UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER | | | | | |

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5892256458

INFORMATION AND COMMUNICATION TECHNOLOGY **0417/01**

Paper 1 **October/November 2009**

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.

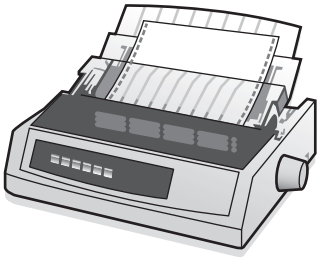
For Examiner's Use

This document consists of **14** printed pages and **2** blank pages.

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

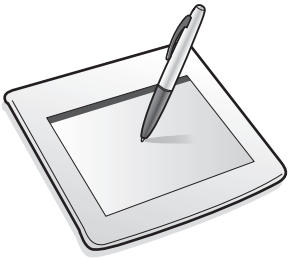
A

B

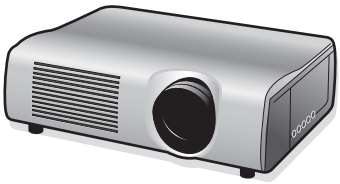


C

D



E



Digital camera	**Dot matrix printer**	**Floppy disc drive**
Graphics tablet	**Hard disk drive**	**Keyboard**
Magnetic stripe reader	**Memory stick**	**Multimedia projector**
Remote control	**Scanner**	**Temperature sensor**

A ..... B .....

C ..... D .....

E .....

[5]

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

Bar code reader	**Keyboard**	**Laser printer**
Memory stick	**Mouse**	**Zip disc drive**

[2]

3 Tick **True** or **False** next to each of these statements.

	True	False
Dot matrix printers produce high quality output.		
Laser printers are very noisy.		
Graph plotters are used when extremely large hard copy is required.		
Inkjet printers are used where continuous stationery is required.		

[4]

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

a bank cheque **a floppy disc** **an inkjet printer**

a light sensor **a memory stick** **a microphone**

a mouse **a plotter** **a school register**

(a) Options from a menu can be selected using .....

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

(c) A very large file which needs to be moved from one computer to another for editing can be stored on .....

(d) Sound can be input to a computer using ..... [4]

5 Tick **True** or **False** for the following statements about RAM and ROM.

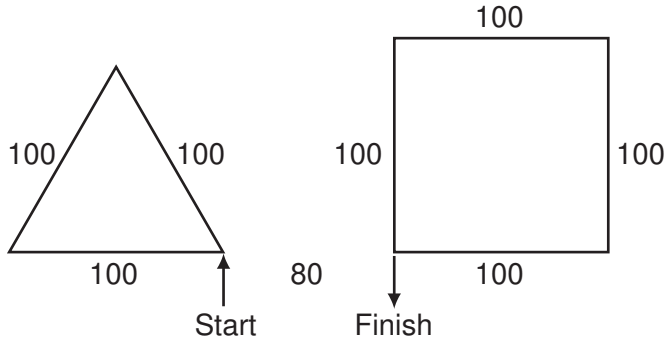
	True	False
RAM is not volatile.		
ROM is used to store the BIOS of a computer.		
The data in ROM is easier to change than that in RAM.		
RAM is used to store the data the user is currently working on.		

[4]

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 regular shapes by filling in the blank lines. Each side is 100 mm long and there is a gap of 80 mm between the two shapes.



PEN DOWN

LEFT 90

REPEAT .....

FORWARD 100

120 .....

.....

.....

BACKWARD .....

.....

.....

RIGHT 90

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.....

[5]

7 Tick whether the following problems are **Health** problems or **Safety** problems related use of computers.

	Health	Safety
Headaches caused by prolonged use.		
Trailing wires in a computer room.		
RSI through continual typing.		
Back problems through bad posture.		
Too many plugs in an electric socket.		
Drinking water while using a computer.		

[6]

8 Tick **three** applications which use on-line processing.

	✓
Producing utility bills.	
Paying for goods at an EFTPOS terminal.	
Making an airline booking.	
Producing monthly payrolls.	
Monitoring a patient's condition in a hospital.	
Reading data from bank cheques.	

[3]

9 A systems analyst has been asked by a librarian to develop a computer system t information about books and borrowers. After the existing system is analysed the system will be designed. The first item to be designed will be the input screen.

(a) Name **four** items of data about **one** borrower, apart from the number of books borrowed, that would be input using this screen.

1 .....

2 .....

3 .....

4 ..... [4]

(b) Describe **four** features of a well designed input screen.

1 .....

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2 .....

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3 .....

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4 .....

..... [4]

(c) The librarian will need to type in data about each book from existing records. In order to prevent typing errors the data will be verified. Describe **two** methods of verification which could be used.

1 .....

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2 .....

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..... [4]

(d) After the system is designed it will need to be implemented and then tested.

No borrower can take out more than 6 books. Describe the **three** types of test data th
can be used, using a number of books as an example for each.

1 .....

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2 .....

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3 .....

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..... [6]

(e) The system must now be evaluated. Tick **three** reasons why this is done.

	✓
Improvements can be made.	
The hardware and software can be specified.	
Limitations of the system can be identified.	
To see how many books are required.	
To make sure the user is satisfied with the system.	
So that program coding can be written.	

[3]

(f) After the system is implemented the librarian will be given technical documentation and user documentation. Name **three** different components of each type of documentation.

Technical

1 .....

2 .....

3 .....

User

1 .....

2 .....

3 ..... [6]

10 A supermarket uses a Chip and PIN system at its checkouts. Put the following steps in order using the numbers **2** to **8**. The first step has already been done for you.

The customer types in the PIN.	
If the PIN and the number stored in the chip are the same go onto the next step.	
The customer's account is checked to see if it has sufficient funds.	
The card is inserted into the reader.	**1**
The PIN is compared with that stored in the chip.	
The transaction is authorized.	
The device checks if the card is valid.	
The supermarket computer contacts the customer's bank computer.	

[7]

11 A car repair centre uses an expert system to help diagnose car engine faults.

(a) Describe the inputs, outputs and processing of this system.

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..... [6]

(b) Give **two** other examples of situations where expert systems might be used.

1 .....

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2 .....

..... [2]

12 An automatic washing machine is controlled by a microprocessor.

(a) Tick **two** sensors which would have to be used in the machine.

	✓
Pressure sensor	
Proximity sensor	
Temperature sensor	
Oxygen sensor	

[2]

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

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..... [2]

(c) Describe how the microprocessor uses data from the sensors to control the washing machine.

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..... [5]

(d) There are many microprocessor controlled devices in the modern home. Descri... effects of these on people's lifestyles.

For ...iner's

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..... [4]

13 (a) Name **two** network devices that could be used to connect a LAN to a WAN

1 .....

2 ..... [2]

(b) Describe the differences between a WAN and a LAN

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..... [5]

14 A sports shop owner uses a database to store data about the products he sells. This of the database.

Bar code	Brand name	Product type	Number in stock
1825698000040	Kino	Football shirt	22
2266127153625	Dasdida	Hockey boots	15
3756643392895	Brooke	Netball	32
3014232068474	Borem	Rugby shorts	26
5010223708943	Mupe	Running shoes	12

(a) How many fields are there in this part of the database?

..... [1]

(b) How many records are there in this part of the database?

..... [1]

(c) Give the name of the field that is already sorted in order.

..... [1]

(d) The records shown are to be sorted in ascending order of number in stock. What will be the brand name of the first record in the database after it has been sorted?

..... [1]

(e) Which field would be the key field?

..... [1]

(f) Name and describe the most suitable validation check which would be carried out on the Number in stock field.

Name .....

Description .....

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.....

..... [3]

15 Tick **three** essential components of a computer to be used in a video conferencing sy

For iner's

	✓
Graph plotter	
Trackerball	
Microphone	
Speakers	
Optical mark reader	
Web cam	

[3]

16 On-line banking is used by many customers. Describe **three** methods of making sure that the data transferred is secure.

1 .....

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2 .....

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3 .....

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..... [6]

17 A school encourages its students to use the Internet for research purposes. Discu... issues relating to such use with reference to the reliability and desirability of the informa...

For ...iner's

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..... [8]

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