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

A: Laser printer
B: Plotter
C: Multimedia projector
D: Monitor

2. Ring two items which are input devices.

- Blu ray disc
- Graphics tablet
- Motor
- Optical mark reader
- Inkjet printer
- Speaker

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>A magnetic stripe reader is an example of hardware</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>A memory stick is an example of software</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>A word processor is a form of operating system</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>A CD has a greater storage capacity than a DVD</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

4. Draw five lines on the diagram to match the storage device to its most appropriate use.

- Fixed hard disc: Making backups of file servers
- Flash memory card: Transferring files from one computer to another
- Magnetic tape: Storing software sold by a company
- Pen drive: Storing data which needs to be accessed quickly
- DVD ROM: Storing photographs in a digital camera

Prepared by Mrs. Magda M. Kamel & Eng. Gamal Orphy
M: 01001025852
5 A database is to be created about the personal details of students at a school. Select the most suitable data type for each field using one word from this list.

<table>
<thead>
<tr>
<th>Field</th>
<th>Data Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Birthday</td>
<td>Date</td>
</tr>
<tr>
<td>(b) Gender</td>
<td>Boolean</td>
</tr>
<tr>
<td>(c) Home phone number</td>
<td>Text</td>
</tr>
<tr>
<td>(d) Number of brother and sisters</td>
<td>Integer</td>
</tr>
</tbody>
</table>

6 Tick TRUE or FALSE for the following statements.

<table>
<thead>
<tr>
<th>Statement</th>
<th>TRUE</th>
<th>FALSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAM is volatile</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>RAM is used to store the startup instructions of a computer</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>The data in ROM is easier to change than that in RAM</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>ROM is used to store the data the user is currently working on</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

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.

PENDOWN

FORWARD 60

PENDOWN

RIGHT 90

FORWARD 60

PENDOWN/RIGHT 90

FORWARD 50

PENDUP/RIGHT 90

PENDOWN

RIGHT 90/PENDUP
8. Tick three items of hardware which are used to network computers together.

<table>
<thead>
<tr>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hub</td>
</tr>
<tr>
<td>Printer</td>
</tr>
<tr>
<td>Scanner</td>
</tr>
<tr>
<td>Switch</td>
</tr>
<tr>
<td>Bridge</td>
</tr>
<tr>
<td>Monitor</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Statement</th>
<th>True</th>
<th>False</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paying for goods at an EFTPOS terminal</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Booking a holiday using a computer</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Producing credit card bills</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Processing cheques</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

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

   Any three from:
   - Humidity sensor
   - Moisture sensor
   - Temperature sensor
   - Light sensor

   (b) Describe the computer processing that is required to maintain the correct growing conditions.

   **Computer monitors sensors**
   - Temperature is compared with preset value
     - If lower than preset value computer switches on heater
     - If lower than preset value computer shuts windows
     - If higher than preset value computer switches heater off
     - If higher than preset value computer switches fan on
     - If higher than preset value computer opens windows
   - Humidity/Moisture level are compared with preset value
     - If lower than preset value computer switches on sprinkler
     - If higher than preset value computer switches off sprinkler
   - Light is compared with preset value
     - If lower than preset value computer switches on light bulb
     - If higher than preset value computer switches off light bulb

   (c) Describe three advantages of using computers rather than students to control the growing conditions. Three from:
   - More reliable readings taken at regular intervals
   - Computers are more accurate than human beings
   - Computers can work continuously/without taking a break
   - Computers do not forget to take readings
   - Computers can take readings more frequently
   - Computers can respond to changes immediately/quicker than human beings
11. A school has a computer system for monitoring student records. It has a file for storing personal details and a file for storing test results. Here is part of the test results file.

<table>
<thead>
<tr>
<th>Unique ID number</th>
<th>Name</th>
<th>History result</th>
<th>Geography result</th>
<th>Maths result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1022</td>
<td>Me Won Li</td>
<td>55</td>
<td>46</td>
<td>65</td>
</tr>
<tr>
<td>1026</td>
<td>John Brown</td>
<td>76</td>
<td>49</td>
<td>47</td>
</tr>
<tr>
<td>1029</td>
<td>Javir Sidhu</td>
<td>54</td>
<td>59</td>
<td>23</td>
</tr>
</tbody>
</table>

(a) How many records are shown in the file above? Three records
(b) How many fields are shown? Five fields
(c) Describe how the two files could be combined to form a relational database.
- The personal details file and test results files would be saved as separate tables.
- Primary key/key field(s)/foreign key would be identified for each file.
- The ‘Unique ID number’ set to primary key would be used to link the tables together.
(d) Give two reasons why a relational database system would be used rather than having two flat files.
- Data does not have to be typed in twice.
- Quicker to enter/update/edit data.
- Fewer errors are likely.
- Reduces storage requirements.

12. Alan owns a small company. He wishes to replace the existing computerised system with a new one. He has employed a systems analyst, José, to plan this.

(a) José will collect information about the existing system and design the new system. 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>Defining field length is part of the design of the file structure</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Screen layouts are designed before the system is implemented</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>The new system is evaluated before it is designed</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>The existing system is analysed before the new system is designed</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

(b) Name and describe three types of test data which are used when testing a system.

- Normal data – data within a (given) range/appropriate for that data type (1)
- Abnormal data – data outside the range/of the wrong data type (1)
- Extreme data – data on the boundaries of the range (1)

(c) After the system has been implemented it will be evaluated. Tick four activities which José will need to carry out as part of the evaluation.

<table>
<thead>
<tr>
<th>Activity</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Produce user documentation</td>
<td></td>
</tr>
<tr>
<td>Design the new system</td>
<td>✔</td>
</tr>
<tr>
<td>Compare the solution with the original task requirements</td>
<td>✔</td>
</tr>
<tr>
<td>Analyse the existing system</td>
<td>✔</td>
</tr>
<tr>
<td>Identify any limitations of the system</td>
<td>✔</td>
</tr>
<tr>
<td>Identify any necessary improvements to the system</td>
<td>✔</td>
</tr>
<tr>
<td>Analyse the users’ responses to the results of testing the system</td>
<td>✔</td>
</tr>
<tr>
<td>Produce technical documentation</td>
<td></td>
</tr>
</tbody>
</table>
Technical documentation
• So improvements can be made to system
• To know how to repair system
• To know how to maintain system

User documentation
• Help users to learn/know how to use system
• Help users to overcome problems

13 Aftab and his family have three computers in their home. He wants to connect the computers into a network.

(a) Name an item of hardware used to connect the computers to the internet.

(b) Name an item of software used to send messages over the internet.

(c) Name an item of software used to access websites.

Web browser
(d) Apart from hardware and software, what else would be needed to provide access to the internet?

ISP – Internet Service Provider

14 Online banking and ATMs are used by many customers.

(a) Describe how the following three methods are used to make sure that data is secure.

Encryption - Two from:
• Despite hackers being able to intercept data
• Data is scrambled
• So that hackers cannot understand/read the data
• Need to have encryption/decryption key to make data readable/understandable [2]

Passwords - Two from:
• Linked to username and compared to stored data
• Hackers cannot access data without knowing the password
• Password should regularly changed/robust passwords make it difficult for hackers to guess [2]

Biometric data - Two from:
• Use of fingerprints/retina scans
• Compared to stored data
• Almost impossible to replicate [2]

(b) Give three advantages to the bank of using online banking. Three from:
• Fewer cashiers/security staff needed – less spent on wages
• Fewer branch offices needed – less spent on rates/rent/utilities
• Less actual cash handled – fewer robberies
• Cheaper to advertise
• Lower postal charges
• Have access to a wider customer base

(c) Give three advantages to the customer of using online banking. Three from:
• Less danger of mugging
• Don’t have to waste time travelling to bank
• Don’t have to spend money on travelling
• Can bank at any time of day or night/can bank when banks are closed
• Can use it anywhere if there’s an internet connection
• Can ask for a loan over the Internet without being embarrassed
15 Discuss the advantages and disadvantages of video conferencing compared to face to face meetings. Six from:

Advantages
- Can call meeting at short notice
- No need to pay travelling expenses
- Can work from home
- Will save time travelling
- Do not have to pay hotel expenses
- Do not have to pay for conference room facilities
- Safer as participants do not have to travel
- Don’t have to transport/carry equipment/lots of documents/documents don’t get lost in transit

Disadvantages
- Takes time to learn new technology/to be trained
- Difficult to have international meetings because of time differences
- Initial cost of hardware
- Equipment can break down/power cuts can stop conference
- Strength of signal/time lag/lip sync can be a problem/ connection can be lost/power cuts
- Loss of personal/social contact
- Legal documents cannot be signed

+1 for reasoned conclusion [6]

16 Explain the difference between phishing and pharming. Three from:

- Phishing is done by email
- Can invite you to go to a website/respond to an email
- Pharming is done by installing malicious code on a pc or server
- Redirects a genuine website’s traffic to hacker’s website

17 Computers are used to manage data in schools. Name the different methods used to input personal data about students and their attendance and discuss the advantages and disadvantages of these.

Seven from:

Three max for methods
- Type in/use keyboard
- Use touch screen
- Scan Bar code/use bar code reader
- Swipe Magnetic stripe/magnetic stripe reader
- Use biometric methods
- OMR (Optical Mark Reader)
- Chip reader

Four max for advantages & disadvantages
- Magnetic stripe quicker than keying in
- Bar codes more accurate than keying in
- Magnetic stripe more accurate than keying in
- Keyboard entry more robust than bar codes
- Keyboard can be used to enter additional data unlike bar code reader
- Magnetic stripe more robust than bar codes
- Biometric methods difficult to forge
- Biometric methods more accurate than other methods

[7]