UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

INFORMATION AND COMMUNICATION TECHNOLOGY

Paper 1

0417/13

May/June 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 **13** printed pages and **3** blank pages.

UNIVERSITY *of* CAMBRIDGE
International Examinations

[Turn over

1   Name the items **A**, **B**, **C** and **D** using the words from the list.
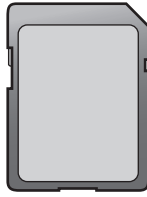
A   **B**
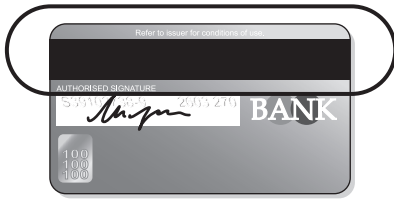
C   **D**
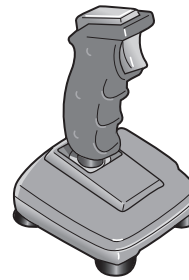
digital camera	flash memory card	joystick	magnetic disc

magnetic stripe	scanner	touch pad	web cam

A   ....   B   ....

C   ....   D   ....

[4]

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

CRT monitor	DVD ROM	magnetic tape

number pad	plotter	trackerball

[2]

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

	True	False
Control software is used to create slide shows.		
Palmtop computers do not have internal DVD drives.		
Presentation software can be used to produce databases.		
An internet browser uses an inference engine.		
Motors are output devices.		

[5]

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

A bar code reader   **A dot matrix printer**   **A graphics tablet**

A laser printer   **A microphone**   **A multimedia projector**

A presence check   **A speaker**   **A temperature sensor**

A magnetic tape

(a) .... produces hard copy in harsh conditions.

(b) .... inputs sounds.

(c) .... is used to show slideshows.

(d) .... is a validation rule.

(e) .... is used to create backups from a server's hard disc.

[5]

5 The head teacher of a school wants to build a weather station. She wants to use a computer to collect the results.
List **three** sensors that would be needed.

1 ....

2 ....

3 .... [3]

6 Draw **four** lines on the diagram to match the use to its most **appropriate** input device.

Use	Input device
to select options from a list	keyboard
to type data into a database	optical mark reader
to input candidate examination answers	chip reader
to input data directly from a bank card	mouse

[4]

7 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

72°   50 mm   80 mm   90°   60 mm

NOT TO SCALE

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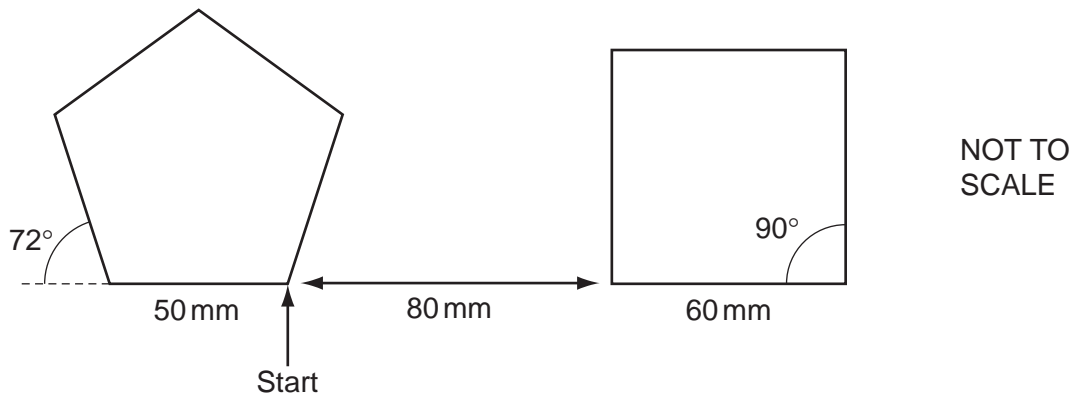
Complete the set of instructions to draw this shape by filling in the blank lines.

PENDOWN

.... 90

REPEAT ....

.... 50

RIGHT ....

....

PENUP

BACKWARD ....

PENDOWN

.... 4

FORWARD ....

.... 90

....

[8]

8 Tick **True** or **False** next to each statement describing encryption.

	True	False
Encryption prevents hackers from understanding the data.		
Encryption destroys viruses.		
Encryption prevents unauthorised access to computer systems.		
Encryption is the scrambling of data.		

[4]

9 A group of car mechanics wants to have an expert system to help them with their work in diagnosing car engine faults.
Describe how such a system would be created.

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.... [5]

10 Describe online processing of data, using the booking of airline tickets as an example.

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.... [4]

11 A manager of a new company has just purchased some computers. She wishes to connect these computers together to form a LAN.
Name and describe **three** network devices she might need to have in order to achieve this.

Device 1 ....

Description ....

....

Device 2 ....

Description ....

....

Device 3 ....

Description ....

.... [6]

12 Chi has asked Toby, a systems analyst, to create a new database system for his property agency in France. He only deals with apartments and houses. Here are some of the questions customers ask:

Have you got a house for less than €500 000?
Have you got an apartment with three bedrooms?
Have you got a house with more than 160 square metres floor space?

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

Field name	Data type
	Integer
Price	

[6]

(b) Compare and contrast parallel running and direct changeover as ways of implementing the new database system.

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.... [5]

13 A teacher has developed a new system for keeping a record of student examination marks on her laptop and wishes to test it. Each examination is marked out of 50.
Identify **three** types of test data she could use and describe each type using an example.

Type 1 ....

Description ....

....

Type 2 ....

Description ....

....

Type 3 ....

Description ....

.... [6]

14 Schools are concerned with the possibility that students are using the schools' internet connections to access undesirable sites.
Name and describe **two** security methods the schools could use to prevent this from happening.

Method 1 ....

Description ....

....

Method 2 ....

Description ....

.... [4]

15 Paul, a manufacturer of goods, offers discounts. The discounts are coded D, N or P. Paul keeps the details on this spreadsheet.

(Commas are used as delimiters in the formulae shown below.)

	A	B	C	D
1	Code	Rate		
2	D	10%		
3	N	15%		
4	P	20%		
5				
6	Code	Price	Discount	Discounted Price
7	D	$4.00	=IF(A7="D",B7*B2,IF(A7="N",B7*B3,IF(A7="P",B7*B4)))	
8	P	$2.85	=IF(A8="D",B8*B2,IF(A8="N",B8*B3,IF(A8="P",B8*B4)))	
9	D	$1.55	=IF(A9="D",B9*B2,IF(A9="N",B9*B3,IF(A9="P",B9*B4)))	
10	N	$0.98	=IF(A10="D",B10*B2,IF(A10="N",B10*B3,IF(A10="P",B10*B4)))	
11	D	$4.05	=IF(A11="D",B11*B2,IF(A11="N",B11*B3,IF(A11="P",B11*B4)))	
12	D	$10.00	=IF(A12="D",B12*B2,IF(A12="N",B12*B3,IF(A12="P",B12*B4)))	
13	P	$11.95	=IF(A13="D",B13*B2,IF(A13="N",B13*B3,IF(A13="P",B13*B4)))	
14	D	$5.15	=IF(A14="D",B14*B2,IF(A14="N",B14*B3,IF(A14="P",B14*B4)))	
15	D	$5.25	=IF(A15="D",B15*B2,IF(A15="N",B15*B3,IF(A15="P",B15*B4)))	
16	N	$4.50	=IF(A16="D",B16*B2,IF(A16="N",B16*B3,IF(A16="P",B16*B4)))	
17	N	$7.25	=IF(A17="D",B17*B2,IF(A17="N",B17*B3,IF(A17="P",B17*B4)))	
18	N	$14.50	=IF(A18="D",B18*B2,IF(A18="N",B18*B3,IF(A18="P",B18*B4)))	

(a) Explain what the formula in cell C7 does.

[6]

(b) What value would you expect to see in cell C12?

[1]

(c) The formula was entered into cell C7 using a keyboard.
Explain how to make this formula appear in cells C8 to C18 by just using a mouse.

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.... [3]

(d) What formula should be typed into cell D7 to calculate the discounted price?

.... [1]

(e) Paul could extend this spreadsheet to calculate his total profit. He could then use it as a model.
Give **two** reasons why financial models are used.

1 ....

....

2 ....

.... [2]

16 Describe **four** features of a graphical user interface (GUI).

1 ....

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2 ....

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3 ....

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4 ....

.... [4]

17 A head teacher wishes to publicise school activities to make his school better known in the neighbourhood. He could do this by using the school's website or producing a magazine using DTP to be delivered by hand.
Discuss the advantages and disadvantages of each method.

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.... [6]

18 Robots are now used on many car production lines.
Describe how their use has affected the nature of employment in the car industry.

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.... [6]

14

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15

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