CANDIDATE
NAME

CENTRE
NUMBER

CANDIDATE
NUMBER

INFORMATION AND COMMUNICATION TECHNOLOGY　　　　　　　**0417/11**

Paper 1　　　　　　　　　　　　　　　　　　　　　　　　**October/November 2012**

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.
DO **NOT** WRITE IN ANY BARCODES.

No marks will be awarded for using brand names of software packages or hardware.

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 **12** printed pages.

UNIVERSITY *of* CAMBRIDGE
International Examinations

[Turn over

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

A

D

B

C
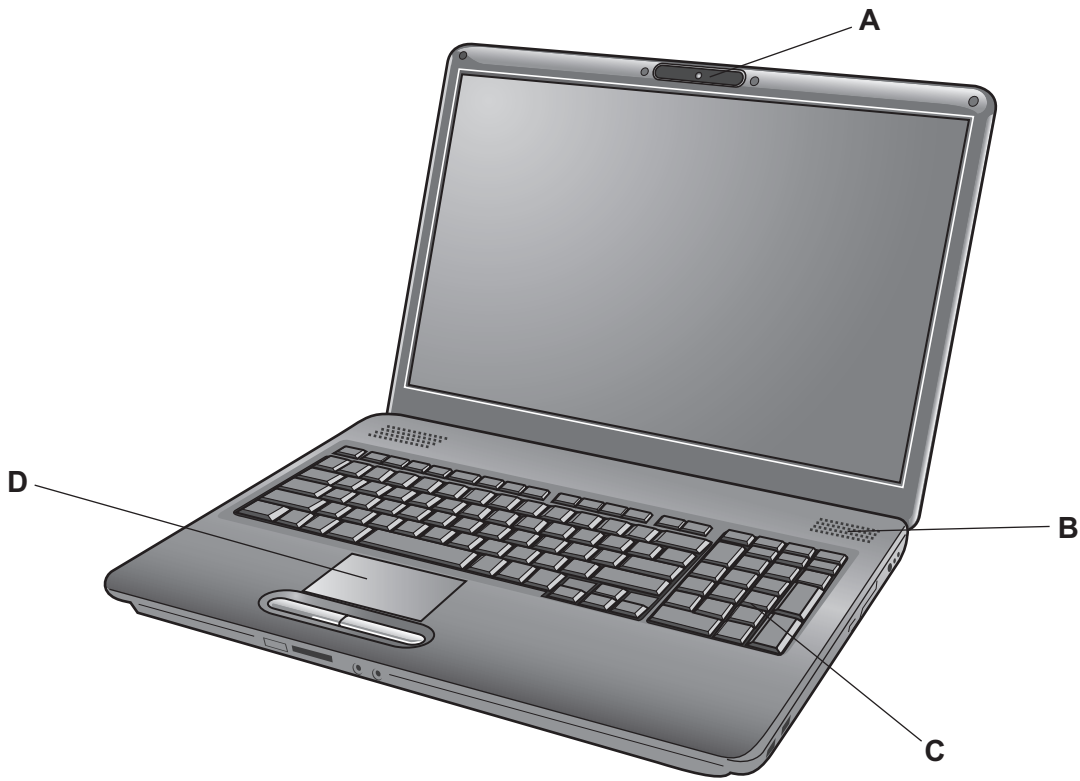
digital camera	number pad	remote control	scanner
speaker	touch pad	trackerball	web cam

A .... B ....

C .... D ....

[4]

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

graphics tablet	keyboard	laser printer
motor	optical character reader	web cam

[2]

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

	True	False
Computer programs are examples of software.		
A web authoring package is an example of hardware.		
An icon is a component of a command line interface.		
A mobile phone (cell phone) uses flash memory.		

[4]

4 Complete the following sentences using the **most appropriate** device from this list.

A graph plotter   **A dot matrix printer**   **A laser printer**

A buzzer   **A multimedia projector**   **A trackerball**

(a) .... is used to print on continuous multipart stationery.

(b) .... is used to output sound.

(c) .... is used in CAD applications for very large printouts.

(d) .... is used to produce high quality and high volume printouts.

(e) .... is used to move a pointer on a screen.

[5]

5 Explain how a firewall could be used to secure the data in a computer connected to the internet.

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.... [3]

6 Ali wants to back up his data.

(a) Give **two** reasons why making backups is necessary.

1 ....

....

2 ....

.... [2]

(b) Ali thinks that making backups will prevent his data from getting viruses.
Describe what a virus is and explain why Ali is wrong.

....

....

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.... [3]

7 Describe **three** differences between a blog and a wiki.

1 ....

....

2 ....

....

3 ....

.... [3]

8 Tick whether the following statements apply to **online** processing or **batch** processing.

	online	batch
Paying for goods at an EFTPOS		
Producing electricity bills		
Booking a holiday		
Producing payslips		

[4]

9 A floor turtle can use the following instructions:

INSTRUCTION	MEANING
FORWARD *n*	Move *n* forward
BACKWARD *n*	Move *n* 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

70   70   40

70   40   90°

NOT TO SCALE

Start   Finish
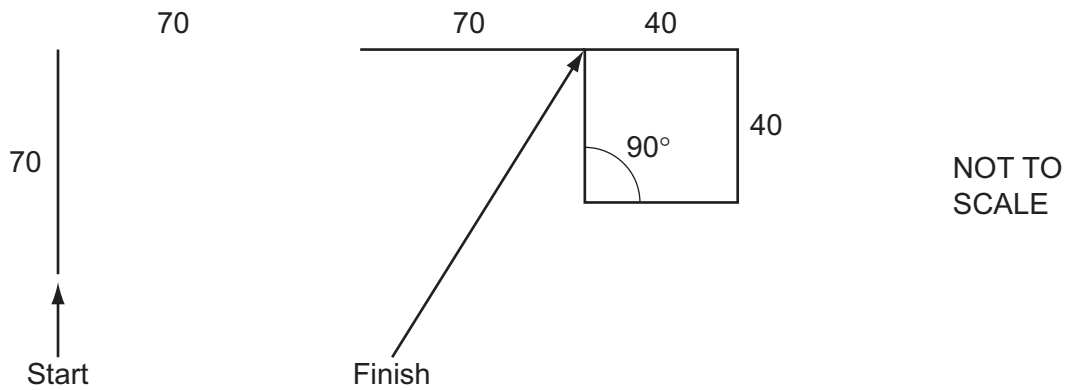
Complete the set of instructions to draw this shape by filling in the blank lines.

PENDOWN   ....

FORWARD 70   ....

RIGHT 90   ....

....

....

....

[8]

10 Describe the benefits and drawbacks to companies of using video conferencing.

....

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.... [5]

11 There are many safety issues associated with the use of computers.
Tick **three** methods which could be used to avoid these issues.

	✓
Take regular breaks from working at the computer.	
Do not overload electrical sockets.	
Make sure all cabling is securely tied.	
Sit with your back upright at all times.	
Always have a CO_2 fire extinguisher in the room.	
Use a wrist rest when typing.	

[3]

12 A greenhouse is controlled by a microprocessor.

(a) Other than a light sensor name **two** sensors used in the greenhouse.

1 ....

2 .... [2]

(b) Explain why computers are unable to read the data directly from these sensors and name the device which would enable them to do so.

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.... [3]

(c) Describe how the microprocessor uses data from the light sensor.

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.... [4]

13 Computers are used in supermarkets at point of sales terminals. When paying for goods the customer inserts the bank card into the chip reader.

(a) Identify **three** items of data contained in the chip on a bank card.

1 ....

2 ....

3 .... [3]

(b) Describe **three** checks that would be carried out using information on the card before the bank is asked to authorise the transaction.

1 ....

....

2 ....

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3 ....

.... [3]

(c) Describe **five** steps which would be carried out by the computers at the supermarket and at the customer's bank to complete the transaction.

1 ....

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2 ....

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3 ....

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4 ....

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5 ....

.... [5]

14 Mario has asked Louise, a systems analyst, to create a new database system for keeping records of books he sells in his bookshop.

(a) Louise will collect information about the existing system.
Describe **three** methods she would use to do this.

1 ....

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2 ....

....

3 ....

.... [3]

After collecting information, Louise noticed that Mario sells both non-fiction and fiction books in hardback and paperback. She also discovered that no books cost more than $20. She wrote down some of the questions that customers ask, such as:

Have you got any non-fiction books by Arthur C Clarke?
Have you got the hardback version of 'Harry Potter and the Philosopher's Stone'?
Have you got any books for less than $10?

(b) Complete the design table below filling in the field names and **most** appropriate validation checks to create a database which would answer these questions.

Field name	Validation Check
	none
	none
Price	

[7]

   [Turn over

(c) Identify **three** items of test data which could be used with the Price field giving reasons for your choice.

Item 1 ....

Reason ....

....

Item 2 ....

Reason ....

....

Item 3 ....

Reason ....

.... [6]

15 (a) State what is meant by OMR and OCR.

OMR ....

OCR .... [2]

(b) Compare and contrast the use of OMR, OCR and a keyboard as methods of data entry.

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.... [6]

16 A company uses robots to manufacture cars.

   (a) Tick **four** advantages to the company of using robots rather than humans to manufacture cars.

	✓
Robots are cheap to buy	
Running costs are lower as humans have to be paid wages	
Robots never need maintenance	
Humans cannot work continuously	
Robots can work in hazardous conditions	
There is lower productivity with robots	
Robots produce the same standard of finished product every time	
Humans have greater accuracy than robots	

[4]

   (b) Describe **three** tasks that humans will have to do when robots are used to manufacture cars.

   1 ....

   ....

   2 ....

   ....

   3 ....

   .... [3]

17 Describe what is meant by pharming.

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.... [3]