This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners’ meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes must be read in conjunction with the question papers and the report on the examination.

- CIE will not enter into discussions or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the October/November 2010 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.
Accept answers which have been crossed out UNLESS they’ve been replaced.
In numbered responses mark first answer only except if other answer spaces have been left blank
Do not accept generalised terms such as ‘quicker’, ‘cheaper’, ‘more efficient’ unless qualified.

1. A TFT monitor (1)  
   B CRT monitor (1)  
   C Inkjet printer (1)  
   D Graph plotter (1)  

2. [ ] Blu-ray disc (1)  [ ] CD ROM (1)  [ ] MICR
   [ ] Motor  [ ] Sensor  [ ] Trackerball

3. | Control software is used to access the Internet | True (1) |
   | A Graphical User Interface has windows, icons, menus and pointers | True (1) |
   | Laptop computers are popular because they are portable | True (1) |
   | Word processing software is used to monitor physical variables | True (1) |
   | Presentation software is used to create slide shows | True (1) |

4. (a) OCR is used to convert an image into text for use in a word processor. [1]
   (b) A web camera is used to input moving pictures into a computer. [1]
   (c) An inkjet printer is used to output photographs [1]
   (d) A motor is an output device used in robotics [1]
   (e) A bar code reader is used to read the ISBN from a book. [1]
5

<table>
<thead>
<tr>
<th>Item</th>
<th>Mark</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

```
RIGHT 90
FORWARD 100
RIGHT 90
FORWARD 80
PENDUP
FORWARD 40
PENDOWN
FORWARD 80
RIGHT 90
FORWARD 100
```

1 mark for each pair of statements [5]

7

<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

<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 **Boolean**: Re-order (Y/N) (1)  
**Date**: Last order received (1)  
**Alphanumeric**: Food type (1)  
**Numeric**: Number in stock (1)

10 (a)

<table>
<thead>
<tr>
<th>Item</th>
<th>Mark</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>A codec</td>
<td>✓</td>
</tr>
<tr>
<td>Broadband</td>
<td>✓</td>
</tr>
<tr>
<td>A telephone</td>
<td></td>
</tr>
</tbody>
</table>

11 **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) **Four** from:  
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

(b) **One** from:  
Car fault diagnosis  
Chess games  
Mineral prospecting  
Financial advice  
Insurance risk assessment  
Tax systems  
Plant identification  
Animal identification

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13 To input data at an information kiosk
   Graphics tablet
To input data from a product in a supermarket
   Touch screen
To input a PIN
   Bar code reader
To input freehand drawings
   Numeric keypad

14 (a) **Three** from:
   Mouse
   Keyboard
   Printer
   Mobile phone
   PDA
   Headphones
   Webcam
   Camera
   Microphone
   Laptop
   Scanner
   Graphics tablet
   Modem

(b) **Two** from:
   Increased risk of hacking
   Limited range of connection
   Likelihood of interference
   Reduced speed of connection (compared to cabled networks)

(c) **2 marks** for each pair (max 3) from:
   Encryption (1)
   Data becomes indecipherable to unauthorised users (1)
   Firewall (1)
   Prevents unauthorised computers having access to the network (1)
   Anti spyware (1)
   Removes spyware from computers (1)
   Keylogging detection (1)
   Enables user to delete software which hacker has planted (1)
   Antivirus (1)
   Removes viruses from storage media (1)

15 (a) **Two** from:
   Take regular breaks
   Exercise wrists/fingers etc.
   Wristpads/wrist rests
   Ergonomic keyboards

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(b) Two from:
Don’t bring food and drink near computers
Use ducting for cables/tie cables together tidily
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
Ensure presence of CO₂ fire extinguishers

16 Four from:
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
Sensible colour scheme
Use of tick boxes
Strike throughs
Appropriate white space
Provide box/place to sign in

17 (a) Three from:
Data/file structures
Validation routines
Input methods/data entry screens
Output formats/reports
Error messages
Processing/calculations

(b) (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 (a) Two from:
Purpose of the system
Limitations of the system
Hardware and software requirements
Contact details of manufacturer/support network

(b) Two from:
How to use the system
Trouble-shooting guide
Frequently asked questions
19 (a) Two from:
- Lawful protection…
- … given to authors and publishers
- Relates to the software the author/publisher created/published
- Prevents purchaser from making unlimited copies/lend it to others/change the software/sell it without the company’s permission

(b) Two from:
- 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 Six from:
- **Laser printer**
  - High quality output
  - Fast output
  - Relatively quiet
  - To print out invoices/letters etc.
  - Relatively cheap to buy
- **Graph plotter**
  - High quality output
  - Capable of very large printouts
  - Print out car designs
- **Dot matrix printer**
  - Cheaper running costs
  - Can work in industrial environment …
  - …without losing performance
  - To make instantaneous copies
  - Can print continuously
  - Requires multipart stationery
  - Can print payslips

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

21 Four from:
- You get immediate feedback/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/less risk of upsetting recipient/can detect emotions
- Can make yourself understood more easily
- You can see the other person’s reaction