| CANDIDATE NAME | |
|---|---|

| CENTRE NUMBER | | CANDIDATE NUMBER | |
|---|---|---|---|

**INFORMATION AND COMMUNICATION TECHNOLOGY**
Paper 1

**0417/11**

**May/June 2015**

**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.
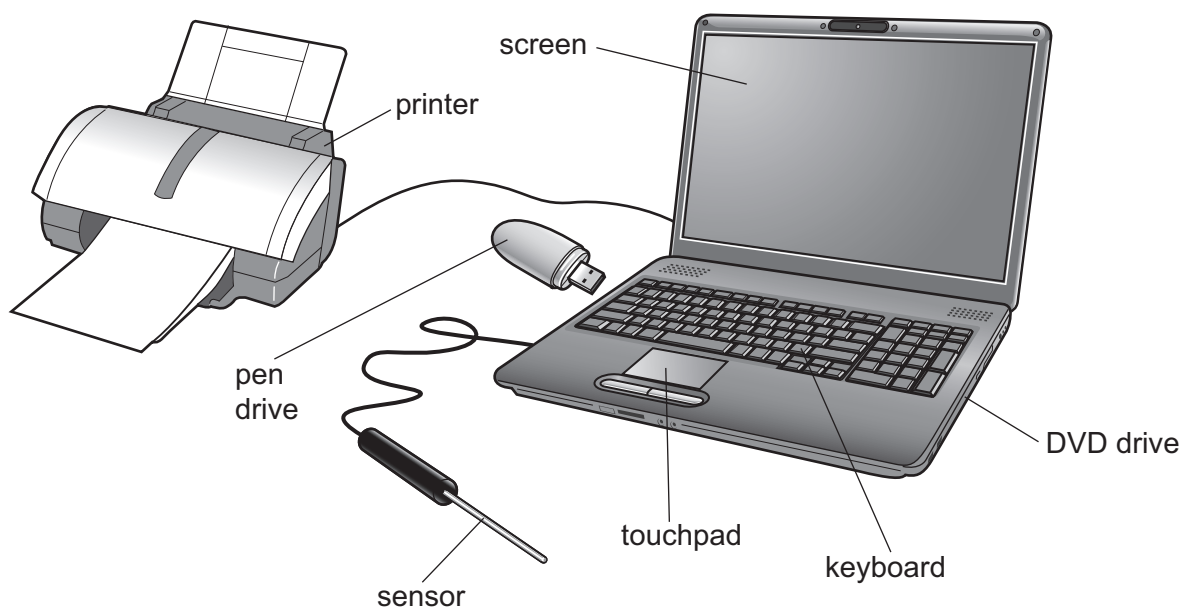
This document consists of **13** printed pages and **3** blank pages.

06_0417_11_2015_1.14
© UCLES 2015

International Examinations

[Turn Over

**1** This diagram shows a laptop computer being used in a measuring experiment.



**(a)** Apart from the keyboard, name **two** input devices shown in the diagram above.

1.............................................................................................................................................

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

**(b)** Name **two** output devices shown in the diagram above.

1.............................................................................................................................................

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

**(c)** Name **two** storage devices shown in the diagram above.

1.............................................................................................................................................

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

**2** Tick the **most** appropriate method of inputting data for the following uses.

| Use | MICR ✓ | Trackerball ✓ | Sensor ✓ |
|---|---|---|---|
| Reading data from a cheque | | | |
| Inputting the temperature of a greenhouse | | | |
| People with limited motor skills using computers | | | |
| Inputting the amount of humidity in a weather station | | | |

[4]

3 Complete the table by identifying the **most** appropriate output device for each type of application.

| Application | Device |
|---|---|
| Produces very high quality printing where speed is not an issue | |
| Production of continuous stationery where noise is not an issue | |
| Produces rapid, high quality and high volume printing | |
| Produces very large printouts such as size A0 | |

[4]

4 Tick which of these statements apply to a Blog, a Microblog or a Wiki.

| | Blog ✓ | Microblog ✓ | Wiki ✓ |
|---|---|---|---|
| Very restricted on the size of post | | | |
| Allows readers to edit posts | | | |
| Entries are **not** usually in chronological order | | | |
| Very difficult to customise | | | |

[4]

5 Complete each of the sentences using the **most** appropriate word from the list below.

batch            sensor            OCR

fan              MICR              direct

serial           motor

(a) The type of processing used for processing bank cheques is called .................... [1]

(b) The type of access used on a magnetic hard disc is called .................... [1]

(c) An item of hardware which is used to open windows is called a .................... [1]

**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 |

30 mm

30 mm                    30 mm

10 mm

20 mm

Start    Finish
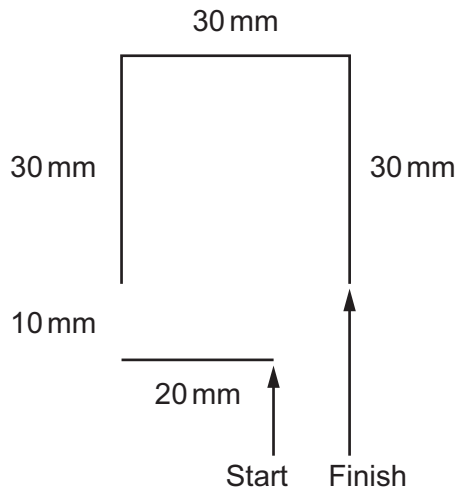
Complete the set of instructions to draw this shape by filling in the blank lines. Do **not** use additional lines.

PENDOWN                              ..........................................

LEFT 90                              ..........................................

FORWARD 20                           ..........................................

RIGHT 90                             ..........................................

PENUP                                ..........................................

..........................................    FORWARD 30

[6]

**7** A home is fitted with a microprocessor-controlled burglar alarm system. It is not connected to a police station.

**(a)** Tick **three** sensors which would be used in such a system.

|  | ✓ |
|---|---|
| Pressure sensor |  |
| Oxygen level sensor |  |
| Wind speed sensor |  |
| Sound sensor |  |
| Body sensor |  |
| Moisture sensor |  |
| Infra-red sensor |  |
| Touch sensor |  |

[3]

**(b)** Describe how a microprocessor-controlled burglar alarm system operates, referring to those sensors you identified in part **(a)**.

..................................................................................................................................................

..................................................................................................................................................

..................................................................................................................................................

..................................................................................................................................................

..................................................................................................................................................

..................................................................................................................................................

..................................................................................................................................................

..................................................................................................................................................

..................................................................................................................................................

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

8    The owner of a sports club has recently had a new computerised stock control system installed. He employed a systems analyst to research the existing system and then install the new system.

**(a)** Tick the relevant stage of the systems analysis and design (systems life cycle) for each of the following activities.

| Activity | Analysis ✓ | Design ✓ | Evaluation ✓ |
|---|---|---|---|
| Interviewing the users of the new system | | | |
| Interviewing the users of the existing system | | | |
| Planning the validation routines | | | |
| Examining existing documents | | | |

[4]

**(b)** Before the system was installed, the systems analyst had to decide on a method of implementation.

Name and describe **three** methods of implementation.

Name ...................................................................................................................................

Description ...........................................................................................................................

..............................................................................................................................................

Name ...................................................................................................................................

Description...........................................................................................................................

..............................................................................................................................................

Name...................................................................................................................................

Description ...........................................................................................................................

.................................................................................................................................... [6]

**(c)** When the system was implemented, the system analyst gave some documentation to the sports club owner.

Name **three** items found in the technical documentation of this system.

1. .......................................................................................................................................

..........................................................................................................................................

2. .......................................................................................................................................

..........................................................................................................................................

3. .......................................................................................................................................

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

**(d)** Name **three** items in the user documentation which are not present in the technical documentation.

1. .......................................................................................................................................

..........................................................................................................................................

2. .......................................................................................................................................

..........................................................................................................................................

3. .......................................................................................................................................

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

**9** A headteacher wants to store details of his students' attendances in a spreadsheet. He has typed in the details of two students so far. Each student is identified by a student ID which consists of one letter followed by 6 digits. The number of possible attendances is recorded along with each student's actual number of attendances.

|   | A | B | C | D | E |
|---|---|---|---|---|---|
| **1** | Student name | Student ID | Possible attendances | Actual attendances | |
| **2** | | | | | |
| **3** | Maria Gonzales | L543789 | 80 | 72 | |
| **4** | Clive Lloyd | M351209 | 80 | 66 | |
| **5** | | | | | |
| **6** | | | | | |

**(a)** The headteacher wants to ensure the Student ID is accurately entered.

Describe a method of verifying the input.

.......................................................................................................................................................

.......................................................................................................................................................

.......................................................................................................................................................

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

**(b)** He wants the spreadsheet to perform a calculation of the percentage attendance of Maria Gonzales in E3.

Explain how he would use the spreadsheet to do this.

.......................................................................................................................................................

.......................................................................................................................................................

.......................................................................................................................................................

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

**(c)** He now wants to add another 18 students to the spreadsheet.

Explain how he could calculate the percentage attendance for each student by only using a computer mouse.

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

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

**(d)** Give **two** reasons, apart from cost, why computer models are often used instead of the real thing.

1. ...............................................................................................................................................

...................................................................................................................................................

2. ...............................................................................................................................................

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

**10** Tick **four** drawbacks to car manufacturers of introducing robots on production lines.

|  | ✓ |
|---|---|
| Redundancy payments to previous workers are expensive | |
| The cars produced are not of a consistent standard | |
| Robots are unable to think for themselves | |
| Robots do not go on strike | |
| Robots are expensive to buy | |
| Mistakes are never made | |
| Maintaining robots costs money | |
| Car workers have to be paid more | |

[4]

11 (a) Explain what is meant by Spam.

.......................................................................................................................................

.......................................................................................................................................

.......................................................................................................................................

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

(b) Describe how web pages can be used to trick users into giving personal information.

.......................................................................................................................................

.......................................................................................................................................

.......................................................................................................................................

.......................................................................................................................................

.......................................................................................................................................

.......................................................................................................................................

.......................................................................................................................................

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

12 Alfonso's family has three computers. He wants each member of his family to be able to access internet shopping.

(a) Identify **three** items of hardware he may need to purchase in order to set up a computer network that will enable this to happen.

1. .................................................................................................................................

2. .................................................................................................................................

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

(b) Alfonso's teenage daughter uses her computer to create and send work to school.

Describe **three** other ways she could make appropriate use of the internet.

1. .................................................................................................................................

.......................................................................................................................................

2. .................................................................................................................................

.......................................................................................................................................

3. .................................................................................................................................

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

**(c)** Describe a strategy that Alfonso's daughter could use to back up her school work.

.......................................................................................................................................

.......................................................................................................................................

.......................................................................................................................................

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


**(d)** The bank that Alfonso uses only requires customers to log into their account by inputting a user id and password.

Explain why this is not very secure and discuss other ways the bank could identify the customer securely.

.......................................................................................................................................

.......................................................................................................................................

.......................................................................................................................................

.......................................................................................................................................

.......................................................................................................................................

.......................................................................................................................................

.......................................................................................................................................

.......................................................................................................................................

.......................................................................................................................................

.......................................................................................................................................

.......................................................................................................................................

....................................................................................................................... [6]

13 Ahmed has asked Anna, a systems analyst, to create a new database system for his video rental business. He rents out films in DVD and Blu-ray formats only. Here are some of the questions customers ask:

1. Do you have the film 'Muppets most wanted' in Blu-ray format?

2. Do you have any films which I can rent for less than $3?

3. Do you have any films directed by Stephen Spielberg?

(a) Complete the design table below by filling in the field names and data types. Use the **most** appropriate data type to create a database which would answer the questions shown above. Do not use spaces in field names.

| Field name | Data type |
|---|---|
| Film_title | |
| | |
| | |
| Name_of_director | |

[6]

(b) Describe how Ahmed would use the finished database to produce a report, without using word processing software, to answer the second question above.

.................................................................................................................................................

.................................................................................................................................................

.................................................................................................................................................

.................................................................................................................................................

.................................................................................................................................................

.................................................................................................................................................

.................................................................................................................................................

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

**14** A lending library has introduced an e-book borrowing facility. Borrowers will be able to download a book to their tablet computer or e-book reader. It will automatically remove itself from the device after the loan period has expired.

Discuss the advantages and disadvantages of such a system to the library and the borrower.

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

...................................................................................................................................................

................................................................................................................................... [6]

**BLANK PAGE**

06_0417_11_2015_1.14

**BLANK PAGE**

06_0417_11_2015_1.14

**BLANK PAGE**