UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

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.

This document consists of 14 printed pages and 2 blank pages.
1 Name the devices A, B, C and D using the words from the list.

A: .....................................................  B: .....................................................
C: .....................................................  D: .....................................................

2 Ring **two** items which are input devices.

Flash memory card  Graph plotter  Graphics tablet
Laser printer  Magnetic disc  Touchpad

3 Tick **TRUE** or **FALSE** next to each of these statements.

<table>
<thead>
<tr>
<th>Statement</th>
<th>TRUE</th>
<th>FALSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presentation software is used to create slide shows</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laptop computers do not have USB ports</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DTP software can be used to produce databases</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measurement software is used to create magazines</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buzzers are input devices</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4  Complete each sentence below using one item from the list.

| A bar code reader | A dot matrix printer | A graphics tablet |
| A laser printer   | A microphone         | A multimedia projector |
| A presence check  | A speaker            | A temperature sensor |
| A web cam         |                        |                      |

(a) .............................................. is used to input data about products at a POS.
(b) .............................................. is used to produce high quality hard copy.
(c) .............................................. sends data to a microprocessor in a washing machine.
(d) .............................................. is used to input freehand drawings to a computer.
(e) .............................................. is used to output sounds from the computer.

[5]

5  A school teacher is creating a slide show to describe a typical week in her life.

(a) Tick three items of hardware which she would use.

- Database
- Keyboard
- Spreadsheet
- Animation
- Microphone
- Video camera

(b) She has been advised that it could be easier to use a Blog rather than create a slide show.

Give one advantage and one disadvantage of using a Blog.

Advantage of Blog ........................................................................................................................................................................

Disadvantage of Blog ......................................................................................................................................................................
A floor turtle can use the following instructions:

<table>
<thead>
<tr>
<th>INSTRUCTION</th>
<th>MEANING</th>
</tr>
</thead>
<tbody>
<tr>
<td>FORWARD n</td>
<td>Move $n$ mm forward</td>
</tr>
<tr>
<td>BACKWARD n</td>
<td>Move $n$ mm backward</td>
</tr>
<tr>
<td>LEFT $t$</td>
<td>Turn left $t$ degrees</td>
</tr>
<tr>
<td>RIGHT $t$</td>
<td>Turn right $t$ degrees</td>
</tr>
<tr>
<td>PENUP</td>
<td>Lift the pen</td>
</tr>
<tr>
<td>PENDOWN</td>
<td>Lower the pen</td>
</tr>
<tr>
<td>REPEAT $n$</td>
<td>Repeat the following instructions $n$ times</td>
</tr>
<tr>
<td>END REPEAT</td>
<td>Finish the REPEAT loop</td>
</tr>
</tbody>
</table>

Complete the set of instructions to draw this shape by filling in the blank lines.

```
PEN DOWN

.......................... 90

REPEAT ..................

.......................... 50

RIGHT ..................

..........................
```

[5]
7 Draw four lines on the diagram to match the use to its most appropriate output device.

<table>
<thead>
<tr>
<th>Use</th>
<th>Output device</th>
</tr>
</thead>
<tbody>
<tr>
<td>to produce very large high quality hard copy</td>
<td>dot matrix printer</td>
</tr>
<tr>
<td>to display data from a computer on to a large screen</td>
<td>plotter</td>
</tr>
<tr>
<td>to alert mobile phone users to incoming calls</td>
<td>multimedia projector</td>
</tr>
<tr>
<td>to output multipart forms</td>
<td>buzzer</td>
</tr>
</tbody>
</table>

[4]

8 A school keeps records of its students, using many different types of data. Explain what is meant by Boolean, alphanumeric and numeric data, using examples of student data.

(a) Boolean
Meaning ........................................................................................................................................
........................................................................................................................................
Example ......................................................................................................................................
........................................................................................................................................

(b) Alphanumeric
Meaning ........................................................................................................................................
........................................................................................................................................
Example ......................................................................................................................................
........................................................................................................................................

(c) Numeric
Meaning ........................................................................................................................................
........................................................................................................................................
Example ......................................................................................................................................
........................................................................................................................................ [6]
9 Tick **TRUE** or **FALSE** next to each statement.

<table>
<thead>
<tr>
<th>Statement</th>
<th>TRUE</th>
<th>FALSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Records are updated immediately when using online processing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A transaction file is often created when batch processing is used</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The processing of bank cheques is an example of batch processing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Batch processing is needed for operating ATMs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10 A group of doctors want to have an expert system to help them with their diagnoses. Describe how such a system would be created.
The manager of a bookshop uses a database to store data about the books she sells. This is part of the database.

<table>
<thead>
<tr>
<th>Title of book</th>
<th>Fiction (Y/N)</th>
<th>Number in stock</th>
<th>Next order due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Circle</td>
<td>N</td>
<td>15</td>
<td>20/06/11</td>
</tr>
<tr>
<td>Sanditon</td>
<td>Y</td>
<td>18</td>
<td>08/07/11</td>
</tr>
<tr>
<td>Vanity Fair</td>
<td>Y</td>
<td>23</td>
<td>16/10/11</td>
</tr>
<tr>
<td>The Old Curiosity Shop</td>
<td>Y</td>
<td>10</td>
<td>23/06/11</td>
</tr>
<tr>
<td>Pride and Prejudice</td>
<td>Y</td>
<td>12</td>
<td>23/06/11</td>
</tr>
<tr>
<td>Sense and Sensibility</td>
<td>Y</td>
<td>26</td>
<td>02/10/11</td>
</tr>
<tr>
<td>The Moon’s a Balloon</td>
<td>N</td>
<td>12</td>
<td>21/08/11</td>
</tr>
</tbody>
</table>

(a) How many fields are there in this part of the database?

(b) How many records are there in this part of the database?

(c) The records shown are to be sorted in ascending order of Number in stock. What will be the title of the book which will be the first record in the database after it has been sorted?

(d) What is the title of the book which has no more than 12 copies in stock and is not Fiction?

(e) Describe a validation check which could be carried out on the Next order due field.
12 The main memory in computers is becoming very large. Give three reasons why backing storage is still needed.

1

2

3

[3]

13 A large company has a LAN. The manager of the company wants to allow all the network users to access the internet and communicate with other companies.

(a) Describe the hardware and software he would need in order to achieve this.

(b) Give three disadvantages to the manager of allowing workers to access the internet.

1

2

3

[3]
Describe **two** safety issues, caused by working with computers. For each safety issue give a method of prevention. Do not use the same method for both answers.

**Safety issue 1**

Method of prevention

**Safety issue 2**

Method of prevention

---

Eric wants to type in details of new customers into a database. He needs to design an on-screen input form.

Describe **four** features, apart from navigational aids, of a well-designed on-screen input form.

1

2

3

4

---
16 After a system has been implemented it needs to be tested. Describe two testing strategies and state a reason why each is needed.

(a) Strategy 1 .................................................................................................................................

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

(b) Strategy 2 ....................................................................................................................................

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

17 Many homes now have microprocessor controlled burglar alarm systems.

(a) Name two sensors used in such a system and for each explain what it is used for.

Sensor 1 ........................................................................................................................................

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

Sensor 2 ........................................................................................................................................

Use ............................................................................................................................................... [2]
(b) Describe the role of the microprocessor in such a system.

... ...

[4]

(c) There are many microprocessor controlled devices in the modern home. Describe the effects of these on people's lifestyles.

... ...

[4]
A head teacher wants to send the school magazine to parents. Discuss the advantages and disadvantages of sending it by email or delivering it by hand.
International companies may use video conferencing instead of face to face meetings.

(a) Describe the use of three hardware devices in video conferencing.

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

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

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

(b) Describe two advantages to the company of such a system.

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

2. 
   ........................................................................................................................................ [2]
20 Encrypted data is used in on-line banking. Describe encryption.

[3]