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

A Webcam   B Speaker   C Number pad   D Touchpad

2. Ring two items which are output devices.

graphics tablet   keyboard
motor               optical character reader   web cam   laser printer

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>Computer programs are examples of software</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>A web authoring package is an example of hardware</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>An icon is a component of a command line interface</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>A mobile phone (cell phone) uses flash memory</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

4. Complete the following sentences using the most appropriate device from this list.

- A graph plotter
- A dot matrix printer
- A laser printer
- A buzzer
- A multimedia projector
- A trackerball

(a) A dot matrix printer is used to print on continuous multi-part stationery [1]
(b) A buzzer is used to output sound [1]
(c) A graph plotter is used in CAD applications for very large printouts. [1]
(d) A laser printer is used to produce high quality and high volume printouts. [1]
(e) A trackerball is used to move a pointer on a screen. [1]
5 Explain how a firewall could be used to secure the data in a computer connected to the internet.
Three from:
- Monitors and controls incoming and outgoing data traffic
- Helps to prevent malware getting into computer/from the internet
- Prevents computer accessing undesirable/unauthorised sites
- Prevents unauthorised computers using the internet accessing the computer
- Keeps a list of undesirable sites/IP addresses
- Keeps a list of acceptable sites/IP addresses
- Warns you regarding threats/allows you to accept/reject downloaded programs

6 Ali wants to back up his data.
(a) Give two reasons why making backups is necessary.
Two from:
- Data could be corrupted on original medium
- Data could be accidentally amended/overwritten on original medium
- Data could be accidentally deleted from original medium
- Data could be maliciously deleted from original medium
(b) Ali thinks that making backups will prevent his data from getting viruses. Describe what a virus is and explain why Ali is wrong.
Two from:
- Virus is a piece of programming code which replicates itself
- Can fill up storage medium making it unusable
- Deletes data/change data
- Makes software/operating system unusable

If the original medium has a virus the backup will have it as well/backup will have no effect on the hard disc so it is still susceptible to viruses

7 Describe three differences between a blog and a wiki.
Three from:
- Blog usually has a single author/ a Wiki usually has many authors
- Blog is usually in reverse chronological structure/ a Wiki has a structure determined by content and users
- Blog is usually personal/someone’s opinion/ a Wiki is usually objective
- Can’t edit a blog/ a Wiki can be edited/ Can only add comments to a blog

8 Tick whether the following statements apply to online processing or batch processing.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Online</th>
<th>Batch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paying for goods at an EFTPOS</td>
<td>✔️</td>
<td></td>
</tr>
<tr>
<td>Producing electricity bills</td>
<td></td>
<td>✔️</td>
</tr>
<tr>
<td>Booking a holiday</td>
<td>✔️</td>
<td></td>
</tr>
<tr>
<td>Producing payslips</td>
<td></td>
<td>✔️</td>
</tr>
</tbody>
</table>
9 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 $n$ forward</td>
</tr>
<tr>
<td>BACKWARD $n$</td>
<td>Move $n$ 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>
<tr>
<td>REPEAT $n$</td>
<td>Repeat the following instructions $n$ times</td>
</tr>
<tr>
<td>END REPEAT</td>
<td>Finish the REPEAT loop</td>
</tr>
</tbody>
</table>

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

PENDOWN

FORWARD 70

FORWARD 70

REPEAT 4

RIGHT 90

FORWARD 40

PENUP

RIGHT 90

FORWARD 70

END REPEAT

PENDOWN

1 mark for each statement correctly placed
Other less economical solutions can gain full marks

10 Describe the benefits and drawbacks to companies of using video conferencing.

Five from:

Benefits: Four max.
- Can call meeting at short notice
- No need to pay travelling expenses
- Can work from home
- Employees 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

Drawbacks: Four max.
- Takes time/costs money to learn new technology/to be trained
- Difficult to have international meetings because of time differences
- Initial cost of hardware (and software)
- Equipment can break down/power cuts can stop conference
- Poor strength of signal/time lag/lip sync can be a problem/ connection can be lost
- Loss of personal/social contact
- Legal documents cannot be signed
11 There are many safety issues associated with the use of computers. Tick three methods which could be used to avoid these issues.

<table>
<thead>
<tr>
<th>Method</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Take regular breaks from working at the computer</td>
<td>✓</td>
</tr>
<tr>
<td>Do not overload electrical sockets</td>
<td>✓</td>
</tr>
<tr>
<td>Make sure all cabling is securely tied</td>
<td>✓</td>
</tr>
<tr>
<td>Sit with your back upright at all times</td>
<td></td>
</tr>
<tr>
<td>Always have a CO₂ fire extinguisher in the room</td>
<td>✓</td>
</tr>
<tr>
<td>Use a wrist rest when typing</td>
<td></td>
</tr>
</tbody>
</table>

12 A greenhouse is controlled by a microprocessor.
   (a) Other than a light sensor name two sensors used in the greenhouse.

Two from:
- Temperature sensor
- Humidity sensor
- Moisture sensor
- pH sensor

(b) Explain why computers are unable to read the data directly from these sensors and name the device which would enable them to do so.
- Sensor measures analogue
- Computer works in digital
- Analogue to digital converter (ADC) is needed

(c) Describe how the microprocessor uses data from the light sensor.
- Microprocessor compares light reading with preset value
- If lower than pre-set value microprocessor sends signal to switch on light bulb
- If higher than pre-set value microprocessor sends signal to switch off light bulb
- Process is continuous/monitoring of sensors is continuous

13 Computers are used in supermarkets at point of sales terminals. When paying for goods the customer inserts the bank card into the chip reader.
   (a) Identify three items of data contained in the chip on a bank card.

Three from:
- Card number
- PIN
- Expiry date
- Type of card
- Bank issuer code
- Security number

(b) Describe three checks that would be carried out using information on the card before the bank is asked to authorise the transaction.

Three from:
- Card is valid/card number exists
- Card is in valid date
- PIN entered matches that on card
- Checks if card is stolen or lost
(c) Describe five steps which would be carried out by the computers at the supermarket and at the customer’s bank to complete the transaction.

Five from:
- Customer bank contacted
- Bank looks up customer account number
- Checks available balance
- Checks daily (card) limit
- If insufficient funds then transaction is rejected
- If sufficient funds then transaction is authorised
- Money deducted from customer account
- Money credited to supermarket account

14 Mario has asked Louise, a systems analyst, to create a new database system for keeping records of books he sells in his bookshop.

(a) Louise will collect information about the existing system.
   Describe three methods she would use to do this.

Three from:
- Examining documents of the current system
- Distribute questionnaires to users of the current system
- Interview users of the current system
- Observing the current system/workers/users

After collecting information, Louise noticed that Mario sells both non-fiction and fiction books in hardback and paperback. She also discovered that no books cost more than $20. She wrote down some of the questions that customers ask, such as:
   Have you got any non-fiction books by Arthur C Clarke?
   Have you got the hardback version of ‘Harry Potter and the Philosopher’s Stone’?
   Have you got any books for less than $10?

(b) Complete the design table below filling in the field names and most appropriate validation checks to create a database which would answer these questions.

<table>
<thead>
<tr>
<th>Field name</th>
<th>Validation Check</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Book Title/Author</td>
<td>none</td>
<td>[1]</td>
</tr>
<tr>
<td>Author/ Book Title</td>
<td>none</td>
<td>[1]</td>
</tr>
<tr>
<td>Price</td>
<td>Range check</td>
<td>[1]</td>
</tr>
<tr>
<td>Fiction/Non-Fiction</td>
<td>Boolean</td>
<td>[1], [1]</td>
</tr>
<tr>
<td>Hardback/Paper back</td>
<td>Boolean</td>
<td>[1], [1]</td>
</tr>
</tbody>
</table>

(c) Identify three items of test data which could be used with the Price field giving reasons for your choice.

A value between 0 and 20
   This is normal data and should be accepted by the system

0 or 20
   This is extreme data and should be accepted by the system

Any number above 20 or text
   This is abnormal data and should be rejected by the system
15 (a) State what is meant by OMR and OCR.

Optical Mark Recognition/Reader
Optical Character Recognition/Reader

(b) Compare and contrast the use of OMR, OCR and a keyboard as methods of data entry.

Six from:
- OCR and OMR are quicker methods of entering data compared to a keyboard
- OMR has limited uses such as exam answers
- OMR can be used in school registers
- Optical Character Recognition is more prone to errors
- OCR can be used by utility companies to read meters/to make entered text editable
- Keyboard is used to input data manually/typing
- Keyboard can be more accurate than OCR/less accurate than OMR
- Keyboard and OCR can input text more easily than OMR
- Pre printed stationery is required for OMR
- Specialised equipment is required for OCR/OMR

16 A company uses robots to manufacture cars.

(a) Tick four advantages to the company of using robots rather than humans to manufacture cars.

<table>
<thead>
<tr>
<th>Advantage</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Robots are cheap to buy</td>
<td></td>
</tr>
<tr>
<td>Running costs are lower as humans have to be paid wages</td>
<td>✓</td>
</tr>
<tr>
<td>Robots never need maintenance</td>
<td></td>
</tr>
<tr>
<td>Humans cannot work continuously</td>
<td>✓</td>
</tr>
<tr>
<td>Robots can work in hazardous conditions</td>
<td>✓</td>
</tr>
<tr>
<td>There is lower productivity with robots</td>
<td></td>
</tr>
<tr>
<td>Robots produce the same standard of finished product every time</td>
<td>✓</td>
</tr>
<tr>
<td>Humans have greater accuracy than robots</td>
<td></td>
</tr>
</tbody>
</table>

(b) Describe three tasks that humans will have to do when robots are used to manufacture cars.

Three from:
- Programming robots
- Changing robot arm tools/end effectors
- Maintaining robots
- Supervising operations
- Quality control/inspecting finished cars

17 Describe what is meant by pharming.

Three from:
- User is redirected to bogus (false) website
- User accesses these websites which look authentic but belong to the fraudster/hacker
- These fake websites are used to gain bank/personal details
- Phishing is installing malicious code on a PC or server