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 methods of storage A, B, C and D using the words from the list.

A: Bar code  
B: Chip  
C: Light pen  
D: Magnetic disc

2. Ring two items which are output devices.

A: Blu-ray disc  
B: Graph plotter  
C: Optical mark reader  
D: Projector  
E: Graphics tablet  
F: Web cam
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>Input devices are examples of hardware</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Backing storage devices are examples of software</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A Graphical User Interface is a part of an operating system</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A laptop computer cannot be carried around</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[4]

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>Remote control</td>
<td>Inputting freehand drawings into a computer</td>
</tr>
<tr>
<td>Keyboard</td>
<td>Operating a television</td>
</tr>
<tr>
<td>Touch screen</td>
<td>Entering text when writing a book</td>
</tr>
<tr>
<td>Chip reader</td>
<td>Selecting options in a tourist information kiosk</td>
</tr>
<tr>
<td>Graphics tablet</td>
<td>Reading information from a credit card</td>
</tr>
</tbody>
</table>

[5]

5 Complete each sentence below using **one** item from the list.

- **A hub**
- **An intranet**
- **A proxy server**
- **A WAN**
- **A WLAN**

(a) _______________________ is a device used to connect computers together to form a LAN.
(b) _______________________ is a network with restricted access.
(c) _______________________ can allow networked computers to connect to the internet.
(d) _______________________ is a wireless local area network.

[4]
6 Students can use CDs or pen drives for storing their work. Give **three** reasons why students may prefer to use pen drives.

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

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

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

................................................................. [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 ) 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>
</tbody>
</table>

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

```
PEN DOWN
FORWARD 80
RIGHT 90
```
8  Tick three developments which have arisen because of the internet.

<table>
<thead>
<tr>
<th>Development</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Web logs</td>
<td>✅</td>
</tr>
<tr>
<td>Databases</td>
<td></td>
</tr>
<tr>
<td>Models</td>
<td></td>
</tr>
<tr>
<td>Wikis</td>
<td></td>
</tr>
<tr>
<td>DTP</td>
<td></td>
</tr>
<tr>
<td>Social networking sites</td>
<td></td>
</tr>
</tbody>
</table>

9  Tick TRUE or FALSE next to each statement to indicate whether it is an example of batch processing.

<table>
<thead>
<tr>
<th>Statement</th>
<th>TRUE</th>
<th>FALSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Withdrawing money from an ATM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Producing utility bills</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Booking a plane ticket</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Producing payslips</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10 A school uses a computer controlled greenhouse to grow plants.

(a) Name three sensors that would be used in the greenhouse.

1  
2  
3  [3]

(b) Explain why analogue to digital conversion is needed when computers are used to control a greenhouse.

_________________________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________
_________________________________________________________________________________ [2]
(c) Tick three advantages of using computers, rather than students, to control the growing conditions.

- Computer readings are more accurate
- Students always forget to take readings
- Students might be unavailable to take readings during school holidays
- Computers can record data for later use
- Computers can analyse the results
- Computers can react to changes in the conditions immediately

The students want a printed record of the computer readings as they are taken. They want to put the printer inside the greenhouse. Their teacher has suggested a dot matrix printer. The students suggested an inkjet printer.

(d) Give two reasons why the teacher has suggested a dot matrix printer.

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

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

(e) Give two reasons why the students have suggested an inkjet printer.

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

2. ........................................................................................................................................ [2]
A school library has a file for storing details of the books it has and a file for storing details of its borrowers. The two files are linked using a common field.

### Book File

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Author</th>
<th>Published</th>
<th>Number in stock</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>0747591054</td>
<td>The Deathly Hallows</td>
<td>J K Rowling</td>
<td>2007</td>
<td>8</td>
<td>£17.99</td>
</tr>
<tr>
<td>0748791167</td>
<td>Sepulchre</td>
<td>Kate Mosse</td>
<td>2007</td>
<td>3</td>
<td>£18.99</td>
</tr>
<tr>
<td>0563371218</td>
<td>Full Circle</td>
<td>Michael Palin</td>
<td>1997</td>
<td>1</td>
<td>£19.99</td>
</tr>
</tbody>
</table>

### Years 10 and 11 Borrower File

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Form</th>
<th>Book Borrowed</th>
<th>Due Back</th>
</tr>
</thead>
<tbody>
<tr>
<td>0102</td>
<td>Me Te Loan</td>
<td>11A</td>
<td>1857028898</td>
<td>14/06/2010</td>
</tr>
<tr>
<td>1097</td>
<td>Gurvinder Moore</td>
<td>10C</td>
<td>0747591054</td>
<td>12/06/2010</td>
</tr>
<tr>
<td>0767</td>
<td>Akhtar Aftab</td>
<td>10B</td>
<td>0748791167</td>
<td>06/06/2010</td>
</tr>
<tr>
<td>0611</td>
<td>Graham Reeves</td>
<td>10D</td>
<td>0563371218</td>
<td>08/06/2010</td>
</tr>
</tbody>
</table>

(a) How many records are there in the book file?  

(b) How many fields are there in the borrower file?  

(c) What type of database do these two files form?  

(d) Give two reasons why this type of database system is used rather than having two flat files.

1. 

2. 

---
(e) Which field is the primary key in the Book file?

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

(f) Which field is the foreign key?

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

(g) Which field has the data type currency?

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

(h) What data type would be most appropriate for the **Due Back** field?

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

(i) Name the most appropriate validation check for the **Number in stock** field.

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

(j) Name the most appropriate validation check for the **Form** field.

.............................................................................................................................................. [1]
12 Aftab and his family have three computers in their home. He wants to connect the computers into a network. Explain why he would need:

- A router
- A browser
- Email
- An ISP

13 The use of computer networks can lead to problems in keeping data secure and confidential.

(a) Tick two problems which can affect the security of data.

- Data encryption techniques are easy to crack ✓
- Data can be accessed without being in the building where it is stored
- Data thieves often do not leave physical signs of robbery
- Data passwords are easy to guess

(b) Tick two ways of increasing the confidentiality of data.

- Make backups of the data ✓
- Users should write down their password in case they forget it
- Have a firewall connected to the network
- Have different levels of access to the data
14 Joan owns a small company. She wishes to replace the existing computerised system with a new one. She has employed a systems analyst, Jasvir, to plan this.

(a) Before Jasvir decides on a system he must collect information about the existing system. Tick whether the following statements about the various methods of information collection are TRUE or FALSE.

<table>
<thead>
<tr>
<th>Statement</th>
<th>TRUE</th>
<th>FALSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examining documents has to be done in the presence of all the workers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appointments have to be made with a worker in order to complete a questionnaire</td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is possible to change questions in the course of an interview</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observing the current system can provide a detailed view of the workings of the system</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[4]

(b) After Jasvir has completed the analysis of the existing system, he will need to design the new system. Tick four items which would need to be designed.

- Inputs to the current system
- User and information requirements
- Data capture forms
- Validation routines
- Problems with the current system
- File structure
- Report layouts
- Limitations of the system

[4]
15 After a system is designed it will be implemented. Give one advantage of each of the following methods of implementation.

Direct changeover

Parallel running

Phased implementation

16 After a system has been implemented it needs to be evaluated. Identify two evaluation strategies and state a reason why each is needed.

Strategy 1

Reason 1

Strategy 2

Reason 2
17 Describe three items of hardware which would be needed, in addition to those normally supplied with a PC, in order to take part in a video conference.

1

2

3

18 A supermarket uses POS terminals at its checkouts. This enables stock levels to be updated automatically. Put the following steps in order using the numbers 2 to 8. Step 1 has already been done for you.

| The number in stock of the matching record is read |
| Until a match is found with the entered bar code |
| The data file is searched |
| The bar code on the product is read by the bar code reader | 1 |
| The new value of number in stock is written back to the file |
| If it is equal to the re-order number then more goods are automatically re-ordered |
| One is subtracted from the number in stock |
| The number in stock is compared with the re-order number | [7] |
19 Give three reasons why pilots are trained using flight simulators rather than by flying real aircraft.

1. 

2. 

3. 

[3]

20 Explain what is meant by the following terms.

Phishing

Pharming

Spam

[3]
When sending documents companies sometimes use email and sometimes use ordinary post.

(a) Give two reasons why email might be used.

1

2

(b) Give two reasons why ordinary post might be used.

1

2

