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

   A. Desktop computer  
   B. Deskjet printer  
   C. Tracker ball  
   D. CD Rom  
   E. Floppy disc

2. Ring two items which are used to output data from a computer.

   Keyboard  Light pen  Monitor
   Mouse  Plotter  Scanner

3. Give two ways in which a hard disc is different from a floppy disc. Any two of:
   - Hard discs are not portable
   - Hard discs hold more data/information
   - Hard discs have faster data access times
   - Hard discs have faster data transfer rates

   Note: Any point above which is reworded from point of view of floppy disc is acceptable e.g. floppy discs are portable

4. 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>OMR is used to read data from school registers.</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>OCR is used to read data from bank cheques.</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>DTP is used to store pupil records on a school computer system.</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Regular use of computers improves your eyesight.</td>
<td>✔</td>
<td></td>
</tr>
</tbody>
</table>
5 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>
</tbody>
</table>

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

- PEN DOWN
- LEFT 90
- FORWARD 20
- Right 90
- Forward 75
- Right 90 / Penup
- Penup / right 90
- Forward 20
- Right 90 / pendown
- Pendown
- Forward 75
- Right 90
- Forward 20
- Right 90

6 Tick two changes which have occurred in libraries due to the introduction of computers.

| Letters are sent out automatically when books are late. | √ |
| More books can be borrowed.                               |   |
| Libraries can stay open longer.                           |   |
| Libraries have more books.                                |   |
| More people work at the library.                          |   |
| It is easier to see if a certain book is available.      | √ |
7 Office workers now use computers a lot in their work and this can cause them to suffer problems with their health. Name two possible health problems and two precautions which could be taken to prevent them.

Any two of the following health problems:
1. **Backache**
   - Deep-veined thrombosis
2. **RSI**
3. **Eyestrain / affect eyesight**
4. **Headaches**

**Precautions**
1. Get straight back chairs/Sit with straight back/Don’t slouch/Use adjustable chair.
2. Do finger exercises periodically/Use wrist rests/Use adjustable chair.
3. Get anti-glare screens/look away from screen periodically/Have eyesight tested/get glasses/ Use of TFT / LCD / Plasma screens
4. Take regular breaks “General precaution”

---

8 A Biology teacher uses a spreadsheet to record the test scores of his pupils. The spreadsheet below shows the test scores of some of those pupils.

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Name</td>
<td>Test 1</td>
<td>Test 2</td>
<td>Test 3</td>
<td>Total mark</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Me Te Loan</td>
<td>78</td>
<td>66</td>
<td>63</td>
<td>207</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Surinder Singh</td>
<td>56</td>
<td>59</td>
<td>89</td>
<td>204</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Mohammed Ali</td>
<td>89</td>
<td>48</td>
<td>73</td>
<td>210</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Alan Porter</td>
<td>41</td>
<td>76</td>
<td>96</td>
<td>213</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>41</td>
<td>48</td>
<td>63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(a) Write down the formula which should go in cell E2.

=SUM(B2:D2) or =B2+C2+D2 or =SUM(B2, C2, D2) (= sign is optional) [1]

(b) Write down the formula which should go in cell B6.

=MIN(B2:B5) / =MINIMUM(B2:B5) (= sign is optional) [1]
As part of their Business Studies coursework, students are carrying out a survey at a company. They are going to construct a database to store the results of their survey. Each worker at the company has an individual payroll number which starts with a letter and has 5 digits e.g. L12345. Below is part of a questionnaire which some students have created to collect the results.

**How do you travel to work?**

1. What is your payroll number? ______________________

2. Which of the following do you mainly use to get to work (please tick one)?
   - Bus
   - Walk
   - Train
   - Car
   - Cycle

3. How many days per week do you work? ____

(a) What would be a suitable field type for:
   (i) question 1?
   **Text/alphanumeric**

   (ii) question 2?
   **Lookup/list/text/alphanumeric/combo box/drop down list**

   (iii) question 3?
   **numeric/integer** [3]

(b) Name and describe the validation check which would be most suitable to ensure that data entered for question 3 of the questionnaire is acceptable.

   range check
   data is less than 0 (is invalid)
   Greater than 7 (is invalid) [3]
10. The Geography department in a school wants to set up an automatic weather station connected to a computer.

(a) Name three variables which will be measured by sensors.

Three of the following:
- Temperature (Thermocouple) sensor
- Moisture/water/rainfall sensor
- Pressure sensor
- Light sensor
- Humidity sensor
- Wind speed sensor
- Wind direction sensor

(b) Why is the computer unable to read the data directly from the sensors?

Computers are digital and data read from sensors is usually analogue.

(c) What device is needed to enable it to do so?

Analogue to Digital Converter (ADC)

(d) Give three advantages to the Geography department of having a computerised system rather than a manual weather system.

- Any three from the following:
  - Computer can take readings during holidays
  - Computer readings are more accurate
  - Readings can be taken more frequently
  - Readings can be taken any time of day or night
  - Results/graphs can be produced more easily/automatically
  - Readings can be taken more reliably
  - Humans can be more productive if not collecting data

11. A student is going to create a database. Put the following steps into the correct order for her to follow.

Print the results.
Verify the data.
Collect the data.
Enter the data.

1. Collect the data
2. Enter the data
3. Verify the data
4. Print the results

12. For a home central heating system name one input and one output and describe the processing which occurs.

Input – Temperature / time using keypad
Output – Heaters switched on/off

Three from: Processing –
Sensor temperature collecting the data to compared
Internal clock is compared with preset value / keyed in value
If too high/keyed in time not reached – heater switched off
If too low/keyed in time reached – heater switched on

Note. You have to know that the sensor has nothing to do with controlling, it only detects/reads and send data to the microprocessor through ADC.
13 A publisher sells a CD ROM of Shakespeare’s plays. This is the same price as the book. Give two advantages and two disadvantages of using the CD ROM compared to the book.

Advantages – two from:
Cannot write to it so cannot be changed, Use of sound, Animation/Video, Search of data quicker, Can printout data conveniently, Takes up less space, More portable

Disadvantages – two from:
Need a computer to use it/Haven’t got a suitable computer/Computer needs CD Rom drive/Computer could crash/needs electricity, Cannot be read in awkward locations, Need to learn how to use it, Takes time to start up a computer, More easily stolen, You can’t add notes to a CD

14 A school newsletter contains only text. The head teacher wants to use a computer to add graphics including a picture of the school.

(a) Describe how he could obtain a picture of the school and how he could place it in the document.

Three from:
- Photo taken using digital camera/ordinary camera or picture drawn
- Downloaded/loaded from CD Rom/scanned
- Saved as file
- Magazine document loaded
- Imported/copied and pasted/inserted into document
- Position the picture/Adjust the picture/resize it

(b) Name two suitable sources of graphics, other than that described in (a). Suggest a method which would be used to include these in the document.

Two from:
Internet/Clipart/CD Rom/Scanned images/Use of art/drawing package/Use of camera allowed only if not present in (a)
Insert from file/copy and paste

(c) The head teacher needs 1000 of these newsletters and would like them in colour. Give two reasons why this may not be a good idea.

Two from:
For colour school might have to use inkjet – not totally reliable on long print runs, Take a long time in colour, Expensive to use colour cartridges, May need to change cartridges and interrupt print run
15 A school is going to introduce an automatic registration system controlled by computer. Students will carry a card which will be automatically read by an input device every morning so that the school office will know that they are present.

(a) Name a suitable input device to read the card.

Bar code reader/magnetic stripe reader

OMR = 0 mark

(b) List one item of information which will be recorded on the card.

Student number or equivalent unique identifier

(c) Instead of using the card-based system the school IT teacher suggests using student fingerprints. Describe the advantages and disadvantages of either system.

Three from:
Proposed system –
Students could ‘clock’ other students in
Students could lose cards
Time taken to register students without cards

Fingerprints –
Personal liberty issues
Would not be able to ‘clock’ each other in
Any scratch or cuts may cause a problem in scanning the fingerprints

The following advantages and disadvantages can be applied to both:

Would save teachers/office staff time
More accurate/less chance of human error recording of attendance
System could malfunction
Expensive to install

16 Describe the advantages and disadvantages of using the Internet for home shopping.

- Four from:
- Don’t have to leave the house
- Makes shopping easier for the disabled people
- Need a credit card
- Security of information transmitted over the Internet
- Goods can be delivered to your door
- Can be expensive staying on-line for a long time compared with visiting the shop
- Cannot inspect the goods you are going to buy properly/might be fakes
- Don’t have to waste time travelling long distances to shops
- Don’t have to spend money on travelling expenses travelling long distances to shops
- Greater choice of goods than the local shops
- Can shop when shops are closed
- Lose personal touch
- Less opportunity for socializing with friends/neighbours
- Can’t touch/feel/see the goods in reality
- More expensive phone bills
- Lack of exercise
- Fraudulent web sites

Note: Greater choice/less choice 0 marks unless a reason is given
17 A school has just received its IGCSE examination results which are better than the previous year.

The results for the last three years are stored in this spreadsheet.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>Percentage of</td>
</tr>
<tr>
<td>2</td>
<td>Year</td>
<td>students passing</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>2001</td>
<td>89.4</td>
</tr>
<tr>
<td>5</td>
<td>2002</td>
<td>92.3</td>
</tr>
<tr>
<td>6</td>
<td>2003</td>
<td>94.6</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(a) Explain how the head teacher will present these figures in the form of a graph.

Highlight column A and Highlight column B
Or
Delete column B/Hide column B
Select from A1 to C6
Select chart icon / select insert chart
Select type of chart
Label axes

(b) The head teacher wants to include this graph in a multimedia presentation to parents. Describe how he would do this.

Two from:
Save as chart/copy chart
Load presentation
Create frame
Insert file/paste chart

18 Describe how a microprocessor-controlled streetlight works. In your description include the input, processing and output involved.

Five from:
Input: Light sensor sends measurement back to microprocessor
ADC converts this to digital
Processing: Amount of light is compared with preset value
If higher – nothing happens
If lower or equal sends signal to light
Output: Light switched on

Note: zero marks for processing and output if sensor doing the control

Digital timer holding sunset and sunrise times and then sending a signal is 2 max