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.

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

Cambridge is publishing the mark schemes for the October/November 2011 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.
1 A Laser printer (1)  
   B Plotter (1)  
   C Multimedia projector (1)  
   D Monitor (1) [4]

2 Blu ray disc Graphics tablet (1) Inkjet printer  
   Motor Optical mark reader (1) Speaker [2]

3

<table>
<thead>
<tr>
<th></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 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 [5]

5 (a) Birthday Date  
   (b) Gender Boolean  
   (c) Home phone number Text  
   (d) Number of brother and sisters Integer [4]
6

<table>
<thead>
<tr>
<th>True</th>
<th>False</th>
<th>(1)</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

```
FORWARD 50
PENUP
FORWARD 40
PENDOWN
FORWARD 60
PENUP/RIGHT_90
RIGHT 90/PENUP
FORWARD 60
RIGHT 90/PENDOWN
PENDOWN/RIGHT_90
FORWARD 80
```

1 mark for each 2/3 statements

8

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hub</td>
<td>✓</td>
</tr>
<tr>
<td>Printer</td>
<td></td>
</tr>
<tr>
<td>Scanner</td>
<td></td>
</tr>
<tr>
<td>Switch</td>
<td>✓</td>
</tr>
<tr>
<td>Bridge</td>
<td>✓</td>
</tr>
<tr>
<td>Monitor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>True</td>
</tr>
<tr>
<td>-----------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Paying for goods at an EFTPOS terminal</td>
<td>✓</td>
</tr>
<tr>
<td>Booking a holiday using a computer</td>
<td>✓</td>
</tr>
<tr>
<td>Producing credit card bills</td>
<td>✓</td>
</tr>
<tr>
<td>Processing cheques</td>
<td>✓</td>
</tr>
</tbody>
</table>

(a) Three from:  
Humidity  
Moisture  
Temperature  
Light

(b) Five from:  
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 is compared with preset value  
Moisture level is 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) 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)  3   [1]

(b)  5   [1]

c) Three from:
   The personal details file and test results files would be saved as separate tables
   Primary key/key field(s)/foreign key would be identified
   The 'Unique ID number' set to primary key would be used to link the tables together   [3]

d) Two from:
   Data does not have to be typed in twice
   Quicker to enter/update/edit data
   Fewer errors are likely
   Reduces storage requirements   [2]
12 (a)

<table>
<thead>
<tr>
<th></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) 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)

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Produce user documentation</td>
</tr>
<tr>
<td>Design the new system</td>
</tr>
<tr>
<td>Compare the solution with the original task requirements ✔ (1)</td>
</tr>
<tr>
<td>Analyse the existing system</td>
</tr>
<tr>
<td>Identify any limitations of the system ✔ (1)</td>
</tr>
<tr>
<td>Identify any necessary improvements to the system ✔ (1)</td>
</tr>
<tr>
<td>Analyse the users’ responses to the results of testing the system ✔ (1)</td>
</tr>
<tr>
<td>Produce technical documentation</td>
</tr>
</tbody>
</table>

(d) Technical documentation
Two from:
So improvements can be made to system
To know how to repair system
To know how to maintain system

User documentation
Two from:
Help users to learn/know how to use system
Help users to overcome problems
13 (a) Router/modem (1)

(b) Email (1)

(c) Web browser (1)

(d) ISP (1) [4]

14 (a) 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
   Compared to stored data
   Hackers cannot access data without knowing the password
   Password can be 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) 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 [3]

(c) 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 [3]
15 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 Three from:

**Phishing**
- Done by email
- Can invite you to go to a website/respond to an email

**Pharming**
- Done by installing malicious code on a pc or server
- Redirects a genuine website’s traffic to hacker’s website [3]

17 Seven from:

**Types of input:**
- Type in/use keyboard
- Use touch screen
- Scan Bar code/use bar code reader
- Swipe Magnetic stripe/magnetic stripe reader
- Use biometric methods
- OMR
- Chip reader

Three max. for methods

- 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]