



**Cambridge International Examinations**  
Cambridge International General Certificate of Secondary Education

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**INFORMATION AND COMMUNICATION TECHNOLOGY**

**0417/12**

Paper 1

**May/June 2014**

**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 an HB pencil for any diagrams, graphs or rough working.

Do not use staples, paper clips, 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**

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This document consists of **16** printed pages.

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

**A**



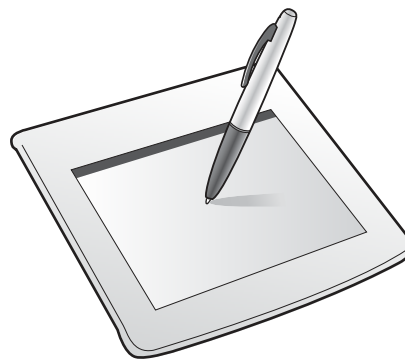
**B**



**C**



**D**



Bar code reader

CD ROM

Desktop computer

Graph plotter

Graphics tablet

Laptop computer

Laser printer

Mouse

A .....

B .....

C .....

D .....

[4]

2 Identify **two** input devices which are used in mobile phones when making a phone call.

1 .....

2 .....

[2]

3 Tick whether the following statements are **True** or **False**.

	True	False
Viruses can be transmitted by opening e-mail attachments.		
MICR is used to read data from bar codes.		
Hard discs can store more data than Blu-ray discs.		
Regular use of computers can cause headaches.		

[4]

4 Give **two** methods a company could use to send instructions electronically to an employee who works from home.

- 1 .....
- 2 ..... [2]

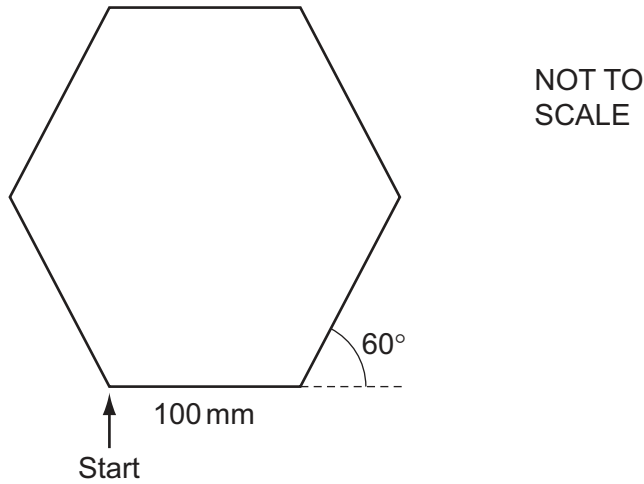
5 In science lessons, students use sensors connected to computers to find the boiling point of water.

Give **three** advantages of using computers and sensors rather than students taking the temperature readings themselves.

- 1 .....  
.....
- 2 .....  
.....
- 3 .....  
..... [3]

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 this shape by filling in the blank lines.  
 All the sides are the same length.  
 The turtle is facing up the page and the pen is up.  
 You **must** use the REPEAT instruction.

RIGHT 90

.....

.....

.....

.....

.....

[5]

7 The table shows part of a spreadsheet file.

	A	B	C	D	E
1	Sweet shop				
2	Item	Cost price	Selling price	Profit	Amount sold
3					
4	Nutty bar	\$1.10	\$1.30	\$0.20	193
5	Choco bar	\$0.95	\$1.10	\$0.15	194
6	Cocoa bar	\$1.05	\$1.30	\$0.25	171
7	Chocolate digits	\$0.80	\$0.90	\$0.10	181
8					

(a) Give the cell reference of one cell containing a label.

..... [1]

(b) Give the cell reference that contains \$0.15.

..... [1]

(c) Write down how many columns are shown in the spreadsheet.

..... [1]

(d) Give the cell reference for a cell that should be formatted as currency.

..... [1]

(e) State the formula that should be in cell D5.

= ..... [1]

- 8 The chemistry department in a school keeps its stock records on computer. The stock for any item is not allowed to fall below 10 or go above 100.

Here are examples of records from the suggested database.

Description	Serial_number	Number_in_stock	Name_of_supplier	Area_code
Flask	061237410231	22	Patels	0789
Beaker	061237410352	35	Smithsons	0635

- (a) As the data is entered it will need to be verified.

Name **two** ways in which the data could be verified.

- 1 .....
- 2 ..... [2]

- (b) For each of these validation checks write down the field that would be best suited to it. You must name **three** different fields.

Range .....

Length .....

Check digit ..... [3]

- 9 Tick **four** benefits of using robots on car production lines.

	✓
Robots never take breaks	
More workers are employed	
Faster cars are produced	
Standard of the product is more consistent	
Robots never break down	
Robots don't need paying	
No humans are needed	
Greater productivity	

[4]

10 A video-conference is being set up.

Complete each sentence below using the **most appropriate** device from the list.

**MICR**

**OCR**

**router**

**web cam**

**scanner**

**printer**

**keyboard**

**microphone**

**speaker**

(i) Moving images are input using a

.....

(ii) Sound is input using a

.....

(iii) Sound is output using a

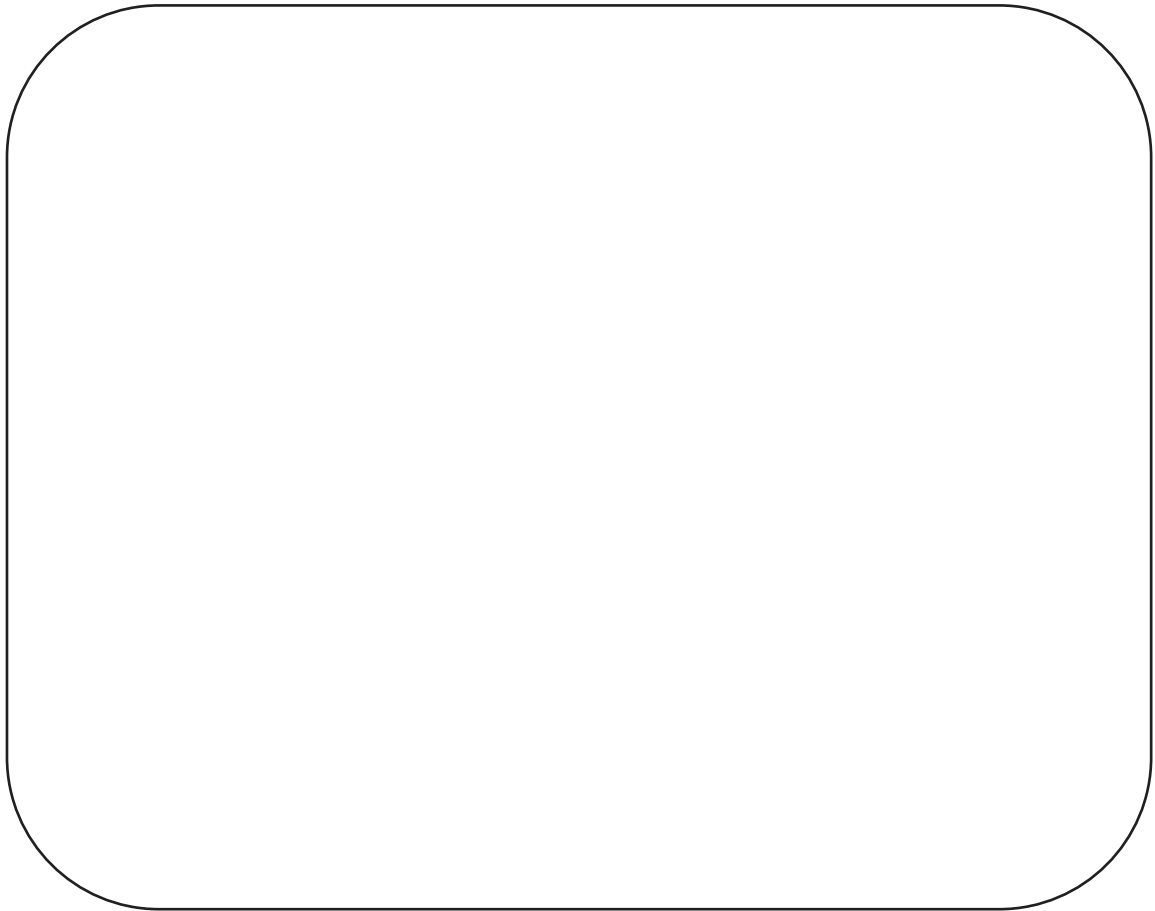
.....

(iv) Connection to the Internet is made using a

..... [4]

11 A library has decided to update its computer system. The details of each book are typed into a screen input form.

(a) Design a suitable screen input form for inputting the details of **one** book. The form must have appropriate spacing for each field, and navigation aids.



[5]

(b) As the data is typed in, it is stored in a database.

Name the medium which would be most suitable for storing the data and having direct access to records. Give **two** reasons for your choice.

Name .....

Reason 1 .....

.....

Reason 2 .....

.....

[3]



(c) The library wants to include the new computerised borrowing system on its website. Borrowers will be able to reserve or renew books using the Internet. Some people are concerned about this because there is a risk that their data may be accessed by unauthorised people.

Describe **three** ways that the library could try to prevent unauthorised access to their system.

1 .....

.....

2 .....

.....

3 .....

..... [3]

(d) The new system will be implemented.

Describe **three** different ways in which the system could be implemented.

1 .....

.....

2 .....

.....

3 .....

..... [3]

(e) After the system is implemented the library will be given two types of documentation.

(i) One type will help people use the new system.

Give **two** examples of the contents of this type of documentation.

1 .....

.....

2 .....

.....

(ii) The other type will help a programmer or systems analyst who wants to upgrade the system.

Give **two** examples of the contents of this type of documentation.

1 .....

.....

2 .....

.....

[4]

12 A school is going to introduce an automatic registration system controlled by computer. Students will carry a card which will be read automatically by an input device every session so that the school office will know that they are present.

(a) Name a suitable input device to read the card.

..... [1]

(b) Instead of using this system the school ICT teacher suggests using student fingerprints.

Describe **two** advantages and **two** disadvantages of such a system.

Advantage 1 .....

.....

Advantage 2 .....

.....

Disadvantage 1 .....

.....

Disadvantage 2 .....

..... [4]

13 Discuss the advantages and disadvantages, in terms of cost, to customers of using the Internet for home shopping.

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [5]



15 A word-processed school newsletter contains only text. The head teacher wants to add images to the newsletter.

(a) Describe how he could include photographs, taken using a digital camera, in the newsletter.

.....  
.....  
.....  
.....  
.....  
..... [3]

(b) Name **two** other suitable sources of digital images.

1 .....  
2 ..... [2]

(c) The head teacher needs one thousand copies of this newsletter.

Give **four** reasons why a laser printer should be used rather than an inkjet or a dot matrix printer.

1 .....  
.....  
2 .....  
.....  
3 .....  
.....  
4 .....  
..... [4]



**18** A theatre has an on-line booking system.  
Customers can reserve seats using the Internet with a credit card.  
The theatre's computer keeps records of which seats are available.  
When the customer pays for a seat the theatre's computer communicates with the credit card company's computer.

**(a)** Describe **three** checks that the credit card computer will make on the customer's credit card account.

1 .....

.....

2 .....

.....

3 .....

..... [3]

**(b)** Describe the processing carried out by the theatre's computer when the credit card company's computer authorises the transaction.

.....

.....

.....

.....

.....

.....

.....

..... [4]

