UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

INFORMATION TECHNOLOGY   **0418/01**

Paper 1

October/November 2006

2 hours

Candidates answer on the Question Paper.
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.

For Examiner's Use

This document consists of **17** printed pages and **3** blank pages.

UNIVERSITY *of* CAMBRIDGE
International Examinations   **[Turn over**

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

A	**B**	**C**

D   **E**
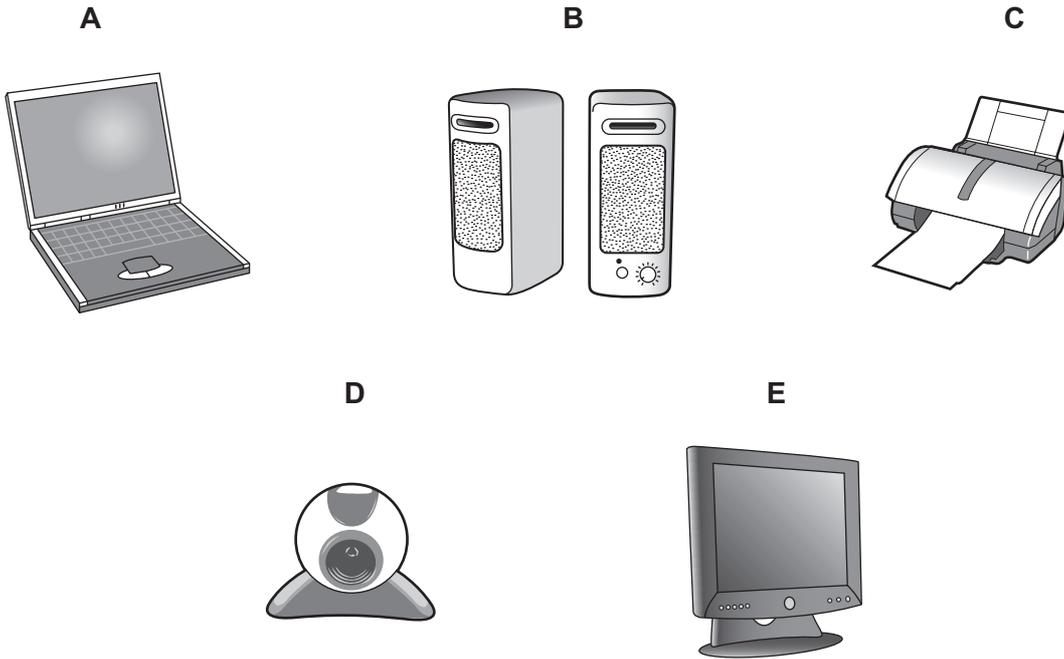
Bar code reader	**Desktop computer**	**Digital camera**	**Joystick**
Joystick	**Inkjet printer**	**Laptop computer**	**Memory stick**
Monitor	**Scanner**	**Speakers**	**Web cam**

A .... B ....

C .... D ....

E ....

[5]

2 Name **two** media which are used to store many megabytes of data.

Memory stick	Magnetic stripe	Hard disc
Bar code	Floppy disc	Temperature sensor

[2]

3 Tick whether the following statements are true or false.

	True	False
OMR is used in a bank for reading cheques		
Bar code readers are used at point of sales terminals		
Sensors are used in a computerised weather station		
Cash machines use on-line processing		

[4]

4 Draw **five** lines on the diagram to match the hardware to what it would be used for.

Hardware   Use

Optical mark reader   **printing out car designs**

Plotter   **reading information from credit cards**

Magnetic stripe reader   **choosing from a set of options**

Touch screen   **making backup copies of data**

Zip drive   **reading information from students' exam answers**

[5]

5 A local football club wants to use a computer to store all its members' records. It wants to keep the club accounts as well as send letters to its members. Tick the **three** types of software it will need.

	✓
Presentation software	
Measurement software	
Database software	
Spreadsheet software	
Word processing software	
Control software	

[3]

4

6 Complete the sentences using words from the list below.

(a) Text is read from a document directly into a computer using ....

(b) One item can be accessed from a magnetic disk without reading all the preceding items. This is called .... access.

(c) An item of hardware which is connected to a computer so that it can read data such as temperatures is called a ....

direct   **sensor**   **OCR**

MICR   **serial**

[3]

7 (a) Name each type of network

(i)   (ii)
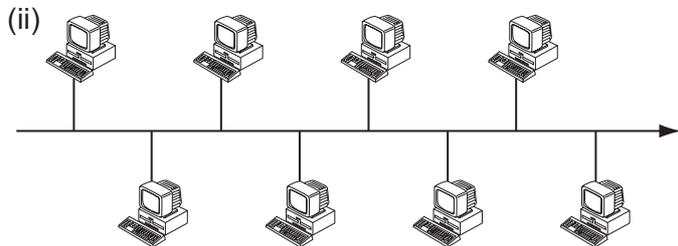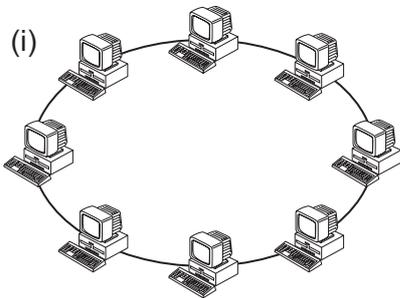
(i) ....

(ii) .... [2]

(b) Circle the type of network that does not need to have a modem.

Local Area Network   Wide Area Network

[1]

8   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.

PEN DOWN

LEFT 90

FORWARD ....

RIGHT ....

....

....

....

....

....

....

....

....

[5]

9 The owner of several mobile phone shops wants to computerise the records of the stock and customers. The systems analyst will need to find out how the existing systems work. She will need to find out how records of phones and customers are kept at the moment.

(a) There are four ways she could find out this information. Describe in detail **two** of these ways.

1 ....

....

....

....

2 ....

....

....

....

[4]

(b) After analysing the existing system the systems analyst will design a database consisting of the customer file and the stock file. Apart from the structure of these files, describe **four** items that the systems analyst will need to design for the database.

1 ....

....

2 ....

....

3 ....

....

4 ....

....

[4]

10 Using examples, describe each of these two terms.

On-line processing. ....

....

....

....

Batch processing. ....

....

....

.... [4]

11 RAM and ROM are types of storage.

(a) Explain the major difference between RAM and ROM.

....

....

.... [2]

(b) Give **one** way a computer uses ROM.

....

.... [1]

12 Pupils in a school are sitting an exam paper in IT. The IT teacher wishes to keep the results in a spreadsheet using the column headings shown below. The exam will be marked out of 60 and the pupils' scores will be typed into the Exam Score column.

	A	B	C	D	E
1	Name	Form	Gender	Exam Score	Pass/Fail
2					
3					

(a) The teacher wants to use a validation check which only allows numbers between 0 and 60 to be typed in. What is the name of this type of validation check?

....[1]

(b) She types in the following exam scores to test that the validation works:

0, 45, 60 and 87.

Using the data above write down **one** example of:

(i) normal data

....

(ii) extreme data

....

(iii) abnormal data

....[3]

(c) The teacher decides that the pass mark for the exam should be 35. Depending on the number of marks each pupil gets, the word 'Pass' or the word 'Fail' will appear in the Pass/Fail column.

Write down the formula which should appear in cell E2.

1 ....

.... [2]

She wants to repeat the formula for 30 cells below E2. She does not want to type in 30 formulae. What is the best way for her to do it?

2 ....

....

....

.... [2]

(d) Spreadsheets are also used to model situations such as financial planning. Tick which piece of software is the best for doing the following things:

	Spreadsheet ✓	Word processor ✓
Making predictions		
Storing numeric data		
Writing reports		
Sorting data using several criteria		

[4]

(e) Give **two** reasons why computer models are used rather than the real thing.

1 ....

....

2 ....

.... [2]

13 A hospital's intensive care department uses a computer to monitor patients' conditions.

(a) Analogue temperature and heart monitor sensors are used. Explain why computers are unable to read the data directly from these sensors.

....

....

....[2]

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

....

....[1]

(c) Give **two** advantages of using a computer to collect the data rather than having it done by nurses.

1 ....

....

2 ....

....[2]

14 (a) A company searches for minerals. They use an expert system to help them to predict which minerals are present. Describe how this expert system would be used.

....

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....

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....

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....

....[4]

(b) Name **two** other applications which involve the use of expert systems.

1 ....

2 ....[2]

15 Pupil records are kept on a computer in the head teacher's office. It is **not** connected to a network of any description.

(a) Occasionally, a pupil's record will need to be altered. In order to do this efficiently, individual records have to be retrieved straight away.

   (i) What form of file access is this called?

   ....[1]

   (ii) What type of magnetic medium allows this type of access?

   ....[1]

(b) Give **two** occasions when a pupil's record will need to be altered.

   1 ....

   ....

   2 ....

   ....[2]

(c) Pupils are worried that their personal data could be misused. Name **two** things the head teacher could do to make sure that the personal data is kept secure.

   1 ....

   ....

   2 ....

   ....[2]

(d) The head teacher needs to keep a backup copy of the data. Describe what is meant by a backup and why it is needed.

   ....

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   ....[3]

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[Turn over

16 An international bank has a website. It allows customers to transfer money from one account to another and pay bills.

(a) Name **two** items of information that customers would have to type in before the system will let them use it.

1 ....

2 ....[2]

(b) Give **two** advantages to the customer of using this method rather than visiting a branch of the bank.

1 ....

....

2 ....

....[2]

(c) Give **two** advantages to the bank of using this method rather than the customer visiting a branch of the bank.

1 ....

....

2 ....

....[2]

(d) To prevent the customers' bank details from being intercepted by hackers, the bank uses encryption. Explain what is meant by encryption.

....

....

....

....[2]

(e) Describe **two** problems which might arise from the customer using the Internet at home.

1 ....

....

2 ....

.... [2]

17 Noreen Patel owns several book shops around the country. She wants to keep details of each book on a computer database. All the details of each book will be typed into a screen input form.

Design a screen input form which could be used for typing in **one** book's details.

[5]

18 A supermarket uses EFTPOS terminals. When goods are bought, the product numbers of the goods and the customer's bank card number are input.

(a) What input devices are used to input:

    (i) the product numbers of the goods bought?

    ....

    (ii) the customer's bank card number?

    .... [2]

(b) The supermarket's stock file contains information like this.

Product number	Product name	Number in Stock	Re-order level	Re-order quantity
002136987421	Oatabix	163	150	400
001467326581	Brick bat tea	135	100	300
002145236891	Mines baked beans	243	195	600

Describe the computer processing involved in updating the stock file every time a packet of Oatabix is sold and how the computer would know when it is time to order some more. Include in your answer any checks that take place on the input data.

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.... [5]

(c) Describe the computer processing involved in taking payment from the customer's bank account including any checks that are made.

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....[4]

19 A school's football team have been producing some excellent results. The team captain has been asked to produce a multimedia presentation for the head teacher to use in an assembly.

(a) Describe **two** methods that he could use to obtain images for the presentation.

1 ....

....

....

2 ....

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....[4]

(b) He stores the images on the computer's hard disc. He closes all applications and opens the presentation software. Describe how he will produce the multimedia presentation using these images, sound and text.

....

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....[3]

20 Many schools are encouraging teachers and students to use the Internet to improve teaching and learning. Is this a good thing or a bad thing? Discuss this development giving the advantages and the disadvantages to students, teachers and the school.

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.... [8]

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20

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