UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER			

9118532402

INFORMATION AND COMMUNICATION TECHNOLOGY **0417/12**

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 **14** printed pages and **2** blank pages.

UNIVERSITY of CAMBRIDGE International Examinations

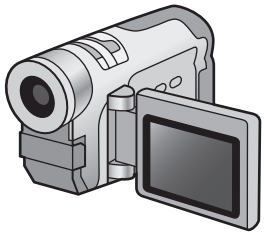
For Examiner's Use

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

A

B

C



D

keyboard	**microphone**	**remote control**	**scanner**
sensor	**touch pad**	**touch screen**	**video camera**

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

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

[4]

2 Ring **two** output devices.

buzzer	**DVD R**	**joystick**
magnetic tape	**plotter**	**touch pad**

[2]

For Examiner's Use

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

	True	False
A numeric keypad is used to type a letter.		
Word processing software is used to monitor physical variables.		
A laser printer works best in an industrial environment.		
A palmtop computer is easier to carry than a laptop computer.		
Sensors are used to input data to a microprocessor.		

[5]

4 Tick **four** devices which are used to connect networks together.

	✓
Hub	
Printer	
Bridge	
Router	
Scanner	
Passwords	
Monitor	
Switch	

[4]

5 Microprocessors are used in different applications to control the process or to simply gather data (measurement only).

Tick which of the following applications are examples of control or of measurement only.

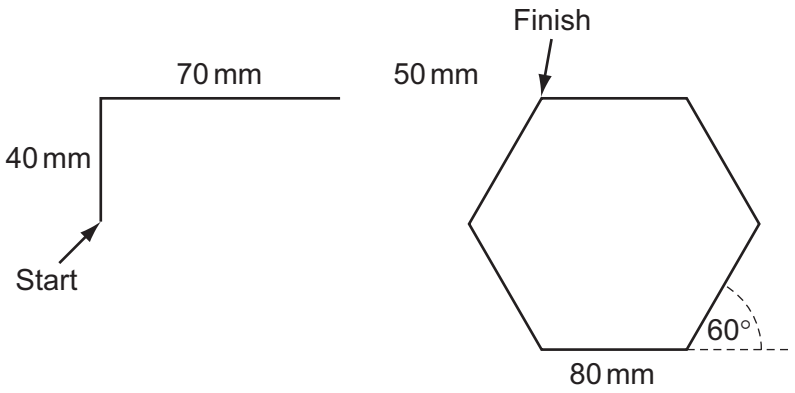
	Control	Measurement only
Automatic cookers		
Weather stations		
Microwave ovens		
Automatic washing machines		

[4]

6 A floor turtle can use the following instructions:

For Examiner's Use

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



Using only the following commands, complete the set of instructions to draw this shape by filling in the blank lines.

PENDOWN .....

FORWARD 40 REPEAT .....

RIGHT 90 80

FORWARD 60

....

FORWARD .....

[8]

For Examiner's Use

7 Use the **most appropriate** phrase from the list below to complete each sentence.

store data in real time applications

store high definition films

store backups of file servers

store music for sale

store photographs in a digital camera

(i) A CD ROM is used to .....

(ii) A blu-ray disc is used to .....

(iii) A magnetic tape is used to .....

(iv) A flash memory card is used to .....

[4]

8 Describe **four** features of ROM.

1 .....

.....

2 .....

.....

3 .....

.....

4 .....

..... [4]

For Examiner's Use

9 Robots are now used on many car production lines.

Describe **three** advantages of this to a car company.

1 .....

.....

2 .....

.....

3 .....

..... [3]

10 **(a)** Car mechanics often use expert systems to help them to diagnose faults with car engines.

Tick **four** components of a typical expert system.

	✓
Graph plotter	
Inference engine	
Interactive input screen	
Knowledge base	
Rules base	
Scanner	
Spreadsheet	
Web cam	

[4]

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

1 .....

.....

2 .....

..... [2]

11 Give **three** advantages of using a graphical user interface (GUI) rather than a command line interface (CLI).

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1 .....

.....

2 .....

.....

3 .....

..... [3]

For Examiner's Use

12 A company wishes to replace its current system with a new computerised system. It has employed a systems analyst to investigate the current system.

(a) Describe **three** methods the systems analyst could use to research the current system.

1 .....

.....

2 .....

.....

3 .....

..... [3]

When large volumes of data are input to a new system it is usual to carry out verification and validation on this data.

(b) Name and describe **two** methods of verification which could be used.

Name .....

Description .....

.....

Name .....

Description .....

..... [4]

(c) Explain why it is necessary to carry out validation even though the data has been verified.

.....

.....

.....

.....

.....

..... [3]

For Examiner's Use

13 A bank is looking into a variety of security measures to protect its customers' data. It is worried that hackers may gain access and cause viruses to infect the system.

(a) Explain what is meant by a virus and what it does.

.....

.....

.....

.....

.....

..... [3]

(b) Describe **three** ways in which a bank customer could protect their computer from becoming infected.

Way 1 .....

.....

Way 2 .....

.....

Way 3 .....

..... [3]

14 The manager of a travel company asked her secretary to look into the reliability of trains in Birmingham. The secretary obtained the details of some of the trains. He created two spreadsheets to help him do this.

For Examiner's Use

Sheet 1 is a list of some of the UK stations that trains from Birmingham go to. Sheet 2 consists of the train details he looked at.

	A	B
1	Code	Station
2	E	Edinburgh
3	LB	Longbridge
4	B	Bournemouth
5	LI	Lichfield
6	S	Shrewsbury
7	W	Wolverhampton
8	LO	London
9	P	Plymouth

Sheet 1

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

	A	B	C	D
1	Arrival Station	Code	Number	
2	=VLOOKUP(B2,Sheet1!$A$2:$B$9,2)	E	=COUNTIF($C$9:$C$18,B2)	
3	=VLOOKUP(B3,Sheet1!$A$2:$B$9,2)	LO	=COUNTIF($C$9:$C$18,B3)	
4	=VLOOKUP(B4,Sheet1!$A$2:$B$9,2)	S	=COUNTIF($C$9:$C$18,B4)	
5	=VLOOKUP(B5,Sheet1!$A$2:$B$9,2)	LI	=COUNTIF($C$9:$C$18,B5)	
6	=VLOOKUP(B6,Sheet1!$A$2:$B$9,2)	W	=COUNTIF($C$9:$C$18,B6)	
7				
8	Arrival time	Minutes late	Arrival code	Late Y/N
9	11:03	0	E	=IF(B9>0,"Y","N")
10	11:05	4	LO	=IF(B10>0,"Y","N")
11	11:07	-4	W	=IF(B11>0,"Y","N")
12	11:10	13	LO	=IF(B12>0,"Y","N")
13	11:12	6	S	=IF(B13>0,"Y","N")
14	11:14	-2	LI	=IF(B14>0,"Y","N")
15	11:16	0	W	=IF(B15>0,"Y","N")
16	11:19	-3	LO	=IF(B16>0,"Y","N")
17	11:22	0	LI	=IF(B17>0,"Y","N")
18	11:25	6	E	=IF(B18>0,"Y","N")

Sheet 2

For Examiner's Use

(a) Explain what the function in cell A2 in Sheet 2 does.

.....

.....

.....

.....

.....

..... [3]

(b) What station would you expect to see in cell A3 in Sheet 2?

..... [1]

(c) Explain what the function in cell C2 in Sheet 2 does.

.....

.....

.....

.....

.....

..... [3]

(d) What value would you expect to see in cell C4 in Sheet 2?

..... [1]

(e) Explain what the function in cell D9 in Sheet 2 does.

.....

.....

.....

.....

.....

..... [3]

(f) What value would you expect to see in cell D11 in Sheet 2?

..... [1]

[Turn over

For Examiner's Use

15 Chi has employed Sarbjit, a systems analyst, to create a new database system for his mobile telephone (cellphone) business.

- He keeps a number of different models in stock.
- Most of the phones have a camera but some do not.
- The rental plans have 100, 200 or 500 free texts depending on the amount the customer pays per month.
- The minimum monthly payment is $10 and the maximum is $100.

(a) Complete the data dictionary below filling in the field names and the **most appropriate** data types to create a database using only the above information.

Field name	Data type
Model	
Monthly payment	

[6]

(b) Name and describe **three** different validation checks that could be used on the data in this database.

1 .....

.....

.....

.....

2 .....

.....

.....

.....

3 .....

.....

.....

..... [6]

For Examiner's Use

16 A small business wishes to set up a Local Area Network (LAN). The manager is not sure whether to use cables to connect the computers or use wireless technology.

Give **three** disadvantages of using wireless technology.

1 .....

.....

2 .....

.....

3 .....

..... [3]

17 Describe **four** differences between an intranet and the Internet.

1 .....

.....

2 .....

.....

3 .....

.....

4 .....

..... [4]

18 A supermarket has a number of EFTPOS terminals.

Explain what is meant by EFTPOS and how such a system works.

For Examiner's Use

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [6]

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