READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces at the top of the front page and any additional pages you use.

Write in dark blue or black pen.

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.

Any businesses described in this paper are entirely fictitious.

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. Tick whether the following are examples of **applications software** or **system software**.

<table>
<thead>
<tr>
<th></th>
<th>applications software (✓)</th>
<th>system software (✓)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control software</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compiler</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Word processing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Device drivers</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[2]
2 Complete the following sentences, using the most appropriate technology from the list.

a 3D printer       a dot matrix printer       a laser printer

a light sensor       a magnetic ink character reader

a microphone       an optical mark reader

a speaker       a web cam       a wide format printer

(a) A device that is most suited to being used to produce hard copy output in a general office environment is called

________________________________________  [1]

(b) The input device that reads the cheque number from a bank cheque is called

________________________________________  [1]

(c) A device that outputs hard copy large architectural drawings is called

________________________________________  [1]

(d) A device that outputs sound is called

________________________________________  [1]
3 Pupils working on a science project use the school network to store and retrieve files. They log onto the network using individual passwords.

(a) Abisha is using his name as his password.

Give two reasons why this is not a good idea.

1 __________________________________________

__________________________________________

2 __________________________________________

__________________________________________ [2]

(b) Give two other pieces of advice the teacher should give regarding the management of passwords.

1 __________________________________________

__________________________________________

2 __________________________________________

__________________________________________ [2]
A school is setting up a new computerised system to manage many aspects of the school administration.

(a) Describe how this system can be used to manage student registration and attendance.

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________ [3]

(b) Describe the benefits of using this system.

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________ [2]
The data from the registration system is saved in the school administration database.

The head teacher will need to check the attendance records for any student for any semester. She will type in the Student_ID and the Semester (Autumn, Spring or Summer). After she has done this the following data will appear on the same screen.

<table>
<thead>
<tr>
<th>Field name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student_name</td>
</tr>
<tr>
<td>Days_present</td>
</tr>
<tr>
<td>Number_of_lates</td>
</tr>
<tr>
<td>Number_absences</td>
</tr>
<tr>
<td>Parents_phone_number</td>
</tr>
<tr>
<td>Tutor_group</td>
</tr>
</tbody>
</table>
Design a suitable screen layout to display one record. It must have appropriate spacing for each field, navigation aids and a space to type in search data. Do not include examples of students.
A student record from the database is shown below.

<table>
<thead>
<tr>
<th>Field name</th>
<th>Example Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student_ID</td>
<td>8543</td>
</tr>
<tr>
<td>Semester</td>
<td>Spring</td>
</tr>
<tr>
<td>Student_name</td>
<td>Kannur Rahul</td>
</tr>
<tr>
<td>Days_present</td>
<td>180</td>
</tr>
<tr>
<td>Number_of_lates</td>
<td>4</td>
</tr>
<tr>
<td>Number_absences</td>
<td>6</td>
</tr>
<tr>
<td>Parents_phone_number</td>
<td>01244878387</td>
</tr>
<tr>
<td>Tutor_group</td>
<td>11ABC</td>
</tr>
</tbody>
</table>

(d) Name an appropriate validation check that could be used for each of the following fields, based on the data shown in the record.

<table>
<thead>
<tr>
<th>Field name</th>
<th>Validation check</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester</td>
<td></td>
</tr>
<tr>
<td>Number_of_lates</td>
<td></td>
</tr>
<tr>
<td>Parents_phone_number</td>
<td></td>
</tr>
</tbody>
</table>

[3]
Describe the benefits and drawbacks of using a Graphical User Interface (GUI) rather than a Command Line Interface (CLI).
A Medical Authority in a large city is planning to centralise its medical booking system. This will allow patients to make all of their doctors’ appointments, dental appointments and hospital appointments online.

(a) Discuss the benefits and drawbacks to both the patients and the medical staff of this type of system.
The Medical Authority creates many different types of documents including letters and memos. Each of them is produced using its corporate house style.

Explain why corporate house styles are required.
A student is setting up a database of information about volcanoes for a Geography project. The following is part of the database.

<table>
<thead>
<tr>
<th>Name_of_volcano</th>
<th>Country</th>
<th>Height</th>
<th>State</th>
<th>Last_eruption</th>
<th>Volcano_type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usu</td>
<td>Japan</td>
<td>731</td>
<td>Active</td>
<td>2001</td>
<td>Stratovolcano</td>
</tr>
<tr>
<td>Tor Zawar</td>
<td>Pakistan</td>
<td>2237</td>
<td>Dormant</td>
<td>2010</td>
<td>Fissure</td>
</tr>
<tr>
<td>Datong</td>
<td>China</td>
<td>1882</td>
<td>Extinct</td>
<td>450</td>
<td>Cinder Cone</td>
</tr>
<tr>
<td>Changbaishan</td>
<td>China</td>
<td>2744</td>
<td>Active</td>
<td>1903</td>
<td>Stratovolcano</td>
</tr>
<tr>
<td>Stromboli</td>
<td>Italy</td>
<td>926</td>
<td>Active</td>
<td>2016</td>
<td>Stratovolcano</td>
</tr>
<tr>
<td>Tengchong</td>
<td>China</td>
<td>2865</td>
<td>Dormant</td>
<td>1609</td>
<td>Pyroclastic cone</td>
</tr>
<tr>
<td>Wudalianchi</td>
<td>China</td>
<td>597</td>
<td>Dormant</td>
<td>1721</td>
<td>Multi-coned</td>
</tr>
</tbody>
</table>

Operators such as AND, OR, NOT, LIKE, >, >=, <, <=, =, <> can be used to search the volcano database. The search criteria for all the dormant volcanoes with a height of less than 1000 metres would look like this:

\[
\text{State} = \text{“Dormant” AND Height < 1000}
\]
Use only the given operators and data to:

(a) write down the search criteria that will produce a list of all the volcanoes that are not extinct in China that also last erupted before the year 1900.

(b) write down the names of the volcanoes that match the requirements of part (a).

(c) The data is sorted into ascending order of height.

Write down the name of the volcano which would now be in the first record.
Drones are remote-controlled flying devices. Data can be collected by drones that fly through the gas cloud of the volcano. The drones have sensors attached to them which send the data to a computer. The computer analyses the data.

Discuss the benefits and drawbacks of using this method of measurement.
(e) Explain why the data collected by the sensors cannot be read directly by the computer.
Spam emails are a problem for computer systems.

(a) Explain what is meant by a spam email.

__________________________________________

__________________________________________

__________________________________________

__________________________________________ [2]

(b) Explain why spam emails need to be prevented.

__________________________________________

__________________________________________

__________________________________________

__________________________________________ [2]
(c) Describe the methods which can be used to prevent spam emails.

__________________________________________________________________________________________________________________________________________

__________________________________________________________________________________________________________________________________________

__________________________________________________________________________________________________________________________________________

__________________________________________________________________________________________________________________________________________

__________________________________________________________________________________________________________________________________________ [4]

9 Describe how a router forwards data packets from one network to another.

__________________________________________________________________________________________________________________________________________

__________________________________________________________________________________________________________________________________________

__________________________________________________________________________________________________________________________________________

__________________________________________________________________________________________________________________________________________

__________________________________________________________________________________________________________________________________________ [3]
A local railway company is considering introducing a new system for its passengers using e-tickets on a smart phone. Before introducing this new system, analysis of the current system is required.

(a) Describe the steps that would be carried out in the analysis of the current system.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________  [6]
The e-ticket will link to a database containing personal data.

(b) Give two examples of personal data that could be stored.

1  _________________________________________

2  _________________________________________

(c) Details of each of the passengers have been entered into the database.

Give one reason why this data was verified on entry.

__________________________________________

__________________________________________ [1]

Proofreading is sometimes thought to be verification.

(d) Explain the difference between verification and proofreading.

__________________________________________

__________________________________________

__________________________________________ [2]
.PDF and .RTF are two file formats used for storing documents.

Describe the file formats and explain the differences between them.
HotHouse Design is a large design company. It has recently created a new web address for their design portfolios. The web address is:

https://www.hothouse-design.co.uk/portfolios

(a) Describe the following parts of the web address.

https: ____________________________

______________

hothouse-design ____________________________

______________

.uk ____________________________

______________

/portfolios ____________________________

______________

[4]

(b) Hyperlinks are widely used in web pages.

Explain what is meant by a hyperlink.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________ [2]
Spreadsheets use functions, formulae and named ranges.

(a) Describe the term:

Function ______________________________________
______________________________________________
______________________________________________
______________________________________________
______________________________________________

Formula ______________________________________
______________________________________________
______________________________________________
______________________________________________
______________________________________________

(b) Explain why a named range is used in a spreadsheet.

______________________________________________
______________________________________________
______________________________________________
______________________________________________
______________________________________________
[2]
Emails are a very popular way of communicating.

Tick **four** statements, relating to emails that are true.

<table>
<thead>
<tr>
<th>Tick (✓)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emails can only be sent from a computer.</td>
</tr>
<tr>
<td>An email can be used to send a message to many people at the same time.</td>
</tr>
<tr>
<td>It always takes a long time for an email to arrive.</td>
</tr>
<tr>
<td>All emails must have an attachment.</td>
</tr>
<tr>
<td>Attachments may have to be compressed to be sent via email.</td>
</tr>
<tr>
<td>Emails can be used to send legal documents.</td>
</tr>
<tr>
<td>Every email has to be printed out.</td>
</tr>
<tr>
<td>In order to send an email back to the sender without retyping the address, reply is used.</td>
</tr>
<tr>
<td>Email means extended mail.</td>
</tr>
<tr>
<td>Email attachments are always checked for viruses before they are sent.</td>
</tr>
</tbody>
</table>