2. Ring two items which are used to store data on a computer.

Bar code reader  Floppy disc  Graph plotter
Magnetic tape  Robot arm  Temperature sensor

3. 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>Viruses can be transmitted by opening e-mail attachments</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>MICR is used to read data from bar codes</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Hard discs can store more data than DVDs</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Regular use of computers can cause coughs and colds</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

4. Give three health problems which can be caused by the regular use of computers.

- Backache
- RSI
- Eyestrain
- Headaches
5 A teacher wants to use mailmerge to create a standard letter to send to parents. Circle the two types of application software which would be best to use.

<table>
<thead>
<tr>
<th>Control</th>
<th>Data handling</th>
<th>Measuring</th>
<th>Modelling</th>
<th>Desktop publishing</th>
<th>Word processing</th>
</tr>
</thead>
</table>

6 Students can use sensors in science lessons to measure the temperature of a liquid. Give three reasons why it is better to use a computer and sensors rather than manually taking the temperature readings.

- Take more accurate readings
- Avoid danger factor
- Readings are more reliable/taken at regular intervals
- More readings can be taken in a short period of time
- Results can be more easily / quickly produced
- Graphs are easier/automatically produced

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 units forward</td>
</tr>
<tr>
<td>BACKWARD n</td>
<td>Move n units 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>

PEN DOWN
RIGHT (90)
(REPEAT) 6
(FORWARD) 50
LEFT (60)
END REPEAT

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8  The table shows part of a spreadsheet file.

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tuck Shop</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Item</td>
<td>Cost price</td>
<td>Selling price</td>
<td>Profit per item</td>
<td>Number in stock</td>
</tr>
<tr>
<td>3</td>
<td>Mars Bar</td>
<td>0.40</td>
<td>0.45</td>
<td>0.05</td>
<td>176</td>
</tr>
<tr>
<td>4</td>
<td>Twix</td>
<td>0.38</td>
<td>0.44</td>
<td>0.06</td>
<td>135</td>
</tr>
<tr>
<td>5</td>
<td>M&amp;Ms</td>
<td>0.65</td>
<td>0.78</td>
<td>0.13</td>
<td>124</td>
</tr>
<tr>
<td>6</td>
<td>Bounty</td>
<td>0.42</td>
<td>0.51</td>
<td>0.09</td>
<td>45</td>
</tr>
</tbody>
</table>

(a) Write down the cell reference of one cell containing numeric data.
Any cell in range B3:E6

(b) State one cell reference that should include a formula.
Any cell in range D3:D6

(c) How many rows are shown in the spreadsheet?
SIX rows

(d) Give a cell reference for a cell that should be formatted as currency.
Any cell in range B3:D6

(e) Give the cell reference that contains 124.
E5

9  A school library uses databases. Give three ways databases can be used in school libraries.

- Search for information on borrowers
- Search for information on books
- Store (new) records of books
- Store records of borrowers
- Print out overdue reminders
- Calculate fines
- Identify reading habits of pupils

10 An automatic washing machine is controlled by a microprocessor.

(a) Name three sensors which would have to be used in the machine.

Moisture sensor
Pressure/weight sensor
Temperature sensor
Ph sensor
Water level sensor
(b) Choose one of your answers. Write down what data would be input to the microprocessor. Describe how the microprocessor would use this data to control the washing machine.

- Check water level, weight of clothes, temperature, washing liquid sensor or user input [1]
- Compares with pre-programmed/user set value [1]
- If temperature too high microprocessor switches off heater/if water level reached/microprocessor switches off valve/if clothes too heavy microprocessor sounds alarm. [1]

11 The science department in a school is going to computerise its stock records. It will use a database to store the information.

(a) Give three advantages to the department of a computer system compared to the manual system.
- Easier to know when they need to re-order
- Automatic re-ordering
- Can keep records of usage of items
- Easier/quicker to know how many in stock
- Names of suppliers/stock items easier to find
- Less physical space required (for database)
- Ease of backup
- Easier to keep it up to date

(b) Here are examples of records from the suggested database.

<table>
<thead>
<tr>
<th>Description of item (in words)</th>
<th>Code (4 digits)</th>
<th>Quantity in stock</th>
<th>Need re-ordering? (Y/N)</th>
<th>Name of supplier</th>
<th>Telephone number of supplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test tube</td>
<td>1023</td>
<td>45</td>
<td>Y</td>
<td>E Jones &amp; Co</td>
<td>027 7891</td>
</tr>
<tr>
<td>Spatula</td>
<td>1036</td>
<td>67</td>
<td>N</td>
<td>B Sidhu</td>
<td>020 6357</td>
</tr>
</tbody>
</table>

As the data is entered it will need to be verified. Give two ways in which the data could be verified.

- Double entry and computer compares the two versions
- Visual comparison with original

(c) The data will also need to be validated. Using fields from the database as examples, describe two validation checks which could be performed on the data.

Two checks from:
Range, length, existence/presence, unique for code, input mask, type check.

Examples are:
Code – length check to check no more or less than 4 digits
Quantity in stock – range check not more than specific value and not less than zero
Need re-ordering – invalid character check only positive numeric values
Telephone number of supplier – length check to check no more or less than 7 digits
(d) For each of these fields, choose from the list below the data type which would be most suitable.

**Quantity in stock**  Numeric
**Need re-ordering?** (Y/N)  Boolean/logical
**Name of supplier**  Text/alpha-numeric
**Telephone number of supplier**  Text/alpha-numeric

12 Pupils want to produce a multi-media presentation to advertise their school. They prefer to do this rather than use a desktop published brochure.

(a) Name two forms of data which can be used in a presentation but cannot be used in a DTP document.

- Sound
- Animation
- Video

(b) The pupils want to record themselves speaking. Their voices will be added to the presentation. Name two devices which their computer will need to do this.

- Microphone
- Speakers
- Sound card/midi card/audio digitiser

(c) When they have completed their presentation they will want to make a backup. Give two reasons why they feel it is necessary to make a backup.

- In case the file is accidentally deleted
- In case file is corrupted/changed
- In case hackers delete it
- In case of viruses

13 A teacher is organising a school sports day. Parents will be invited to see their children take part in a number of athletic competitions. The school will use a computer to help organise the day. Name two types of software which could be used. For each type of software write down the way in which it could be used.

- **Desk Top Publishing/graphics package**
- **Advertising posters/programmes**

- **Spreadsheet**
  - Calculating points gained by houses or years/recording or displaying results

- **Database**
  - Storing names or addresses of parents or pupils for invitation to the event/recording or displaying results

- **Word processing**
  - Writing letters to parents/community advertising sports day.

- **Presentation package**
  - Show parents what activities take place

- **Web editor**
  - Develop a web page publicising event
14 (a) Name an item of hardware that a home computer must have before it can be connected using a telephone line to the Internet. Give a reason why it is needed.

Router - To be able to connect to the Internet

(b) Give two disadvantages of using the Internet in the home.

Undesirable sites may be accessed
May download a virus
Hacker can access data
May receive unsolicited e-mails from undesirable characters

15 A school is arranging a trip to Disneyland Paris. Not all pupils are being allowed to go. It is using a database to keep a record of which pupils are going and how much they have paid. Describe three ways in which personal data held on computers can be misused. For each way describe a method of preventing it.

Hackers may read the data and pass it on
Data can be encrypted/Usernames/Passwords can be used/do not connect the computers to a network/if connected to a network use dedicated lines/physical security – locks on computer room doors/firewall

Hackers may delete the data
Usernames/Passwords can be used/do not connect the computers to a network/if connected to a network use dedicated lines/physical security – locks on computer room doors/firewall

Hackers may amend the data
Data can be encrypted/Usernames/Passwords can be used/do not connect the computers to a network/if connected to a network use dedicated lines/physical security – locks on computer room doors/firewall

16 Many schools now have a number of laptops as well as network rooms of desktop computers. Identify the advantages and disadvantages of using stand alone laptop computers, compared to using networked desktop computers.

- Laptops can be transported from room to room
- Can not share resources easily on laptops/more difficult to print out work
- Can not use laptops to access work which may have been saved in other lessons
- Can use laptops outside the classroom in Science/Geography/at home
- Cannot use the Internet/email
- Laptops are more fragile
- Less susceptible to hacking/virus
- Laptops may be more expensive to buy/repair than network stations
- Difficult to use keyboard/mouse on laptop
- Laptops need recharging from time to time
- When the network is down cannot use network computers/can still use laptops

17 Since the introduction of home-banking customers have found that they no longer have to go to the bank to carry out some transactions. Describe some of the advantages and disadvantages of this to them.

- Hackers may intercept data and defraud customer
- Possibility for customers to mismanage accounts
- Customers deprived of personal communication
- Easier for customers to make transactions
- Can be used 24/7 from anywhere
- No need to queue
- Do not have to wait for bank statement to be delivered by post
- Immediate transfers can be made

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