UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME	

CENTRE NUMBER						CANDIDATE NUMBER			

INFORMATION AND COMMUNICATION TECHNOLOGY **0417/13**

Paper 1 **May/June 2013**

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

A

B

C

D
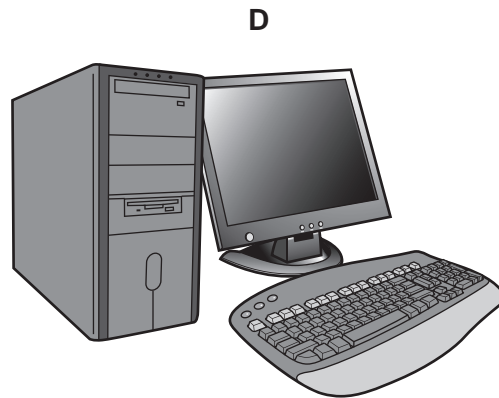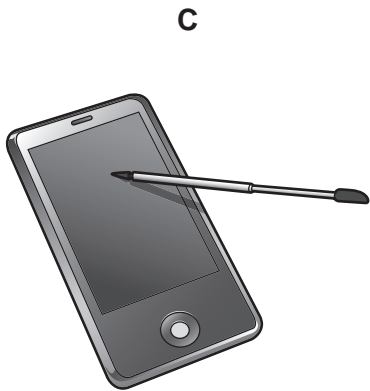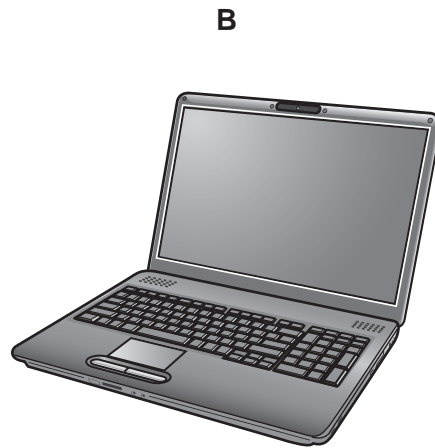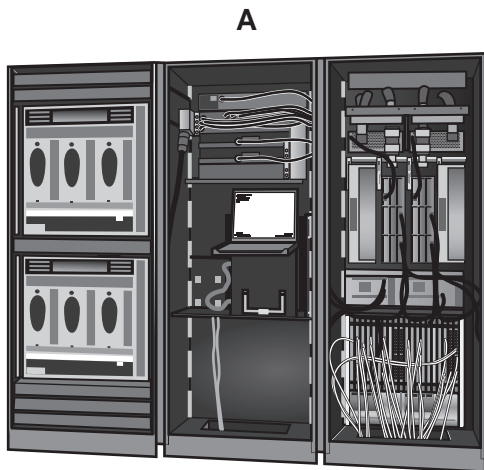
CRT Monitor	desktop computer	laptop computer	mainframe computer
microphone	multimedia projector	personal digital assistant	printer

A ....

B ....

C ....

D ....

[4]

2 Ring **two** items which are used to store data.

buzzer	DVD R	fixed hard disc
joystick	plotter	touch pad

[2]

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

	True	False
Database software is the best software to use to write letters.		
DTP software is used to create models.		
Palmtop computers are bigger than PCs.		
Graph plotters are used to output car designs.		
A dot matrix printer is used to print magazines.		

[5]

4   An examination mark is recorded as an integer in a database. The marks are between 0 and 100.

Name and describe **two** validation checks which would be used to check the marks as they are entered.

1   ....

....

....

....

2   ....

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.... [4]

5   Tick whether the following statements apply to **RAM** or apply to **ROM**.

	RAM	ROM
This memory can only be read from not written to.		
This memory is not volatile.		
This memory is used to store the data the user is currently working on.		
This memory is used to store the startup instructions of a computer.		

[4]

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

Use   Input device

To input details from a bank card   **Joystick**

To input data from a school register   **Chip reader**

To input details of a product in a supermarket   **Optical mark reader**

To control an object in a computer game   **Bar code reader**

[4]

7 A student wishes to use a floor turtle to draw this shape which has no two lines the same length:

Name **four** different instructions which the turtle graphics software could use in order to draw the shape. For each one explain the meaning of the instruction.

Instruction 1 ....

Meaning ....

....

Instruction 2 ....

Meaning ....

....

Instruction 3 ....

Meaning ....

....

Instruction 4 ....

Meaning ....

.... [8]

8 Explain what is meant by OCR and give **one** example of its use.

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....

....

.... [3]

9 A head teacher has decided that the school magazine will now be included in the school's website.

(a) Tick **three** features of a website which would not be found in a magazine printed on paper.

	✓
Hyperlinks	
Colour	
Large font size	
Photos	
Sound	
Video	

[3]

(b) Give **three** other reasons why the head teacher thinks it is a good idea to replace the paper version with a website version.

1 ....

....

2 ....

....

3 ....

.... [3]

10 Describe what is meant by a blog.

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.... [4]

11 Car mechanics often use an expert system to help them with their work in diagnosing car engine faults.

Describe how this system would work.

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.... [5]

12 A house has a microprocessor controlled central heating system.

(a) Describe the use of the following input devices in such a system.

Keypad ....

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Sensor ....

.... [2]

(b) Describe how the microprocessor would use the data from these devices to control the system.

....

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.... [4]

13 Davina has asked Boris, a systems analyst, to create a new database system for her zoo. She keeps animals of all types. Here are some of the questions that visitors to the zoo ask:

What is the name of the female lion you have?
How heavy is Jumbo the elephant?
How much does it cost to adopt a tiger?

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

Field name	Data type
Name	Text
Species	
Weight (kg)	
	Currency

[5]

(b) Boris will provide two types of documentation when the system is implemented.

Name each type of documentation and for each one give **two** items which would be included.

Name ....

Item 1 ....

....

Item 2 ....

....

Name ....

Item 1 ....

....

Item 2 ....

.... [6]

14 Mobile phones (cellphones) are used for accessing the Internet.

Give **two** advantages and **two** disadvantages of using a mobile phone rather than using a desktop computer to access the Internet.

Advantage 1 ....

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Advantage 2 ....

....

Disadvantage 1 ....

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Disadvantage 2 ....

.... [4]

15 A Sports Science student had to analyse the performance of athletes prior to the 2012 Olympic Games. He created a spreadsheet to do this. Below is his analysis of the javelin event. It is split into two sheets. Sheet 1 contains the Code for each nationality. Sheet 2 contains a list of athletes and the results they achieved in a pre-Olympic event.

	A	B
1	Code	Country
2	AUS	Australia
3	FRA	France
4	GHA	Ghana
5	RUS	Russia
6	THA	Thailand
7	TUN	Tunisia
8	TUR	Turkey
9	USA	America
10		

Sheet 1

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

Because athletes sometimes miss a throw or throw outside the area, this is recorded in the spreadsheet as a no throw using the letters NT.

	A	B	C	D	E	F	G	H
1	Country	Athlete	Code	Throw	Throw	Throw	Total	Number
2				1	2	3	thrown	of throws
3	=LOOKUP(C3,Sheet1!$A$2:$B$9)	Chevonne Baines	USA	85.02	73.29	76.9	=SUM(D3:F3)	=COUNTIF(D3:F3,"<>NT")
4	=LOOKUP(C4,Sheet1!$A$2:$B$9)	Mary Bempe	GHA	NT	66.64	70.61	=SUM(D4:F4)	=COUNTIF(D4:F4,"<>NT")
5	=LOOKUP(C5,Sheet1!$A$2:$B$9)	Rhiannon Jones	USA	81.22	68.4	71.18	=SUM(D5:F5)	=COUNTIF(D5:F5,"<>NT")
6	=LOOKUP(C6,Sheet1!$A$2:$B$9)	Abhasra Boonme	THA	83.04	76.43	60.35	=SUM(D6:F6)	=COUNTIF(D6:F6,"<>NT")
7	=LOOKUP(C7,Sheet1!$A$2:$B$9)	Jean Claude Devandre	FRA	68.04	45.98	62.62	=SUM(D7:F7)	=COUNTIF(D7:F7,"<>NT")
8	=LOOKUP(C8,Sheet1!$A$2:$B$9)	Brett Lewis	AUS	79.98	68.78	NT	=SUM(D8:F8)	=COUNTIF(D8:F8,"<>NT")
9	=LOOKUP(C9,Sheet1!$A$2:$B$9)	Vera Stepanov	RUS	70.42	49.88	90.18	=SUM(D9:F9)	=COUNTIF(D9:F9,"<>NT")
10	=LOOKUP(C10,Sheet1!$A$2:$B$9)	Murat Mehmet	TUR	49.81	67.51	53.66	=SUM(D10:F10)	=COUNTIF(D10:F10,"<>NT")
11	=LOOKUP(C11,Sheet1!$A$2:$B$9)	Joan Lewington	USA	88.85	NT	69.44	=SUM(D11:F11)	=COUNTIF(D11:F11,"<>NT")
12	=LOOKUP(C12,Sheet1!$A$2:$B$9)	Youssef Ibrahim	TUN	93.39	63.1	47.14	=SUM(D12:F12)	=COUNTIF(D12:F12,"<>NT")
13	=LOOKUP(C13,Sheet1!$A$2:$B$9)	Laura Bennett	AUS	55.97	49.45	70.07	=SUM(D13:F13)	=COUNTIF(D13:F13,"<>NT")

Sheet 2

(a) Explain what the function in cell A3 does.

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....

....

.... [3]

(b) What value would you expect to see in cell A6?

.... [1]

(c) Explain what the function in cell G3 does.

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.... [2]

(d) Explain what the function in cell H4 does.

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.... [3]

(e) What value would you expect to see in cell H6?

.... [1]

(f) Spreadsheets are often used to produce computer models. There are however, other forms of models such as simulations.

Explain, using air pilot training as an example, what is meant by simulation.

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.... [3]

16 School networks often contain a router and a proxy server.

(a) Describe the role of a proxy server in such a network.

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.... [3]

(b) Explain the purpose of a router.

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.... [3]

17 (a) Explain what is meant by software copyright.

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.... [2]

(b) Explain how software manufacturers attempt to prevent copyright being broken.

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.... [2]

18 Robots are now used on many car production lines.

Discuss the benefits and drawbacks to the car company of using robots.

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.... [7]

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16

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