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

   A. TFT monitor  
   B. CRT monitor  
   C. Inkjet printer  
   D. Graph plotter

2. Ring two items which are storage media.

   - Blu-ray disc  
   - CD Rom  
   - Motor  
   - Sensor  
   - MICR Trackerball

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>Control software is used to access the internet</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>A Graphical User Interface has windows, icons, menus and pointers</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Laptop computers are popular because they are portable</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Word processing software is used to monitor physical variables</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Presentation software is used to create slide shows</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

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

   (a) ___________ OCR ___________ is used to convert an image into text for use in a word processor.
   (b) ___________ A web camera ___________ is used to input moving pictures into a computer.
   (c) ___________ An inkjet printer ___________ is used to output photographs.
   (d) ___________ A motor ___________ is an output device used in robotics.
   (e) ___________ A bar code reader ___________ is used to read the ISBN from a book.
5 A school librarian is preparing a slideshow to explain to students how the library works. Tick three items she could use to prepare and show the slides.

<table>
<thead>
<tr>
<th>Item</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A multimedia projector</td>
<td></td>
</tr>
<tr>
<td>A dot matrix printer</td>
<td></td>
</tr>
<tr>
<td>Measuring software</td>
<td></td>
</tr>
<tr>
<td>A chip reader</td>
<td></td>
</tr>
<tr>
<td>A remote control</td>
<td></td>
</tr>
<tr>
<td>Presentation software</td>
<td></td>
</tr>
</tbody>
</table>

6 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
- LEFT 90
- FORWARD 60
- RIGHT 90
- FORWARD 100
- RIGHT 90
- FORWARD 80
- PENUP
- FORWARD 40
- PENDOWN

Start

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

---

Prepared by Mrs. Magda M. Kamel & Eng. Gamal Orphy
M: 01001025852
7 A school has a relational database consisting of a number of tables. One table contains each student’s personal details and others consist of class lists for each subject. Every student has a unique identifying number. Tick whether the following statements are TRUE or FALSE.

<table>
<thead>
<tr>
<th>Statement</th>
<th>TRUE</th>
<th>FALSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>The identifying number is the foreign key in a class list table</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>The student’s surname would be the primary key</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>In order to have relational tables there must be a primary key</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>The school’s database is an example of a flat file</td>
<td></td>
<td>✔</td>
</tr>
</tbody>
</table>

8 Tick TRUE or FALSE next to each statement to indicate whether or not it is an example of real-time processing.

<table>
<thead>
<tr>
<th>Statement</th>
<th>TRUE</th>
<th>FALSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payroll processing</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Microprocessor controlled central heating</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>The use of robots in manufacture</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Printing monthly utility bills</td>
<td></td>
<td>✔</td>
</tr>
</tbody>
</table>

9 The manager of a supermarket uses a database to store data about the food he sells. This is part of the database.

<table>
<thead>
<tr>
<th>Food type</th>
<th>Number in stock</th>
<th>Re-order (Y/N)</th>
<th>Last order received</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potato flakes</td>
<td>123</td>
<td>N</td>
<td>23/10/10</td>
</tr>
<tr>
<td>Chocolate bar</td>
<td>158</td>
<td>N</td>
<td>25/10/10</td>
</tr>
<tr>
<td>Beefburgers</td>
<td>135</td>
<td>N</td>
<td>24/10/10</td>
</tr>
<tr>
<td>Gravy</td>
<td>89</td>
<td>Y</td>
<td>17/10/10</td>
</tr>
</tbody>
</table>

Write down the name of the field which is best suited to the data type given.

- **Boolean:** Re-order (Y/N) (1)
- **Date:** Last order received (1)
- **Alphanumeric:** Food type (1)
- **Numeric:** Number in stock (1)
10 Multi-national companies often use video conferencing instead of face-to-face meetings.
Participants already have a PC with keyboard and mouse.

(a) Tick four items essential to a video conference.

<table>
<thead>
<tr>
<th>Item</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Web cam</td>
<td></td>
</tr>
<tr>
<td>Dot matrix printer</td>
<td></td>
</tr>
<tr>
<td>Magnetic tape drive</td>
<td></td>
</tr>
<tr>
<td>Modem/Router</td>
<td></td>
</tr>
<tr>
<td>A trackerball</td>
<td></td>
</tr>
<tr>
<td>Codec</td>
<td></td>
</tr>
<tr>
<td>Broadband</td>
<td></td>
</tr>
<tr>
<td>A telephone</td>
<td></td>
</tr>
</tbody>
</table>

(b) List two other items of hardware essential to a video conference.
- Microphone
- Speakers/Headphones
- Headset

11 Most PCs come with a hard disc drive. Give a reason why each of the following are also used with PCs.

- Magnetic tape: To make backups (1)
- CD R: To transfer data/programs from computer to computer/to save user data (1)
- DVD ROM: For companies to distribute software/movies/For users to install software/view multimedia (1)

12 (a) Doctors use expert systems to diagnose illnesses. There are a number of inputs and outputs used with such a system. List four examples of these.

- Questions appear on screen
- Symptoms typed in
- Answers to questions typed in
- Further questions appear on screen
- Suggested illnesses/diagnoses are output
- Probabilities of illnesses are output [4]

(b) Name one other use of expert systems.
- Car fault diagnosis
- Chess games
- Mineral prospecting
- Financial advice
- Insurance risk assessment
- Tax systems
- Plant identification
- Animal identification
13 Draw four lines on the diagram to match the use to its most appropriate input device.

<table>
<thead>
<tr>
<th>Use</th>
<th>Input device</th>
</tr>
</thead>
<tbody>
<tr>
<td>to input data at an information kiosk</td>
<td>Graphics tablet</td>
</tr>
<tr>
<td>to input data from a product in a supermarket</td>
<td>Touch screen</td>
</tr>
<tr>
<td>to input a PIN</td>
<td>Bar code reader</td>
</tr>
<tr>
<td>to input freehand drawings</td>
<td>Numeric keypad</td>
</tr>
</tbody>
</table>

14 A small office consists of three rooms each of which has a PC with devices connected to it using cables. The office manager thinks the cables are a safety hazard and wants to remove them.

(a) Name three devices which could be connected to a PC using Bluetooth.
- Mouse
- Keyboard
- Printer
- Mobile phone
- PDA
- Headphones
- Webcam
- Digital Camera
- Microphone
- Laptop
- Scanner
- Graphics tablet
- Modem

(b) The manager wants to connect the PCs to form a WLAN. Give two disadvantages of this compared to using cabling.
- Increased risk of hacking
- Limited range of connection
- Likelihood of interference
- Reduced speed of connection (compared to cabled networks)

(c) The company’s workers are concerned that their data may not be secure. Name and describe three methods, other than authentication techniques, which would help to keep the data more secure.
- Encryption
  Data becomes indecipherable to unauthorised users
- Firewall
  Prevents unauthorised computers having access to the network
- Anti spyware
  Removes spyware from computers
- Key logging detection
  Enables user to delete software which hacker has planted
- Antivirus
  Removes viruses from storage media

15 (a) Describe two ways of reducing the risk of RSI.
- Take regular breaks
- Exercise wrists/fingers etc.
- Use of wrist pads/wrist rests
- Use of Ergonomic keyboards

(b) There are sometimes safety risks associated with the use of computers. Describe two ways these risks can be minimised.
- Don’t bring food and drink near computers
- Use ducting for cables/tie cables together tidy
- Use recommended support devices for heavy equipment/don’t place heavy equipment near to the edge of tops of tables
- Don’t put too many plugs in a socket/use a RCB (*residual current circuit breaker*)
- Ensure presence of CO₂ fire extinguishers

Prepared by Mrs. Magda M. Kamel & Eng. Gamal Orphy
M: 01001025852
16 Aysha wants to collect details of new customers for entry into a database. She has asked her friend Ali to design a paper-based data capture form for customers to complete.

Describe four features of the layout of the form that Ali will need to consider to make it easy for the customer to use.
- Adequate space for response/individual character boxes
- Fonts/font size should be easy to read
- Instructions how to complete form/clearly labelled field names
- Logical order of questions
- Questions spaced out/group relevant fields together
- Not too much text/ no prose style
- Sensible colour scheme
- Use of tick boxes/Strike through with rating style
- Appropriate white space
- Provide box/place to sign in

17 A school library is developing a new database of books. After the new system is developed, it will be tested.

(a) Name three items of the system which would need to be tested.
- Data/file structures
- Validation routines
- Input methods/data entry screens
- Output formats/reports
- Error messages
- Processing/calculations

(b) The school librarian is asking students to rate books which they have read and wishes to include these ratings in the database of books. Each rating will be between 0 and 10.

Below are three different types of test data. For each one name the type of test data it represents and explain why it is that type of data.

(i) Normal data (1)
8 is within the acceptable range 0–10 (1)

(ii) Extreme data(1)
10 is on the edge of the 0–10 range (1)

(iii) Abnormal data (1)
13 is outside the acceptable range 0–10 (1)

18 When a new system is implemented, different types of documentation are provided.

(a) Identify two items which would be found in both technical documentation and in user documentation.
- Purpose of the system
- Limitations of the system
- Hardware and software requirements
- Contact details of manufacturer/support network

(b) Identify two items which would be found in user documentation but would not be found in technical documentation.
- How to use the system
- Trouble-shooting guide
- Frequently asked questions
19 (a) Explain what is meant by software copyright.
Lawful protection acts that given to authors and publishers. It relates to the software the author/publisher created/published. It prevents purchaser from making unlimited copies/lend it to others/change the software/sell it without the company's permission.[2]

(b) Explain how software manufacturers attempt to prevent copyright being broken.
Alteration of the code which is included to block copying
Digital signature on the CD/DVD itself which prevents writers from copying exactly
Encryption of the execution code requires a key to run
Use of a dongle
Registration system requiring the typing in of a registration code
" Guards" are hardware or software modules that monitor the running program and ensure that it has not been tampered with in any way.
Activation code which can be used only on a limited number of machines

20 A car manufacturer has laser printers, graph plotters and dot matrix printers. Explain why each of these is used.
Laser printer
- High quality output
- Fast output
- Cheap to buy in relation to Graph plotter
- Relatively quiet
- Use: To print out letters etc.
Graph plotter
- Best quality output for curves/drawing/lines
- Capable of very large printouts
- Use: Print out car designs
Dot matrix printer
- Cheaper running costs
- Can work in industrial environment without losing performance
- To make instantaneous/multiple copies
- Can print continuously
- Requires multipart stationery
- Use: Can print payslips [6]

Points which are repeated will only gain credit on the first mention

21 VOIP is an example of an internet telephony service. Describe four advantages of using VOIP rather than sending messages using email.
- You get immediate feedback and you can ask questions immediately based on feedback
- You can be sure the person has received the message
- You know you have the right address/number
- Less impersonal (more friendly)/less formal/less risk of upsetting recipient/can detect emotions
- Can make yourself understood more easily
- You can see the other person’s reaction [4]