CANDIDATE
NAME

CENTRE
NUMBER

CANDIDATE
NUMBER

INFORMATION TECHNOLOGY **0418/01**

Paper 1 **May/June 2007**

2 hours

Candidates answer on the Question Paper.

No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

DO **NOT** WRITE IN ANY BARCODES.

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.

For Examiner's Use

This document consists of **18** printed pages and **2** blank pages.

[Turn over

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

A

B

C

D

E
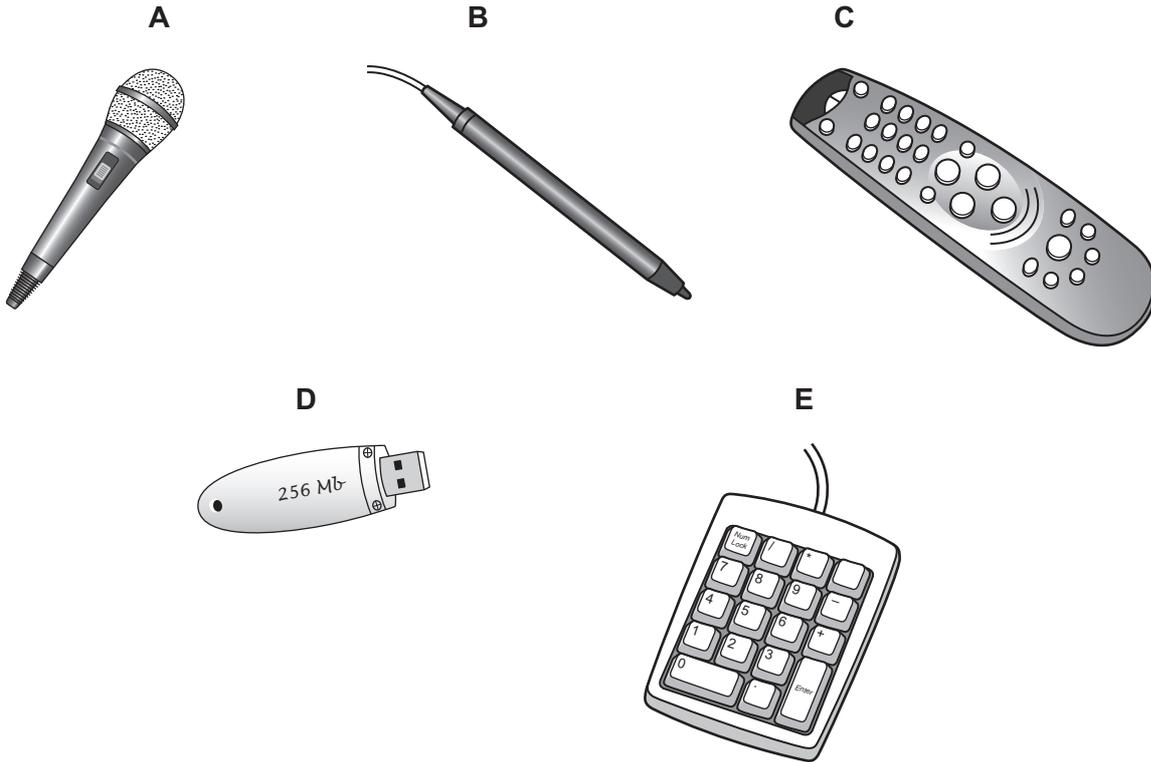
CD ROM Drive	Digital camera	Joystick	Keyboard
Light pen	Memory stick	MICR	Microphone
Mouse	Numeric keypad	Remote control	Trackerball

A .... B ....

C .... D ....

E ....

[5]

2 Ring **two** items which are output devices.

| DVD ROM | Hard disc | Keyboard |
| Plotter | Robot arm | Scanner |

[2]

3 Complete each sentence below using **one** item from the list.

a bank cheque	**a CD RW**	**a floppy disc**
a keyboard	**a magnetic stripe**	**a utility bill**
an OMR sheet	**a dot matrix printer**	**a laser printer**

(a) Answers to multiple choice examination questions are recorded using ....

....

(b) Magnetic ink characters are used to record information on ....

....

(c) A very large graphics file which needs to be moved from one computer to another is

stored on ....

(d) Information on multi-part stationery is output using ....

....

[4]

4 Tick **true** or **false** next to each of these statements.

	True	False	
Spreadsheet software would be used to create a burglar alarm system.			[1]
A measuring program would be used to record the temperature of a cooling liquid.			[1]
Control software is used to store information about workers in a factory.			[1]
MICR is used for reading data from the bar code on a food item.			[1]
Use of an ergonomic keyboard will lead to RSI.			[1]

5 Complete the following sentences using the most suitable storage device or medium listed below.

DVD R   **fixed hard disk drive**   **memory stick**

(a) A student taking his coursework home to develop would use a

.... [1]

(b) A company selling copies of games would use a

.... [1]

(c) An office worker who never took her work home would store her work on a

.... [1]

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

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

PEN DOWN

LEFT 90

FORWARD 50

```
      75          85          65
   ┌──────┐              ┌──────────┐
 75│      │            75│          │
   └──┐                  │
   50 ↑           ↑  35      40
     start      finish
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....   [5]

7 A school in a **cold** country would like to grow tropical fruit. They want to use a computer controlled greenhouse for this purpose.

(a) Name **three** sensors that they would need to use to measure the soil and growing conditions.

1 ....

2 ....

3 .... [3]

(b) Describe how **three** output devices would be used to control the growing conditions.

1 ....

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2 ....

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3 ....

.... [3]

(c) Describe the computer processing which would be required to maintain the necessary growing conditions.

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.... [5]

(d) Explain why computer control would be used rather than relying on humans.

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.... [3]

8 Give **three** reasons why some situations have to be modelled.

1 ....

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2 ....

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3 ....

.... [3]

9 The prolonged use of computers can lead to health and safety problems.

(a) Describe **two** health problems and how they could be prevented.

Problem 1 ....

....

Prevention ....

....

Problem 2 ....

....

Prevention ....

.... [4]

(b) Describe **two** safety problems and how they could be prevented.

Problem 1 ....

....

Prevention ....

....

Problem 2 ....

....

Prevention ....

.... [4]

10 A systems analyst has been asked by a bookshop owner to computerise the records he keeps about his books. He will not be keeping records of customers.

(a) The systems analyst must first of all collect information about the existing system. Describe **three** methods which would be used to collect this information.

1 ....

....

2 ....

....

3 ....

.... [3]

(b) Tick **two** reasons why he would want to computerise his record-keeping system.

You can't have a well organised paper-based record system.	
He would have more customers.	
He could find details of books more quickly.	
He would save space in his bookshop.	
It would not cost him very much money to start with.	
He could sell books at higher prices.	

[2]

(c) The systems analyst must now produce a screen input form. Design a suitable screen input form which the owner could use to input the details of **one** book. Consider **both** the fields that you will include **and** the form layout.
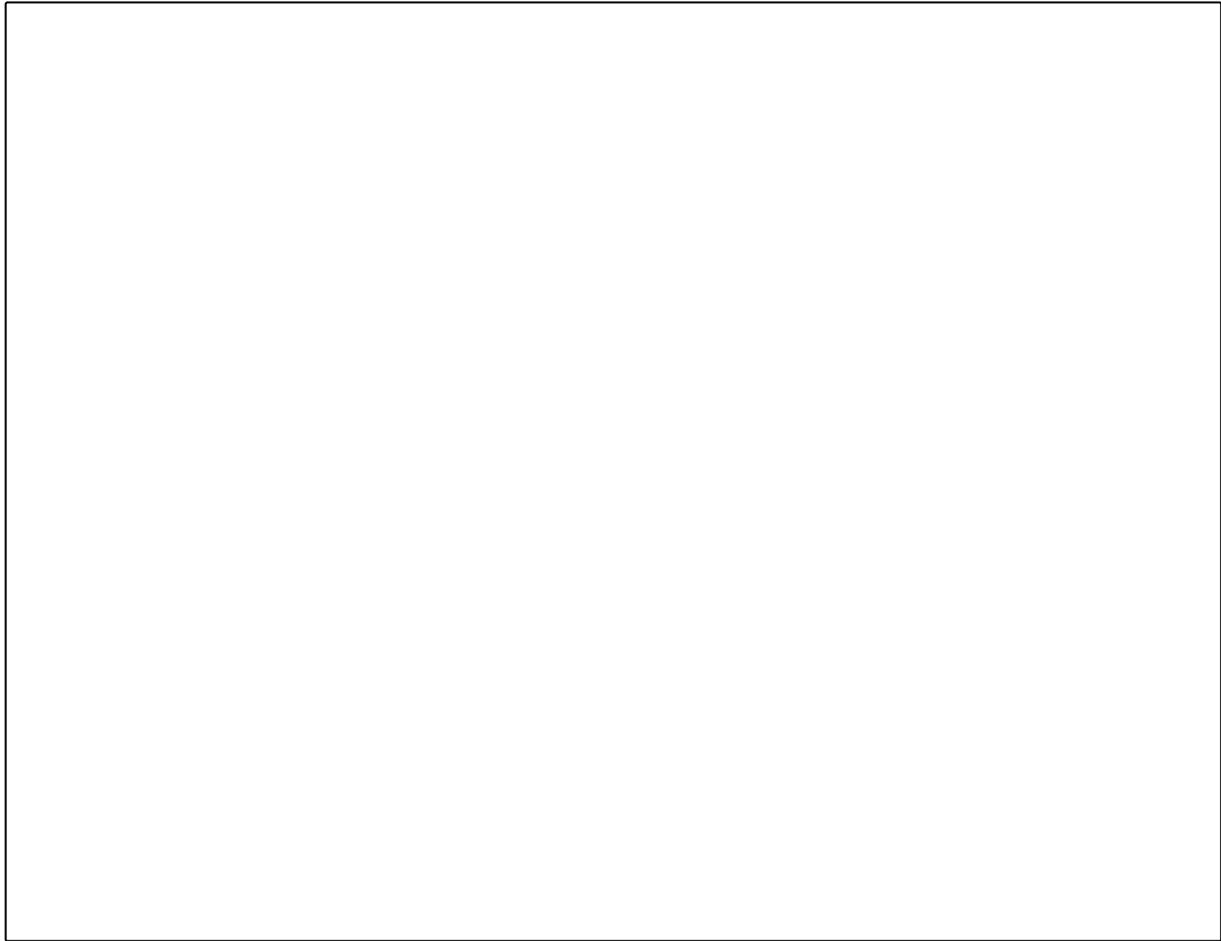
[5]

(d) The data entered will need to be verified. Describe **two** methods of verifying data.

1 ....

....

2 ....

.... [2]

11 Most banks now allow their customers to manage their accounts on-line.

(a) When customers first want to use the system, they have to make sure that they have a computer with a modem. This is so that they can transfer data from the computer along telephone lines. Why is a modem needed?

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.... [2]

(b) When customers want to gain access to the system, they have to log on. What **two** pieces of information should be entered into the welcome screen?

1 ....

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2 ....

.... [2]

(c) This information will need to be encrypted so that hackers will not be able to gain access to your account. What is meant by encryption?

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.... [3]

(d) Describe **two** disadvantages to the bank of having such a system rather than several branches.

Disadvantage 1

Disadvantage 2

[2]

(e) Describe **two** disadvantages to the customer of having such a system.

Disadvantage 1

Disadvantage 2

[2]

(f) As well as on-line processing the bank also uses batch processing to process cheques. Describe what is meant by batch processing.

[3]

12 Tick whether the following uses are more suitable for ROM or RAM.

	ROM	RAM
Storing data that the user is currently working on		
Storing the system BIOS		
Storing program instructions for computer games		

[3]

13 The manageress of a supermarket uses a database to store data about the food she sells. This is part of the database.

Bar code	Producer	Food type	Number in stock	Price ($)
5049179000794	Logekks	Potato flakes	123	2.90
5027200190653	Squarebranch	Chocolate bar	158	0.95
5010029000016	Roofs	Beefburgers	135	1.55
5014569021017	Kapats	Gravy	89	3.95
5010479001213	Startle	Yogurt cream	119	1.85

(a) How many records in this part of the database have more than 100 items in stock?

.... [1]

(b) Which is the key field in this database?

.... [1]

(c) The records shown are to be sorted in ascending order of price. What will be the bar code of the first record in the database after it has been sorted?

.... [1]

(d) Give the name of a field that contains text.

.... [1]

(e) Name and briefly describe the most appropriate validation check which would be carried out on the bar code number.

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.... [3]

(f) The bar code number is scanned into the computer system when the item is sold. Describe the computer processing that would then take place in order for the number in stock to be updated.

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.... [3]

(g) The checkout is an EFTPOS terminal. When all the items have been checked through the terminal, the customer presents a chip and PIN card for payment. After the card is checked to see if it is valid, another check on the card is now carried out. Describe this check.

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.... [2]

(h) If the card is accepted, the customer's bank account is now charged. Describe the computer processing that takes place to enable this transaction to be carried out.

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.... [4]

14 A school has a number of computer classrooms which are networked together to form a LAN. The head teacher is planning to let some pupils have a video conference with another school in the same country but quite far away. They have bought a modem.

(a) Each of the school's computers already have speakers. What extra hardware would the school need to buy so that it can take part in a video conference?

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.... [2]

(b) Describe the advantages of having a video-conference rather than a conference in one of the schools.

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.... [3]

15 A large company is going to replace its current computer system with a new one. The system has been created and is now going to be implemented.

(a) The company is considering two methods of implementation, parallel running and direct changeover. Describe these methods giving **one** advantage and **one** disadvantage for each method.

(i) Parallel running ....

Advantage ....

....

....

Disadvantage ....

....

.... [3]

(ii) Direct changeover ....

Advantage ....

....

....

Disadvantage ....

....

.... [3]

(b) After the system is implemented, the company will be given documentation to go with the system. This will consist of technical documentation and user documentation. Name **three** different items that each type of documentation will contain.

Technical

1 ....

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2 ....

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3 ....

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User

1 ....

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2 ....

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3 ....

.... [6]

(c) After a system is implemented, it is evaluated. Describe how a new system is evaluated.

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.... [3]

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15 An oil company is investigating whether they will find oil at a certain site. They will use an expert system. Describe the inputs, outputs and processing of this system.

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.... [6]

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20

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