UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

INFORMATION TECHNOLOGY

Paper 1

Specimen Paper 2007

Candidates answer on the Question Paper.
No additional materials are required.

2 Hours

READ THESE INSTRUCTIONS FIRST

Write in dark blue or black pen in the spaces provided on the Question Paper.
You may use a soft pencil for any diagrams, graphs, music or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.

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 16 printed pages.

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

A: ____________________________  B: ____________________________
C: ____________________________  D: ____________________________
E: ____________________________

2 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>A control program is used to produce a business letter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spreadsheets can be used to produce business accounts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using computers for long periods of time is good for your back</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magnetic stripe readers are used for reading data from bank cheques</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD ROMs hold more data than DVD ROMs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[5]
3 Give **three** features of a graphical user interface.

Feature 1

Feature 2

Feature 3

4 Ring **two** items which are used to store data.

- Buzzer
- CD ROM
- Mouse
- Floppy disc
- Monitor
- Scanner
- Bar code
- DVD ROM
- Keyboard
- Magnetic stripe
- Monitor
- Magnetic tape
- Laser printer
- Zip disc

(a) Data about the details of a tin of beans is stored on the tin using a

(b) Data about a bank account is stored on a credit card on a

(c) A full system backup of 40GB would be made using a

(d) High quality permanent output can be produced using a

5 Complete each sentence below using **one** item from the list.
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 these shapes by filling in the blank lines.

PEN DOWN

LEFT 90

FORWARD 30

[5]
7 RAM and ROM are types of storage.

(a) Describe what is meant by RAM and ROM.

1 RAM ____________________________________________________________  [2]

2 ROM ____________________________________________________________  [2]

(b) Give one way a computer uses RAM.

____________________________________________________________________  [1]

8 Michael wishes to make a copy of his Geography coursework which is stored on the school computer system. He wants to take it home to finish it for homework.

He can borrow a CD RW from school but he has a 128 Mb memory stick of his own.

(a) Give two advantages of using the CD RW.

1 __________________________________________________________________  [2]

2 __________________________________________________________________  [2]

(b) Give two advantages of using the memory stick.

1 __________________________________________________________________  [2]

2 __________________________________________________________________  [2]
9 Complete the following sentences using the output devices listed below.

<table>
<thead>
<tr>
<th>Graph plotter</th>
<th>Laser printer</th>
<th>Dot matrix printer</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) A garage using multi-part stationery with carbon copies would need a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b) An architect’s office producing house plans using A0 size paper would use a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(c) A student printing out coursework needing high quality printouts would use a</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[3]

10 A manager of the head office of a large company has decided to spend money on linking all its computers into an intranet.

(a) What is an intranet and what would be the benefits to the head office of having one?

(b) The manager would like her workers to have access to the Internet. She is told that she will need a modem. What does a modem do and why is it needed?

[3]
(c) Give two items the workers will need to type into a computer in order to log on to the network.

1


2


[2]

(d) The benefit of being connected to the Internet is that information can be sent from head office to the different branches. Some of this information will need to be encrypted.

1. What is meant by encryption?


[2]

2. Explain why encryption is needed.


[2]
11 A company has asked a customer to sign and send a confidential document immediately. The customer decides not to use post but can’t decide whether to send the document by fax or email attachment.

(a) Give one advantage of using a fax.

(b) Give two disadvantages of using a fax.

1

2

12 The manager of a car showroom uses a database to store data about cars he sells. This is part of the database.

<table>
<thead>
<tr>
<th>Make</th>
<th>Model</th>
<th>Size of engine</th>
<th>Registration</th>
<th>Price (€)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opel</td>
<td>Vectra</td>
<td>1.8</td>
<td>VSE 648</td>
<td>19000</td>
</tr>
<tr>
<td>Opel</td>
<td>Zafira</td>
<td>2.0</td>
<td>BFK 297</td>
<td>29000</td>
</tr>
<tr>
<td>Volkswagen</td>
<td>Golf</td>
<td>1.4</td>
<td>SB A5526</td>
<td>15000</td>
</tr>
<tr>
<td>Volkswagen</td>
<td>Polo</td>
<td>1.2</td>
<td>DD B4978</td>
<td>11000</td>
</tr>
<tr>
<td>Volkswagen</td>
<td>Jetta</td>
<td>1.6</td>
<td>B G8347</td>
<td>19000</td>
</tr>
<tr>
<td>Renault</td>
<td>Megane</td>
<td>1.4</td>
<td>1233 CD 33</td>
<td>17000</td>
</tr>
<tr>
<td>Renault</td>
<td>Clio</td>
<td>1.2</td>
<td>6289 XF 54</td>
<td>11000</td>
</tr>
</tbody>
</table>

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

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

(c) The records shown are to be sorted in descending order of size of engine. What will be the registration of the first record in the database after it has been sorted?
(d) Give the name of a field that contains numeric data.

(e) Identify the field type of the 'model' field.

(f) Which field would be the key field?

13 Many hackers have tried to infect other people's computers with viruses.

(a) Describe what is meant by hacking.

(b) Describe what is meant by a virus.

(c) Describe how viruses can be prevented.
Put a tick in the column which best describes the type of processing used in the following applications.

<table>
<thead>
<tr>
<th>Application</th>
<th>On-line</th>
<th>Batch</th>
<th>Real time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robots on a car assembly line</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Producing credit card bills.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Booking a cinema seat using a computerised booking system.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Launching a rocket to the moon</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
15 A systems analyst has been asked by a doctor to computerise the records she keeps about her patients. He must first of all collect information about the existing system.

(a) Name three methods he could use to collect this information.

1

2

3

[3]

(b) Having collected this information the systems analyst must now produce a screen input form which the doctor’s assistant could use for typing in each patient’s details. Design a suitable screen input form for inputting the details of one patient.
(c) After the assistant has typed in the data it will need to be verified. Describe **two** methods of verifying data.

1. 

2. 

   [2]

(d) This data needs to be stored in a database. Describe **three** features of the structure of the database that the systems analyst will need to design.

1. 

2. 

3. 

   [3]

(e) Once the whole system has been designed it will need to be implemented. Describe **two** methods of implementation.

1. 

2. 

   [2]

(f) Write down **two** reasons why one of the methods you gave in (e) is better than the other.

1. 

2. 

   [2]
(g) After a system is implemented, it is evaluated. Give two reasons why a system should be evaluated.

1

2

[2]

16 Workers in a car factory are paid weekly. Their pay is calculated by multiplying the number of hours worked by the rate of pay. Tax is then deducted. Below is one record from the transaction file which tells the computer the worker’s payroll number and how many hours they have worked.

<table>
<thead>
<tr>
<th>Payroll number</th>
<th>Hours worked</th>
</tr>
</thead>
<tbody>
<tr>
<td>432175</td>
<td>42</td>
</tr>
</tbody>
</table>

Here is part of the master file.

<table>
<thead>
<tr>
<th>Payroll number</th>
<th>Name</th>
<th>Rate per hour (€)</th>
<th>Tax rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>361453</td>
<td>Me Te Loan</td>
<td>18.50</td>
<td>27%</td>
</tr>
<tr>
<td>295685</td>
<td>Mohammed Ali</td>
<td>15.35</td>
<td>27%</td>
</tr>
<tr>
<td>198564</td>
<td>Alan Smith</td>
<td>17.35</td>
<td>27%</td>
</tr>
<tr>
<td>432175</td>
<td>Jaswinder Dhillon</td>
<td>17.35</td>
<td>27%</td>
</tr>
<tr>
<td>671235</td>
<td>Francois Millard</td>
<td>16.85</td>
<td>27%</td>
</tr>
</tbody>
</table>

(a) Using these examples, describe the computer processing which will take place in order to produce this worker’s payslip.
(b) Before the transaction file is processed the data must be validated. Name and describe a suitable validation check for the:

1. Payroll number  

2. Hours worked  

(c) The processing of the transaction file involves reading one record at a time. What type of access is this called?

(d) Certain types of processing of the master file involves accessing individual records quickly. 
1. Which would be the most suitable magnetic medium for storing the master file?

2. What type of access is this called?

(e) The workers also have personal information stored about them on a computer database. Give examples of when the company would need to:

1. Amend a record  

2. Insert a record  

3. Delete a record
17 A burglar alarm system is used to detect when a burglar has entered a house. Name two sensors which could be used to detect the burglar’s presence. For each one say how it is used to do this.

1. 

2. 

[2]

18 Environmentalists plan to test a fast flowing river for pollution. Give three advantages of using a computer to do this rather than doing it manually.

1. 

2. 

3. 

[3]

19 Expert systems are used in mineral exploration.

(a) Name two other uses of expert systems.

1. 

2. 

[2]
(b) For one of your answers for (a), describe how such a system would be created.

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

20 Many banks now allow their customers to manage their accounts on-line. Discuss this development. In your answer give the advantages and disadvantages to the bank as well as the advantages and disadvantages to the customer.

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

[6]