Digital camera

Floppy disc

Joystick

Keyboard

Memory stick

Modem

Mouse

Printer

Scanner

Web cam

A .....

B .....

C .....

D .....

E .....

[5]

2 Ring **two** input devices.

Bar code reader

Joystick

Monitor

Plotter

Printer

Speaker

[2]

- 3 Draw **five** lines on the diagram to match the software to how it would be used.

Software	Use
<b>Control program</b>	<b>typing letters</b>
<b>Database</b>	<b>automatic washing machine</b>
<b>Measuring program</b>	<b>storing records of books in a library</b>
<b>Search engine</b>	<b>monitoring rainfall in a weather station</b>
<b>Word processor</b>	<b>doing research on the Internet</b>

[5]

- 4 Documentation is produced for a new database system. Tick whether the following are found in the Evaluation or the Implementation section.

	Evaluation	Implementation
Identifying any necessary improvements to the system		
Running the new system		
Testing the new system		
Comparing the solution with the original task requirements		

[4]

- 5 Tick **three** items of hardware that would be used to make a purchase using Electronic Funds Transfer.

	✓
Magnetic Stripe reader	
Mouse	
Optical character reader	
Digital camera	
Keypad	
Bar code reader	

[3]

6 A floor turtle can use the following instructions:

INSTRUCTION	MEANING
FORWARD $n$	Move $n$ mm forward
BACKWARD $n$	Move $n$ mm backward
LEFT $t$	Turn left $t$ degrees
RIGHT $t$	Turn right $t$ degrees
PENUP	Lift the pen
PENDOWN	Lower the pen
REPEAT $n$	Repeat the following instructions $n$ times
END REPEAT	Finish the REPEAT loop

Complete the set of instructions to draw these shapes by filling in the blank lines.

Diagram description: A regular hexagon with side length 50 and a square with side length 60. The hexagon's bottom-right vertex is labeled 'start' and the square's bottom-left vertex is labeled 'finish'. A double-headed arrow between these two points is labeled '120'.

Instructions to complete:

```

PEN DOWN
LEFT 90
REPEAT .....
FORWARD .....
..... 60
.....
.....
FORWARD .....
LEFT 90
.....
.....
.....
END REPEAT
    
```

[5]

7 A systems analyst has designed a new computer system for a large company.

(a) Name **three** methods of implementing this new system and for each one describe an advantage of using that method.

Method 1 .....

.....

.....

.....

.....

Method 2 .....

.....

.....

.....

.....

Method 3 .....

.....

.....

.....

.....

[6]



8 Describe the differences between ROM and RAM and explain what they are used for.

.....

.....

.....

.....

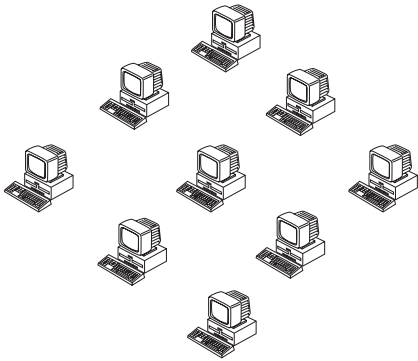
.....

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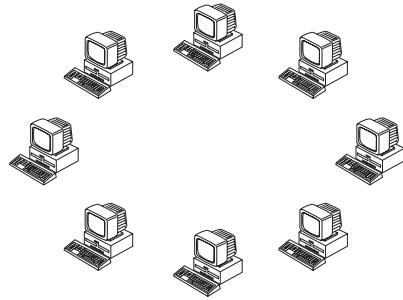
..... [3]

9 Draw lines in the following diagrams to show:

(a) A star network



(b) A ring network



[2]

- 10 Computers are now widely used in libraries.  
This is part of the database of books in the library.

Code number	Title	Name of Author	Paperback or Hardback	Borrower number	Date due back
780140082043	The Great Gatsby	F Scott Fitzgerald	P	15234	1 Jun 06
780670865284	Jane Austen – A life	Claire Tomalin	H	11356	2 Jun 06
781856134033	Harry Potter and the Philosopher's Stone	J K Rowling	H	16582	26 May 06
780590660549	Northern Lights	Philip Pullman	P	12982	28 May 06

This is part of the database of borrowers.

Borrower number	Name of borrower	Address of borrower	Borrower phone number
11356	Tobias Ahendra	658, Uhuru Highway, Box 2809	72 34 45 67
16582	Carlos Moyes	12, Avenue de Lupin, Box 65432	24 17 39 81

- (a) The data files are stored on a hard disc. State the type of access needed to retrieve a single record quickly.

..... [1]

- (b) The records in the book file are to be sorted in descending order of code number. What will be the **title** of the book in the first record in the database of books after it has been sorted?

..... [1]

- (c) When a book is borrowed the borrower presents the book and his card to the librarian. Name an input device, other than a keypad, which would be most suitable for entering the details from the borrower and the book.

Borrower .....

Book ..... [2]

- (d) Give **two** reasons why these methods are better than typing the number in.

1 .....

2 ..... [2]





11 Tick **two** applications which use on-line processing.

Booking a flight using a computerised booking system.	
Producing electricity bills.	
Processing a payroll.	
Withdrawing money from a cash machine.	
Reading data from bank cheques.	

[2]

12 A car showroom owner uses a spreadsheet to store data about cars he sells. This table shows part of the spreadsheet.

	A	B	C	D	E
1	Registration	Previous	Buying	Selling	Profit
2	Number	Owners	Price	Price	
3					
4	KUP 315	1	£3900	£4400	£500
5	ZAS 546	2	£3500	£3900	£400
6	TRU 234	1	£2700	£3450	£750
7	RWA 456	4	£1950	£2200	£250
8					
9					

(a) Ring **one** cell on the spreadsheet that contains numeric data. [1]

(b) How many columns are there in this part of the spreadsheet?  
..... [1]

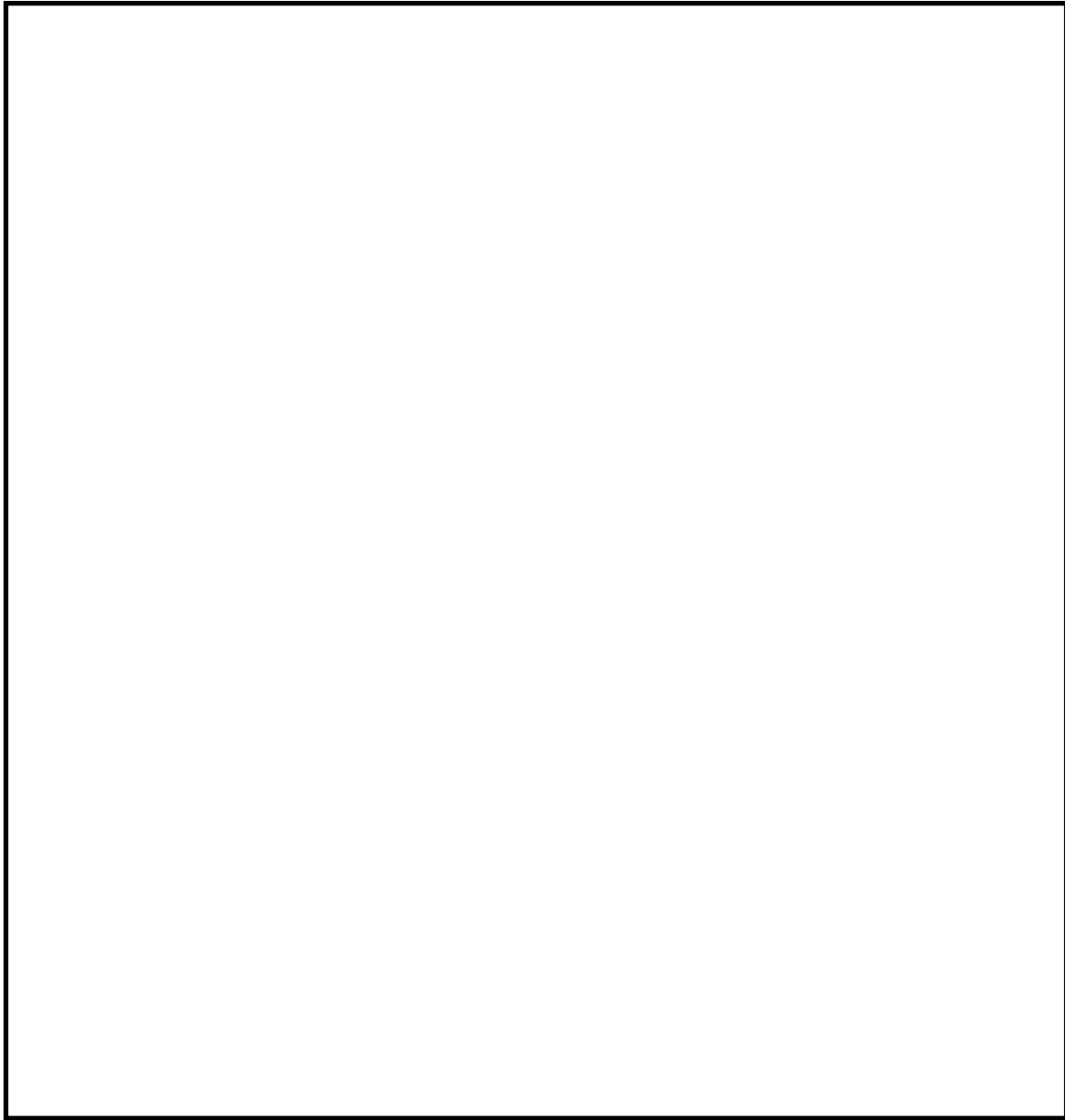
(c) Write down the formula which should be in cell E4.  
..... [1]

(d) What type of alignment is being used in cell B4?  
..... [1]

(e) The owner of the car showroom wants to calculate the total profit of these four cars. What formula should he type in cell E9?  
..... [1]

13 A new year of pupils has just started at school. The school secretary has to type in all the new pupils' names and details into a database. The data will be used to contact parents as well as keep the personal details of each pupil such as medical information.

(a) Design a screen input form which could be used for typing in the details of **one** pupil.



[5]

(b) After designing the screen input form, a systems analyst would design the file structure. Give **three** items which would need to be designed as part of the file structure.

- 1 .....
- 2 .....
- 3 ..... [3]

(c) Hackers are sometimes able to access data. Describe **two** ways in which pupils could be affected.

1 .....

.....

2 .....

..... [2]

(d) Give **three** ways that the secretary could prevent any unauthorized people from reading the information that has been saved.

1 .....

.....

2 .....

.....

3 .....

..... [3]

14 Complete the sentences using words from the list below.

(a) Pupil multiple choice exam answers are read using .....

(b) The magnetic medium which uses direct access is called .....

(c) People can send messages to each other electronically using ..... [3]

**OMR**

**CAD/CAM**

**a disc**

**a tape**

**e-mail**

15 Tick whether the following statements are **TRUE** or **FALSE**

	TRUE ✓	FALSE ✓
Regular typing on a keyboard can cause RSI		
Dot matrix printers give better quality output than Laser printers		
A sensor is an output device		
Floppy discs hold more data than a memory stick		

[4]



(b) They will use a computer to monitor and control the growing conditions.

In the greenhouse they will have a light, a heater, a fan, a tap to water the plants and some windows which can be opened.

Name **two** sensors, apart from a temperature sensor that they will need to attach to the computer to monitor the growing conditions.

1 .....

2 ..... [2]

(c) Explain why computers are unable to read the data directly from these sensors.

.....  
.....  
..... [2]

(d) What device is needed to enable the computer to read the data?

.....  
..... [1]

(e) Give **two** advantages of using a computer to control the greenhouse rather than having it done by humans.

1 .....

.....

2 .....

..... [2]

(f) Describe how the computer will control the temperature of the greenhouse. You will need to describe the input, the processing and the outputs of the system.

.....  
.....  
.....  
.....  
.....  
.....  
..... [5]

17 Computers are often used to model situations.

(a) Give **two** situations where computer models are used to avoid causing danger to the user.

1 .....  
2 ..... [2]

(b) Give **two** reasons, other than preventing danger to the user, why computer models are used rather than the real thing.

1 .....  
.....  
2 .....  
..... [2]









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