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

   A: ________________________________  B: ________________________________
   C: ________________________________  D: ________________________________

Bar Code Reader  CD ROM Drive  Digital Camera  Joystick
Memory Stick    Mouse        Speakers    Web cam

2. Identify two features of a Graphical User Interface.

   1. ________________________________
   2. ________________________________  [2]
3. Complete the table below by identifying an appropriate type of **software** which would be used to carry out each of the following tasks.

<table>
<thead>
<tr>
<th>Software</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Typing a letter</td>
</tr>
<tr>
<td></td>
<td>Calculating profit and loss</td>
</tr>
<tr>
<td></td>
<td>Viewing pages on the Internet</td>
</tr>
<tr>
<td></td>
<td>Creating a slide show</td>
</tr>
</tbody>
</table>

4. Tick whether the following tasks are carried out in the Evaluation or Analysis phase of the systems life cycle.

<table>
<thead>
<tr>
<th>Evaluation</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifying user and information requirements</td>
<td></td>
</tr>
<tr>
<td>Comparing the new system with the original task requirements</td>
<td></td>
</tr>
<tr>
<td>Carry out research on the current system</td>
<td></td>
</tr>
<tr>
<td>Identifying any limitations of the new system</td>
<td></td>
</tr>
</tbody>
</table>

5. Tick **three** input devices that would be used at an EFTPOS terminal in a supermarket.

- Chip reader
- Web cam
- Printer
- Buzzer
- Keypad
- Bar code reader
- TFT screen
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 regular shapes by filling in the blank lines. The turtle is facing up.

```
PENDOWN
LEFT 90
REPEAT 5
FORWARD 50
PENDOWN
BACKWARD 120
FORWARD 60
END REPEAT
```
A systems analyst has designed a new computer system for the payroll of a large organisation.

(a) The system needs to be tested.

Using examples of workers pay, which must not be lower than $200 and no more than $800, explain what is meant by normal test data, abnormal test data and extreme test data.

**Normal**

**Abnormal**

**Extreme**

(b) The systems analyst produces documentation for the system.

Give **four** reasons why both user and technical documentation are needed.

1

2

3

4

[6]

[4]
8 Explain, giving examples of their use, the differences between ROM and RAM.

9 Other than communication systems, identify two applications which use online processing.

10 Complete each sentence below using one item from the list.

- a bar code reader
- a data logger
- a chip reader
- MICR
- OMR
- a robot
- a simulation
- validation
- verification

Data from a bank card is input using .................................................................

Data from a product in a supermarket is input using .............................................

Data from a cheque is input using .........................................................................

Fixing wheels to a car on a production line would be done by ..............................
11 Computers are used in libraries to keep records of books and borrowers.

This is part of the database of books in a library:

<table>
<thead>
<tr>
<th>ISBN</th>
<th>Title</th>
<th>Name of Author</th>
<th>Paperback or Hardback</th>
<th>Borrower number</th>
</tr>
</thead>
<tbody>
<tr>
<td>9780593057049</td>
<td>Gone Tomorrow</td>
<td>Lee Child</td>
<td>P</td>
<td>864752</td>
</tr>
<tr>
<td>9781858683416</td>
<td>The World of the Brontës</td>
<td>Jane O’Neill</td>
<td>H</td>
<td>673257</td>
</tr>
<tr>
<td>9780747591054</td>
<td>Harry Potter and the Deathly Hallows</td>
<td>J K Rowling</td>
<td>H</td>
<td>489323</td>
</tr>
<tr>
<td>9780091765132</td>
<td>Old Bear stories</td>
<td>Jane Hissey</td>
<td>H</td>
<td>489323</td>
</tr>
</tbody>
</table>

This is part of the borrower’s database:

<table>
<thead>
<tr>
<th>Borrower number</th>
<th>Name of borrower</th>
<th>e-mail of borrower</th>
<th>Borrower phone number</th>
</tr>
</thead>
<tbody>
<tr>
<td>673257</td>
<td>Giovanni Benitez</td>
<td><a href="mailto:benitez.g@fmail.fr">benitez.g@fmail.fr</a></td>
<td>02 34 45 67</td>
</tr>
<tr>
<td>489323</td>
<td>Sarbjit Chandra</td>
<td><a href="mailto:sarb@goofie.es">sarb@goofie.es</a></td>
<td>24 17 39 81</td>
</tr>
</tbody>
</table>

(a) Individual records in the data files need to be retrieved quickly.

Write down the name of the most suitable storage medium for this purpose.

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

(b) The records in the book file are to be sorted in descending order of ISBN.

What will be the title of the book in the first record in the database after it has been sorted?

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

(c) Give the name of a field that contains a Boolean data type.

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

(d) Identify the data type of the borrower phone number field.

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

(e) Why would the borrower number in the borrower’s database be used as a key field?

................................................................................................................................................ [1]
(f) Write down the author of the book that Giovanni Benitez has borrowed.

(g) The final digit in the ISBN is used for validation purposes.

Write down the name of this digit.

(h) Describe two suitable validation checks, other than limit or range checks, that could be carried out on the borrower number field.

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

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

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

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

(i) Describe three advantages and one disadvantage of the library using email rather than a phone call to contact borrowers.

Advantage 1 .................................................................

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

Advantage 2 .................................................................

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

Advantage 3 .................................................................

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

Disadvantage .................................................................
(j) When a book is borrowed the borrower presents the book and library card to the librarian. Discuss the advantages and disadvantages of different input devices which could be used by the librarian.

(k) Libraries often let borrowers access their own records at home. One method the library uses to make sure that each borrower only accesses their own records is by using a User ID and password. Describe the purpose of each.

User ID ........................................................................................................................................ [6]

Password ....................................................................................................................................... [2]
12 An online bank keeps customer account data on their computers.

(a) Give one way a hacker can use customer accounts to defraud the bank.

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

(b) Give three reasons why, despite the risk of hacking, the bank still operates on-line banking.

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

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

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

[3]

13 Describe four drawbacks to young people using social networking sites.

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

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

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

4 ...........................................................................................................................................

[4]
14 Complete the sentences using words from the list below.

OMR CAD/CAM a disc  
a tape an icon a keyboard

(i) Pupil exam answers can be read using

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

(ii) In a Graphical User Interface, to select an application you click on

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

(iii) To enter an instruction into a Command Line Interface you would use

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

15 Computer controlled traffic lights are used at busy road junctions. Light sensors and sound sensors are not used to measure traffic flow.

(a) Giving a different reason for each, explain why these sensors are unsuitable.

Sound ........................................................................................................................................

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

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

(b) Explain the difference between measurement and control when using microprocessors.

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

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

........................................................................................................................................ [2]
16 A company is planning to have a video-conference.

(a) Describe the purpose of each of the following devices.

Microphone

Speakers

Webcam

(b) Apart from saving costs and travelling time, describe the advantages to the company of having a video-conference rather than a conference in a hotel.
17 Doctors use an expert system to help them with their diagnoses of illnesses.

(a) The symptoms are typed in by the doctors.

Describe the processing which the system uses so that it can suggest possible illnesses.

(b) Name two applications other than medical diagnosis and car fault diagnosis which involve the use of expert systems.

1

2
Students are going to produce a word-processed report about the school greenhouse. It will contain images of the plants that are grown. It will also contain data and charts from a spreadsheet showing the costs of plants.

Describe how the students will produce their report.

Explain what is meant by phishing and pharming.