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 should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the October/November 2012 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.
1 A dot matrix printer  B trackerball  
C multimedia projector  D inkjet printer  [4]

2 light pen  magnetic disc  motor  mouse  OCR  ROM  [1]

3

<table>
<thead>
<tr>
<th>TRUE</th>
<th>FALSE</th>
<th>[1]</th>
</tr>
</thead>
<tbody>
<tr>
<td>A chip reader is an example of software</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>A hard disc drive is an example of hardware</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>DTP is a form of operating system</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>A blu-ray disc has a greater storage capacity than a DVD</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>Flash memory cards are used in digital cameras</td>
<td>✔</td>
<td></td>
</tr>
</tbody>
</table>

4 Mouse  to input voiceovers for a presentation  [1]
    Joystick  to input a PIN  [1]
    Optical Mark reader  to select options from a menu  [1]
    Microphone  to operate a flight simulator  [1]
    Number pad  to input candidate responses on examination papers  [1]

5

<table>
<thead>
<tr>
<th>TRUE</th>
<th>FALSE</th>
<th>[1]</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROM is volatile</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>ROM 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>

6 Three from:

Projector/large screen  Webcam/video camera  Speakers/headphones  Microphone  Router/modem  [3]
7

\begin{verbatim}
    PEN DOWN       END REPEAT
    LEFT  90       PENUP
    REPEAT  2      FORWARD  90
    FORWARD  50    PENDOWN
    RIGHT  90     FORWARD  70
\end{verbatim}

1 mark for each correct statement [8]

8 (a) Three from:

Descriptions of:

Temperature
Pressure
Sunlight
Humidity
Rainfall [3]

(b) Three from:

Descriptions of:

Uses text and numbers
Performs automatic recalculation
Performs whatifs
Replicates formulae
Formulae/functions
Can have absolute and relative cell references/named cells or ranges
Graphs/charts [3]

(c) Three descriptions from:

Simulations
Mathematical models
Scientific models
Civil engineering models
Financial models
Flight/pilot simulation/training
Large scale chemical experiments
Design of fairground rides
Traffic control
Building fire simulation [3]
(d) **Two** from:

- Some situations are/real thing might be dangerous/model is less dangerous
- Cost of building real thing may be expensive
- Real thing may waste raw materials/natural resources
- Easier to change data/variables
- Costs less to change data/variables
- The real thing may be impossible to access/create
- Real thing may be on too vast a scale
- Extremes which can’t be tested in real life can be tested using models

9 (a) **Hub/switch/bridge**

(b) **Email software/IM software**

(c) **LAN/intranet**

(d) **Three** from:

- They may waste time playing games-going on social network sites/updating their blog/online shopping/banking/surfing
- They could access undesirable sites
- They could download viruses/malware
- Could make the company susceptible to hackers

10 (a) **Three** from:

- Fewer staff needed – less spent on wages
- Fewer shops needed – less spent on rates/rent/utilities
- Less actual cash handled – fewer robberies
- Less money spent on security staff
- Potentially larger customer base

(b) **Three** from:

- Initial cost of hardware/software is expensive
- Need to retrain staff
- Less customer loyalty/loss of customers/more difficult to sell other services/product due to lack of personal touch
- Costs of system maintenance
- Greater costs due to more delivery staff
11 Three matched pairs from:

**Sound**
Spoken introduction by head/voiceover the presentation/background music/school choir/band/orchestra/sound effects when changing/opening a slide

**Animation**
Text effects/cartoon representing school activities

**Video**
Introduction by head/school play/choir/band/orchestra/sports activities

**Hyperlinks**
Move to another slide

**Slide transitions**
To keep the viewer’s attention [6]

12 Visually comparing typed in data with original source [1]
Computer compares two versions of the typed in data [1]

Two from:
Data may be entered/copied inaccurately
Check needs to be carried out to ensure accurate data entry
Validation may not pick up that although the data is acceptable it may still be incorrect [2]

13 (a)

<table>
<thead>
<tr>
<th>Device</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Optical character reader</td>
<td></td>
</tr>
<tr>
<td>Electronic scales</td>
<td>✓</td>
</tr>
<tr>
<td>Sound sensor</td>
<td></td>
</tr>
<tr>
<td>Bar code reader</td>
<td>✓</td>
</tr>
<tr>
<td>Number pad</td>
<td>✓</td>
</tr>
<tr>
<td>Trackerball</td>
<td></td>
</tr>
</tbody>
</table>

(b) Two from:
Computer calculates check digit from numbers in bar code number
Compares calculated check digit with that recorded in bar code number
If same, proceeds with transaction, otherwise sounds warning signal/issues error message [2]
(c) Five from:

Every time a product is bought, number in stock reduces by 1
Number in stock of Kollege Corn Flakes falls to 150
Compare number in stock with Re-order level
Is equal so needs re-ordering
Kollege Corn Flakes now needs re-ordering
Read off re-order quantity (which is 50)
Read off supplier code L93512
Use suppliers’ database
Lookup supplier code (L93512)
Read off supplier’s name, address - Lu Chen, Kinshasa Highway, Box 41324
Print off re-order request
Print off address label [5]

14 Three from:

Fraudster sends an e-mail
which appear to be authentic
Is sent by a fraudster posing as a bank/organisation
in order to get the target's bank details/personal details [3]

15 (a)

<table>
<thead>
<tr>
<th>Field name</th>
<th>Validation rule</th>
</tr>
</thead>
<tbody>
<tr>
<td>First_name</td>
<td>none</td>
</tr>
<tr>
<td>Family name</td>
<td>none</td>
</tr>
<tr>
<td>class</td>
<td>Format/picture/length</td>
</tr>
<tr>
<td>Number of IGCSEs</td>
<td>Range</td>
</tr>
<tr>
<td>Gender</td>
<td>Boolean</td>
</tr>
</tbody>
</table>

(b) Three from:

Normal data – data within a given range/appropriate for that data type
Abnormal data – data outside the range/of the wrong data type
Extreme data – data on the boundaries of the range
Live data – data that has been used in the previous/existing system [3]
(c) 

<table>
<thead>
<tr>
<th>Task</th>
<th>Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interview users about the current system</td>
<td></td>
</tr>
<tr>
<td>Design the new system</td>
<td></td>
</tr>
<tr>
<td>Compare the solution with the original task requirements</td>
<td>✓</td>
</tr>
<tr>
<td>Decide on the method of implementation</td>
<td></td>
</tr>
<tr>
<td>Identify any limitations of the system</td>
<td>✓</td>
</tr>
</tbody>
</table>
| Identify any necessary improvements to the system                    | ✓    | [3]  

16 Six from:

- Internet is not policed so information is not necessarily reliable
- Anybody can have a website so information is not necessarily reliable
- Anybody can publish their understanding of a topic so information is not necessarily reliable
- If site has excessive advertising it could be unreliable
- If the advertising is related only to its own products it could be unreliable
- The final part of a URL can help to identify reliability...
  - ...ac, .gov, .org are usually fairly reliable
- Can compare information from sites to see if it is reliable
- If site is endorsed by reliable/reputable people/organisations it can be accepted as being reliable
- If it has links to other reliable sites it is usually reliable
- If it has testimonials it is likely to be reliable
- If the author's credentials are good it is likely to be reliable
- If information is comparable to information from reliable/authenticated/text books it is likely to be reliable
- If the date of the last update was a long time ago it is likely to be unreliable [6]

17 Four from:

- Easy to keep in immediate contact with friends/make new friends
- Easy to communicate to more than one friend/to communicate with people overseas
- Can search for people who you’ve fallen out of touch with
- Easy to arrange meetings/visits to cinemas/theatre