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.

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

A: Light pen  
B: Microphone  
C: Numeric keypad  
D: Remote control

A: Scanner  
B: Touch pad  
C: Trackerball  
D: Web cam

2. Ring **two** items which are storage media.

   - Bar code reader  
   - DVD RAM  
   - Joystick  
   - Magnetic tape  
   - Sensor  
   - Touch screen

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>DTP software can be used with sound files.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measurement software is used to send emails.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spreadsheet software is used to create models.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A command line interface can be used to communicate with a computer.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PDAs are usually bigger than laptops.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4 Complete each sentence below using one item from the list.

A chip reader  A digital camera  A graph plotter
A graphics tablet  A joystick  A laser printer
A multimedia projector  An optical mark reader  A temperature sensor
A TFT monitor

(a) ................................................. is used to send data to a microprocessor controlled cooker.
(b) ................................................. is used to read details from a bank card.
(c) ................................................. is used to control a car driving simulator.
(d) ................................................. is used to take photographs for inclusion in a web site.
(e) ................................................. is used to input data from a school register.

5 Tick three items of software which a PC connected to the internet might use.

- A modem
- A virus scanner
- An email package
- Another PC
- A browser
- A keyboard

6 A school has a database which includes details of every student. Tick whether the following statements refer to a file, a field or a record.

<table>
<thead>
<tr>
<th>Field</th>
<th>File</th>
<th>Record</th>
</tr>
</thead>
<tbody>
<tr>
<td>All the information about one student.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One piece of information about each student.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A primary key.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All the information about all the students.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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
FORWARD
\[60\]
```
8 Tick **TRUE** or **FALSE** next to each statement to indicate if it is an example of online processing.

<table>
<thead>
<tr>
<th>TRUE</th>
<th>FALSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computerised booking of a theatre ticket.</td>
<td></td>
</tr>
<tr>
<td>Clearing cheques overnight.</td>
<td></td>
</tr>
<tr>
<td>Paying at a supermarket using Electronic Funds Transfer.</td>
<td></td>
</tr>
<tr>
<td>Printing monthly credit card bills.</td>
<td></td>
</tr>
</tbody>
</table>

9 Multi-national companies often use video conferencing instead of face-to-face meetings.

(a) Tick **three** advantages of video conferencing.

- Companies don't have to employ so many workers.
- Companies can call meetings at short notice.
- Employees don't have to prepare for meetings.
- Companies do not have to pay travelling expenses.
- Employees can work from home.
- Companies don't have to have any offices.

(b) Tick **three** disadvantages of video conferencing.

- It is difficult to call international meetings because of time differences.
- Employees can’t see the documents which are being discussed.
- The initial cost of hardware can be expensive.
- There is a loss of personal and social contact.
- Companies are unable to contact the employees about having a conference.
- Companies have to hire expensive halls.
10 Write down the most suitable data type for each item of data in the table below.

<table>
<thead>
<tr>
<th>Registration number</th>
<th>Day/Month/Year of manufacture</th>
<th>Doors</th>
<th>Air conditioning (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KAC 758F</td>
<td>12/10/1991</td>
<td>4</td>
<td>Y</td>
</tr>
<tr>
<td>KAR 815P</td>
<td>03/06/2005</td>
<td>5</td>
<td>N</td>
</tr>
<tr>
<td>KAB 179A</td>
<td>05/08/1990</td>
<td>5</td>
<td>N</td>
</tr>
<tr>
<td>KAP 613Y</td>
<td>11/08/2004</td>
<td>3</td>
<td>N</td>
</tr>
</tbody>
</table>

Registration number ..........................................
Day/Month/Year of manufacture .................................
Doors ..................................................................
Air conditioning .............................................

11 All computers come with main memory as well as backing storage. Give a reason why the following are needed.

RAM ........................................................................
........................................................................

ROM ........................................................................
........................................................................

Backing storage ..................................................
........................................................................ [3]
12 Car mechanics often use expert systems to diagnose faults with car engines. List **four** parts of an expert system.

1
2
3
4

13 Draw **four** lines on the diagram to match the use to its most **appropriate** storage medium.

<table>
<thead>
<tr>
<th>Use</th>
<th>Storage medium</th>
</tr>
</thead>
<tbody>
<tr>
<td>storing data in online applications</td>
<td>DVD ROM</td>
</tr>
<tr>
<td>to store data that cannot be changed</td>
<td>Fixed hard disc</td>
</tr>
<tr>
<td>saving work and transporting it to other computers</td>
<td>Magnetic tape</td>
</tr>
<tr>
<td>taking backups of file servers</td>
<td>Pen drive</td>
</tr>
</tbody>
</table>

14 (a) Give **two** uses of ICT devices which, when prolonged, can cause RSI.

1
2

(b) Identify **two** safety issues and how they are caused.

1
2

[Turn over]
A large company has two separate sites both of which have a LAN. The manager of the company wants to connect the LANs to form a WAN.

(a) Name three network devices which could be found in a LAN that is not connected to a WAN.

1. 
2. 
3. [3]

(b) The manager wants to buy a router to connect the LANs. Describe the function of a router.

                                                                                                                     [2]

(c) The company’s workers are concerned that their data may not be secure. Name three authentication techniques and for each one explain how it will help to prevent illegal access to the data.

1. 
2. 
3. [6]
16 When a new system is implemented, documentation is provided with it. Explain why **two** different types of documentation are produced.

17 (a) Explain what is meant by a computer virus.

(b) Explain what is meant by hacking.
Aysha needs to enter customer details into her company’s database. She has asked her friend Ali to design an input screen to enable her to do this. She is not pleased with his attempt.

Name
Address
Date of birth ___ / ___ / ________
Customer ID
Type in male or female

Type in **next** for next record or **back** for previous record

(a) Describe **five** improvements which could be made to this screen.

1.

2.

3.

4.

5.

[5]
(b) The new system will be tested. The month part of the date of birth field must be a whole number between 1 and 12 inclusive. Using this as an example, describe the following three types of test data.

(i) Abnormal data

(ii) Normal data

(iii) Extreme data

Describe three actions which might need to be taken as a result of testing a system.

1

2

3
A group of car mechanics has decided to buy a new printer for their workshop. Discuss the different options which are available in terms of a laser printer, inkjet printer and dot matrix printer.

21 Describe four advantages of using mobile phones to speak with other people rather than sending emails using a laptop.

1

2

3

4

[6]

[4]