



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

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**INFORMATION AND COMMUNICATION TECHNOLOGY**

**0417/13**

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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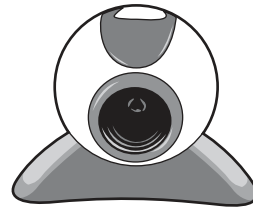
This document consists of **14** printed pages and **2** blank pages.

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

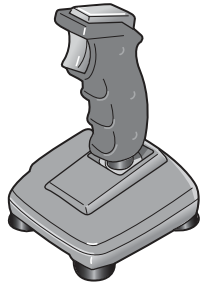
**A**



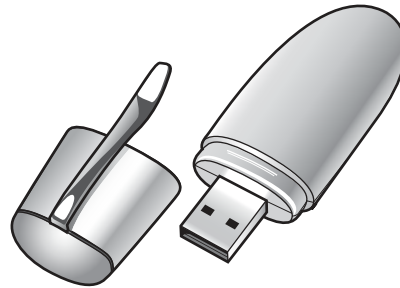
**B**



**C**



**D**



**Bar Code Reader**

**CD ROM Drive**

**Digital Camera**

**Joystick**

**Memory Stick**

**Mouse**

**Speakers**

**Web cam**

A .....

B .....

C .....

D .....

[4]

2 Identify **two** features of a Graphical User Interface.

1 .....

2 .....

[2]

- 3 Complete the table below by identifying an appropriate type of **software** which would be used to carry out each of the following tasks.

Software	Task
	Typing a letter
	Calculating profit and loss
	Viewing pages on the Internet
	Creating a slide show

[4]

- 4 Tick whether the following tasks are carried out in the Evaluation or Analysis phase of the systems life cycle.

	Evaluation	Analysis
Identifying user and information requirements		
Comparing the new system with the original task requirements		
Carry out research on the current system		
Identifying any limitations of the new system		

[4]

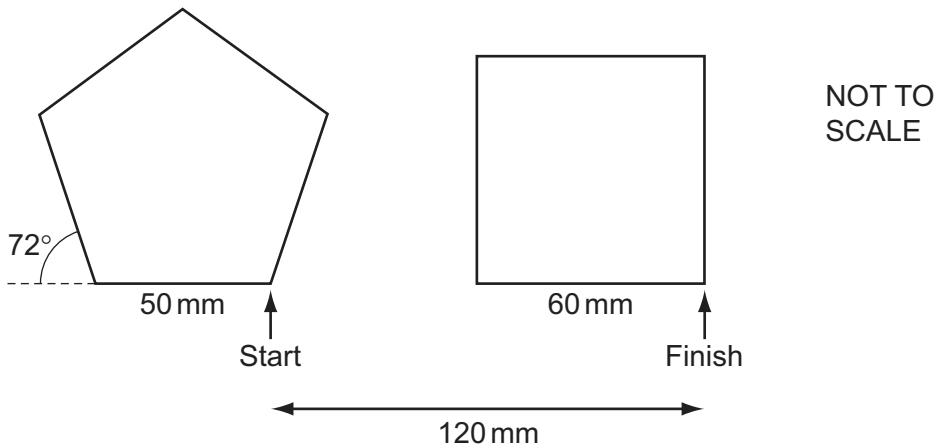
- 5 Tick **three** input devices that would be used at an EFTPOS terminal in a supermarket.

	✓
Chip reader	
Web cam	
Printer	
Buzzer	
Keypad	
Bar code reader	
TFT screen	

[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 these regular shapes by filling in the blank lines. The turtle is facing up.

```

PENDOWN
LEFT          90
REPEAT       5
FORWARD     50
.....
.....

PENUP
BACKWARD   120
.....
.....
FORWARD    60
.....
.....
END REPEAT
    
```

[5]

7 A systems analyst has designed a new computer system for the payroll of a large organisation.

(a) The system needs to be tested.

Using examples of workers pay, which must not be lower than \$200 and no more than \$800, explain what is meant by normal test data, abnormal test data and extreme test data.

Normal .....

.....

.....

.....

Abnormal .....

.....

.....

.....

Extreme .....

.....

.....

..... [6]

(b) The systems analyst produces documentation for the system.

Give **four** reasons why both user and technical documentation are needed.

1 .....

.....

2 .....

.....

3 .....

.....

4 .....

..... [4]

8 Explain, giving examples of their use, the differences between ROM and RAM.

.....  
.....  
.....  
.....  
.....  
.....  
.....  
..... [4]

9 Other than communication systems, identify **two** applications which use online processing.

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

10 Complete each sentence below using one item from the list.

- |                          |                      |                      |
|--------------------------|----------------------|----------------------|
| <b>a bar code reader</b> | <b>a data logger</b> | <b>a chip reader</b> |
| <b>MICR</b>              | <b>OMR</b>           | <b>a robot</b>       |
| <b>a simulation</b>      | <b>validation</b>    | <b>verification</b>  |

Data from a bank card is input using .....

Data from a product in a supermarket is input using .....

Data from a cheque is input using .....

Fixing wheels to a car on a production line would be done by ..... [4]

- 11 Computers are used in libraries to keep records of books and borrowers.

This is part of the database of books in a library:

ISBN	Title	Name of Author	Paperback or Hardback	Borrower number
9780593057049	Gone Tomorrow	Lee Child	P	864752
9781858683416	The World of the Brontës	Jane O'Neill	H	673257
9780747591054	Harry Potter and the Deathly Hallows	J K Rowling	H	489323
9780091765132	Old Bear stories	Jane Hissey	H	489323

This is part of the borrower's database:

Borrower number	Name of borrower	e-mail of borrower	Borrower phone number
673257	Giovanni Benitez	benitez.g@fmail.fr	02 34 45 67
489323	Sarbjit Chandra	sarb@goofie.es	24 17 39 81

- (a) Individual records in the data files need to be retrieved quickly.

Write down the name of the most suitable storage medium for this purpose.

..... [1]

- (b) The records in the book file are to be sorted in descending order of ISBN.

What will be the **title** of the book in the first record in the database after it has been sorted?

..... [1]

- (c) Give the name of a field that contains a Boolean data type.

..... [1]

- (d) Identify the data type of the borrower phone number field.

..... [1]

- (e) Why would the borrower number in the borrower's database be used as a key field?

..... [1]

(f) Write down the **author** of the book that Giovanni Benitez has borrowed.

..... [1]

(g) The final digit in the ISBN is used for validation purposes.

Write down the name of this digit.

..... [1]

(h) Describe **two** suitable validation checks, other than limit or range checks, that could be carried out on the borrower number field.

1 .....

.....

2 .....

..... [2]

(i) Describe **three** advantages and **one** disadvantage of the library using email rather than a phone call to contact borrowers.

Advantage 1 .....

.....

Advantage 2 .....

.....

Advantage 3 .....

.....

Disadvantage .....

..... [4]





12 An online bank keeps customer account data on their computers.

(a) Give **one** way a hacker can use customer accounts to defraud the bank.

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

(b) Give **three** reasons why, despite the risk of hacking, the bank still operates on-line banking.

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

13 Describe **four** drawbacks to young people using social networking sites.

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

14 Complete the sentences using words from the list below.

**OMR**

**CAD/CAM**

**a disc**

**a tape**

**an icon**

**a keyboard**

(i) Pupil exam answers can be read using

.....

(ii) In a Graphical User Interface, to select an application you click on

.....

(iii) To enter an instruction into a Command Line Interface you would use

..... [3]

15 Computer controlled traffic lights are used at busy road junctions. Light sensors and sound sensors are **not** used to measure traffic flow.

(a) Giving a different reason for each, explain why these sensors are unsuitable.

Sound .....

.....

Light .....

..... [2]

(b) Explain the difference between measurement and control when using microprocessors.

.....

.....

.....

..... [2]

16 A company is planning to have a video-conference.

(a) Describe the purpose of each of the following devices.

Microphone .....

.....

Speakers .....

.....

Webcam .....

..... [3]

(b) Apart from saving costs and travelling time, describe the advantages to the company of having a video-conference rather than a conference in a hotel.

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..... [4]

17 Doctors use an expert system to help them with their diagnoses of illnesses.

(a) The symptoms are typed in by the doctors.

Describe the processing which the system uses so that it can suggest possible illnesses.

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.....  
.....  
..... [5]

(b) Name **two** applications other than medical diagnosis and car fault diagnosis which involve the use of expert systems.

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

- 18 Students are going to produce a word-processed report about the school greenhouse. It will contain images of the plants that are grown. It will also contain data and charts from a spreadsheet showing the costs of plants.

Describe how the students will produce their report.

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..... [4]

- 19 Explain what is meant by phishing and pharming.

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..... [4]



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