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

   A: Remote control  
   B: Touchpad  
   C: Web cam  
   D: Numeric keypad

2. Ring two items which are storage media.

   - Bar code reader
   - DVD RAM
   - Magnetic tape
   - Sensor
   - Joystick
   - Touch screen

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>DTP software can be used with sound files.</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Measurement software is used to send emails.</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Spreadsheet software is used to create models.</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>A command line interface can be used to communicate with a computer.</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>PDAs are usually bigger than laptops.</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

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

   (a) ... A temperature ... is used to send data to a microprocessor controlled cooker.

   (b) ... A chip reader ... is used to read details from a bank card.

   (c) ... A joystick ... is used to control a car driving simulator.

   (d) ... A digital camera ... is used to take photographs for inclusion in a web site.

   (e) ... An optical mark reader ... is used to input data from a school register.
5. Tick three items of software which a PC connected to the internet might use.

<table>
<thead>
<tr>
<th>Software</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A modem</td>
<td>✓</td>
</tr>
<tr>
<td>A virus scanner</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>An email package</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>Another PC</td>
<td>✓</td>
</tr>
<tr>
<td>A browser</td>
<td>✓</td>
</tr>
<tr>
<td>A keyboard</td>
<td></td>
</tr>
</tbody>
</table>

6. A school has a database which includes details of every student. Tick whether the following statements refer to a file, a field or a record.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Field</th>
<th>File</th>
<th>Record</th>
</tr>
</thead>
<tbody>
<tr>
<td>All the information about one student.</td>
<td></td>
<td>✓</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>One piece of information about each student.</td>
<td>✓ ✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A primary key.</td>
<td>✓ ✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All the information about all the students.</td>
<td></td>
<td>✓ ✓</td>
<td></td>
</tr>
</tbody>
</table>

7. A floor turtle can use the following instructions:

```
PEN DOWN
RIGHT ........ 90
REPEAT 6 ........
FORWARD 50 ........
LEFT ........ 60

END REPEAT
```
8. Tick TRUE or FALSE next to each statement to indicate if it is an example of online processing.

<table>
<thead>
<tr>
<th></th>
<th>TRUE</th>
<th>FALSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computerised booking of a theatre ticket.</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Clearing cheques overnight.</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Paying at a supermarket using Electronic Funds Transfer.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Printing monthly credit card bills.</td>
<td>✔</td>
<td>✓</td>
</tr>
</tbody>
</table>

9. Multi-national companies often use video conferencing instead of face-to-face meetings.

(a) Tick three advantages of video conferencing.

<table>
<thead>
<tr>
<th>Advantage</th>
<th>✔</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Companies don’t have to employ so many workers.</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Companies can call meetings at short notice.</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Employees don’t have to prepare for meetings.</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Companies do not have to pay travelling expenses.</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Employees can work from home.</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Companies don’t have to have any offices.</td>
<td>✔</td>
<td></td>
</tr>
</tbody>
</table>

(b) Tick three disadvantages of video conferencing.

<table>
<thead>
<tr>
<th>Disadvantage</th>
<th>✔</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>It is difficult to call international meetings because of time differences.</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Employees can’t see the documents which are being discussed.</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>The initial cost of hardware can be expensive.</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>There is a loss of personal and social contact.</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Companies are unable to contact the employees about having a conference.</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Companies have to hire expensive halls.</td>
<td>✔</td>
<td></td>
</tr>
</tbody>
</table>
10 Write down the most suitable data type for each item of data in the table below.

<table>
<thead>
<tr>
<th>Registration number</th>
<th>Day/Month/Year of manufacture</th>
<th>Doors</th>
<th>Air conditioning (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KAC 758F</td>
<td>12/10/1991</td>
<td>4</td>
<td>Y</td>
</tr>
<tr>
<td>KAR 815P</td>
<td>03/06/2005</td>
<td>5</td>
<td>N</td>
</tr>
<tr>
<td>KAB 179A</td>
<td>05/08/1990</td>
<td>5</td>
<td>N</td>
</tr>
<tr>
<td>KAP 613Y</td>
<td>11/08/2004</td>
<td>3</td>
<td>N</td>
</tr>
</tbody>
</table>

- **Alphanumeric OR Text**
- **DATE**
- **Numeric OR Integer**
- **Boolean OR logical**

11 All computers come with main memory as well as backing storage. Give a reason why the following are needed.

**RAM** – So that users are able to make changes to the data they are working on or user can store the program or data they are currently using (1)

**ROM** – So that programs/coding/software can be stored permanently and cannot be changed (1)

**Backing storage** – So that users can have a permanent copy of the work they are doing and can have a copy of their work when the computer is switched off (1)

12 Car mechanics often use expert systems to diagnose faults with car engines. List four parts of an expert system.

- **Inference engine**
- **Rules base**
- **Knowledge base**
- **(Interactive) user interface**

13 Draw four lines on the diagram to match the use to its most appropriate storage medium.

- **Use**
  - Storing data in online applications
  - To store data that cannot be changed
  - Saving work and transporting it to other computers
  - Taking backups of file servers

- **Storage medium**
  - DVD ROM
  - Fixed hard disc
  - Magnetic tape
  - Pen drive
14 (a) **Give two uses of ICT devices which, when prolonged, can cause RSI.**

Two from:
- Clicking the mouse (can cause pains in the wrist / fingers)
- Typing on the keyboard (can cause wrist pains/carpal tunnel syndrome)
- Holding of mobile/cell phones with bent elbow (can cause pain in the elbows/ carpal tunnel syndrome)
- Writing Text using PDA/mobile/cell phones (can cause pain in the thumbs) [2]

(b) **Identify two safety issues and how they are caused.**

Two from:
- Electrocution by touching loose wires/spilling liquids on electrical contacts
- Tripping and falling over trailing wires or cables
- Physical injury to feet/legs etc. caused by heavy equipment falling
- Fire caused by too many plugs in multiple socket and thereby overheating/over heating of equipment [2]

15 A large company has two separate sites both of which have a LAN. The manager of the company wants to connect the LANs to form a WAN.

(a) **Name three network devices which could be found in a LAN that is not connected to a WAN.**

HUB
Switch
Bridge [3]

(b) **The manager wants to buy a router to connect the LANs. Describe the function of a router.**

Two from:
- It stores information about which computer is connected to which network
- It receives data packets from an individual computer
- It passes the data packets to the appropriate switch (Any messages that are addressed for a computer not in the LAN are passed to the router)
- It can connect the LANs to the internet
- Connects LANs together or a LAN to a WAN such as the Internet
- Keeps the private LAN separate from the WAN [2]

(c) **The company's workers are concerned that their data may not be secure. Name three authentication techniques and for each one explain how it will help to prevent illegal access to the data.**

Three from:
- **User name and password (1)**
  - It is very difficult for hackers to guess passwords/if you don’t know password cannot gain access to system/data/need to know both username and password to gain access (1)

- **Biometric data – retina scan, fingerprints/handprints, voice recognition etc. (1)**
  - Each of these is unique/very difficult to replicate (1)

- **Magnetic stripe card for entry into company premises (1)**
  - Difficult to replicate security information on stripe (1)

- **PIN for entry to company premises (1)**
  - It is very difficult for hacker to guess PIN (1)

- **Digital certificate (1)**
  - Confirms the origin of the document (1) [6]
16. When a new system is implemented, documentation is provided with it. Explain why two different types of documentation are produced.

Four from:
- Technical documentation has to be produced for systems analysts/programmers
- Without technical documentation analysts/programmers would not know how the system works
- Without technical documentation analysts/programmers would not be able to update/improve system
- Without technical documentation analysts/programmers would not be able to repair system when it malfunctions
- User documentation needs to be phrased in a way that the average non-expert can understand
- Without user documentation users would not be able to operate/use the system

Note: Must gain at least one mark for each of user and technical to gain full marks \[4\]

17 (a) Explain what is meant by a computer virus.

Two from:
- A piece of programming code/software which replicates itself
- It is transmitted through email attachments/portable media
- It corrupts/deletes files and/or data
- It can corrupt or erase contents of the hard disk/can completely fill the hard disc/memory

(b) Explain what is meant by hacking.

Two from:
- Gaining unauthorised access to a computer system that may lead to illegally copying data from a system
- Gaining unauthorised access to a computer system that may lead to illegally amending data in a system
- Gaining unauthorised access to a computer system that may lead to illegally deleting data from a system
- Gaining authorised access to a system but exceeding their authority \[2\]

18. Aysha needs to enter customer details into her company’s database. She has asked her friend Ali to design an input screen to enable her to do this. She is not pleased with his attempt.

Name ________________________________
Address ________________________________
Date of birth ___ / ___ / ________
Customer ID __________________________
Type in male or female ____________________

Type in **next** for next record or **back** for previous record __________
(a) Describe five improvements which could be made to this screen.

Data/fields should be spread out more/font size increased
Data for name/address/customer ID could have text boxes for completion
Date of birth could be a drop down list/prompt to show order of data e.g.: dd/mm/yyyy/calendar prompt (to choose a date)
Gender field could have radio buttons for male/female/tick box/drop down list
To go back or forward could have buttons/arrow icons
More data/fields could have been used (accept examples)
Include a heading/title (name of company/Logo)
Add a submit/accept/save/clear/help/exit buttons [5]

(b) The new system will be tested. The month part of the date of birth field must be a whole number between 1 and 12 inclusive. Using this as an example, describe the following three types of test data.

(i) Abnormal data: Data that is outside the range/not of the right type (1)
Example: a number less than one/a number greater than 12/text (1)

(ii) Normal data: Data that is valid/acceptable/within the range/correct type (1)
Example: any number between 1 and 12 inclusive (1)

(iii) Extreme data: Data that is at the edge of the range (1)
Data: 1 or 12 (1)

19 Describe three actions which might need to be taken as a result of testing a system.

Data/file structures may need to be amended and/or improved
Validation routines may need to be amended and/or improved
Input methods may need to be amended and/or improved
Output formats may need to be amended and/or improved
Errors in processing/calculations may need amended and/or improved
Errors may mean that parts of system need amended and/or improved
If system does not work at all may need to restart at the design stage [3]

20 A group of car mechanics has decided to buy a new printer for their workshop. Discuss the different options which are available in terms of a laser printer, inkjet printer and dot matrix printer.

- Laser printer/Inkjet printer higher quality output than Dot matrix printer
- Laser printer/Inkjet printer faster output than Dot matrix printer
- Laser printer/Inkjet printer relatively quiet compared to Dot matrix printer
- Laser printer has limited sizes of paper available/Inkjet has greater sizes of paper available but Dot matrix is unlimited in size in one direction only
- Laser printer/Inkjet printer is at risk to break down in oily/dirty conditions/Dot matrix printer less likely to break down in oily/dirty conditions
- Laser printer/Inkjet printer more expensive running costs than dot matrix
- Inkjet printer more expensive to refill than dot matrix printer
- Laser printer/Inkjet printer needs regularly refilling with paper but Dot matrix printer has continuous paper feed available
- Dot matrix printer/Laser printer – ink needs changing less often than Inkjet printer
- Dot matrix printer has fewer colour options than Inkjet printer
- Dot matrix printer produces multiple/instantaneous copies
- Noise is not a problem in this environment [6]

21 Describe four advantages of using mobile phones to speak with other people rather than sending emails using a laptop.

- You can get immediate feedback/interaction/You can ask questions immediately based on feedback
- You know you have the right address/number
- Laptop is not as portable as a phone
- Laptop is difficult to use ‘on the move’
- Less impersonal/less risk of upsetting recipient/can detect emotions
- Can make yourself understood more easily
- Can be easier to get a connection [4]