UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER  CANDIDATE NUMBER

INFORMATION AND COMMUNICATION TECHNOLOGY  0417/12
Paper 1
October/November 2012  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 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.
1. Name the devices A, B, C and D using the words from the list.

   A: _____________________________  B: _____________________________
   C: _____________________________  D: _____________________________

   A: Bar code  B: Dot matrix printer  C: Flash memory card  D: Inkjet printer
   A: Monitor  B: Multimedia projector  C: Scanner  D: Trackerball

2. Ring two items which are used for data storage.

   A: _____________________________  B: _____________________________
   C: _____________________________  D: _____________________________

   A: Light pen  B: Magnetic disc  C: Motor  D: Mouse  E: OCR  F: ROM

3. Tick True or False next to each of these statements.

<table>
<thead>
<tr>
<th>True</th>
<th>False</th>
</tr>
</thead>
<tbody>
<tr>
<td>A chip reader is an example of software.</td>
<td></td>
</tr>
<tr>
<td>A hard disc drive is an example of hardware.</td>
<td></td>
</tr>
<tr>
<td>DTP is a form of operating system.</td>
<td></td>
</tr>
<tr>
<td>A blu-ray disc has a greater storage capacity than a DVD.</td>
<td></td>
</tr>
<tr>
<td>Flash memory cards are used in digital cameras.</td>
<td></td>
</tr>
</tbody>
</table>
4 Draw **five** lines on the diagram to match the input device to its most **appropriate** use.

<table>
<thead>
<tr>
<th>Input Device</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mouse</td>
<td>to input voiceovers for a presentation</td>
</tr>
<tr>
<td>Joystick</td>
<td>to input a PIN</td>
</tr>
<tr>
<td>Optical Mark Reader</td>
<td>to select options from a menu</td>
</tr>
<tr>
<td>Microphone</td>
<td>to operate a flight simulator</td>
</tr>
<tr>
<td>Number pad</td>
<td>to input candidate responses on examination papers</td>
</tr>
</tbody>
</table>

5 **Tick True or False** for the following statements.

<table>
<thead>
<tr>
<th>Statement</th>
<th>True</th>
<th>False</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROM is volatile.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROM is used to store the startup instructions of a computer.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The data in ROM is easier to change than that in RAM.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROM is used to store the data the user is currently working on.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6 Name **three** items of hardware, other than a PC, needed to conduct a video conference.

1 ...........................................................................................................
2 ...........................................................................................................
3 ...........................................................................................................
7 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 $n$ forward</td>
</tr>
<tr>
<td>BACKWARD $n$</td>
<td>Move $n$ 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.

PENDOWN

LEFT 90

REPEAT

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

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

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

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

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

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

[8]
A geography teacher wants to build a weather station. She wants to use a computer to collect the results.

(a) Describe three physical variables which would be measured.

1. 

2. 

3. 

(b) The geography teacher wants to create a model to demonstrate basic weather forecasting to her students. Describe three features of a spreadsheet which make it suitable for modelling purposes.

1. 

2. 

3. 

(c) Describe three other uses of modelling.

1. 

2. 

3. 

[3]
(d) Give two reasons, other than reducing timescale, why computer models are sometimes used rather than the real thing.

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

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

9 Aftab owns a company which has a small number of computers. He wants to connect the computers into a network. He does not wish to connect the computers to the internet but he does want the workers to be able to communicate within the company.

(a) Name a network device used to connect the computers together.

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

(b) Name an item of software used to send messages between the computers.

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

(c) What is the name given to this type of network?

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

(d) Give three reasons why Aftab may not want his workers to access the internet.

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

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

3. ................................................................. [3]
10. A company owns several stores which offer internet shopping to customers.

(a) Give three advantages to the company of internet shopping.

1. 

2. 

3. 

(b) Give three disadvantages to the company of internet shopping.

1. 

2. 

3. 

11. The head teacher wants to replace the current printed school magazine with one slide show available on a number of machines in a computer room at parents’ evenings. Name three features available in a slideshow not available in a hard copy magazine. For each one say how it could be used in the school’s slideshow.

Feature 1: 
Use: 

Feature 2: 
Use: 

Feature 3: 
Use: 
12. Describe two methods of verification and explain why verification is needed.

13. Computers are used in supermarkets at point of sales terminals.

(a) Tick three input devices which could be used to enter data about an item when it is purchased.

(b) Describe how the supermarket’s computer uses a check digit to check that data has been entered correctly.
This is part of the supermarket’s database of items:

<table>
<thead>
<tr>
<th>Product name</th>
<th>Number in Stock</th>
<th>Re-order level</th>
<th>Re-order quantity</th>
<th>Supplier code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kollege Corn Flakes</td>
<td>152</td>
<td>150</td>
<td>50</td>
<td>L93512</td>
</tr>
<tr>
<td>Crikey Orange Juice</td>
<td>121</td>
<td>100</td>
<td>40</td>
<td>G63824</td>
</tr>
<tr>
<td>Nice Café Coffee</td>
<td>321</td>
<td>170</td>
<td>60</td>
<td>L93512</td>
</tr>
</tbody>
</table>

This is part of the supermarket’s database of suppliers:

<table>
<thead>
<tr>
<th>Supplier code</th>
<th>Name of supplier</th>
<th>Address of supplier</th>
<th>Supplier phone number</th>
</tr>
</thead>
<tbody>
<tr>
<td>L93512</td>
<td>Lu Chen</td>
<td>14, Kinshasa Highway Box 41324</td>
<td>72 34 45 67</td>
</tr>
<tr>
<td>G63824</td>
<td>Hameen</td>
<td>2351, Avenue Rios Box 31496</td>
<td>24 17 39 81</td>
</tr>
</tbody>
</table>

(c) The supermarket computer can automatically re-order items when the supermarket is running low on stock.

Describe this process, using the example databases above when two more packets of Kollege Corn Flakes pass through the checkout.
14 Describe what is meant by phishing.

15 Paul is the headteacher of a school. He has employed Mary, a systems analyst, to create a new database system to store records of his students.

Here are some of the questions that Paul might want to answer using the new database system:

Which class is Steven Jones in?
What are the first names of male students in class 11S?
How many IGCSEs is Sara Patel taking?

No student takes more than 10 IGCSEs.

Typical records would be:

Peter Ngong, 11S, 10, M
Joan Murugo, 11R, 9, F
Francis Uhuru, 11S, 9, M
Susan Mathu, 11T, 10, F

(a) Complete the design table below, filling in the field names and **most** appropriate validation rule which could be applied to each field.

<table>
<thead>
<tr>
<th>Field name</th>
<th>Validation rule</th>
</tr>
</thead>
<tbody>
<tr>
<td>First_name</td>
<td>none</td>
</tr>
<tr>
<td>class</td>
<td></td>
</tr>
</tbody>
</table>
(b) Name and describe three types of test data which are used when testing a system.

1

2

3

(c) After the new system has been implemented it will be evaluated. Tick three activities which Mary will need to carry out as part of the evaluation.

<table>
<thead>
<tr>
<th>Activity</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Interview users about the current system</td>
<td>✓</td>
</tr>
<tr>
<td>Design the new system</td>
<td></td>
</tr>
<tr>
<td>Compare the solution with the original task requirements</td>
<td></td>
</tr>
<tr>
<td>Decide on the method of implementation</td>
<td></td>
</tr>
<tr>
<td>Identify any limitations of the system</td>
<td></td>
</tr>
<tr>
<td>Identify any necessary improvements to the system</td>
<td></td>
</tr>
</tbody>
</table>
Students at a school use the internet to research their work. Discuss the reliability of information found on the internet.

Give four benefits of using social networking sites.

1

2

3

4