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 2013 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.
1 A microphone B speakers [1], [1]
   C dot matrix printer D joystick [1], [1]

2 hub CD ROM graph plotter [1]
   magnetic disc router trackerball [1]

3

<table>
<thead>
<tr>
<th>True</th>
<th>False</th>
</tr>
</thead>
<tbody>
<tr>
<td>A network card is an example of hardware.</td>
<td>✓</td>
</tr>
<tr>
<td>A light sensor is an example of software.</td>
<td>✓</td>
</tr>
<tr>
<td>Icons are part of a Graphical User Interface.</td>
<td>✓</td>
</tr>
<tr>
<td>A magnetic tape has a greater storage capacity than a CD.</td>
<td>✓</td>
</tr>
<tr>
<td>Laser printers are quieter than a dot matrix printer.</td>
<td>✓</td>
</tr>
</tbody>
</table>

4 Remote control to input data at a POS [1]
   Electronic scales to play a video game [1]
   Joystick to input text so it can be processed by a software package [1]
   Optical Character Reader an input device in a burglar alarm system [1]
   Sound sensor to operate a multimedia projector [1]

5

<table>
<thead>
<tr>
<th>True</th>
<th>False</th>
</tr>
</thead>
<tbody>
<tr>
<td>A magnetic tape has faster data access than a DVD ROM.</td>
<td>✓</td>
</tr>
<tr>
<td>A CD is used to store a two hour high definition movie.</td>
<td>✓</td>
</tr>
<tr>
<td>A magnetic disc is used for online processing.</td>
<td>✓</td>
</tr>
<tr>
<td>Pen drives are used to copy data from one computer to another.</td>
<td>✓</td>
</tr>
</tbody>
</table>
6

PEN DOWN
LEFT 90
FORWARD 50
REPEAT 2
RIGHT 90
FORWARD 50
PENDOWN
FORWARD 30
PENDOWN
FORWARD 70
ENDREPEAT

1 mark for each correct statement [8]

7 (a)

<table>
<thead>
<tr>
<th>Statements</th>
<th>Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Companies do not have to buy any equipment</td>
<td></td>
</tr>
<tr>
<td>Companies can arrange the meeting for any time of day</td>
<td></td>
</tr>
<tr>
<td>It is safer as employees do not have to travel</td>
<td>✓</td>
</tr>
<tr>
<td>Companies do not have to pay hotel expenses</td>
<td>✓</td>
</tr>
<tr>
<td>Employees don’t have to carry so many documents with them</td>
<td>✓</td>
</tr>
<tr>
<td>Employees are paid less</td>
<td></td>
</tr>
</tbody>
</table>

(b)

<table>
<thead>
<tr>
<th>Statements</th>
<th>Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video conferences can only last a short time</td>
<td></td>
</tr>
<tr>
<td>Employees are unable to see who they are talking to</td>
<td></td>
</tr>
<tr>
<td>It is difficult to call international meetings because of time differences</td>
<td>✓</td>
</tr>
<tr>
<td>There is sometimes a time lag between video and sound</td>
<td>✓</td>
</tr>
<tr>
<td>It is difficult to share documents</td>
<td></td>
</tr>
<tr>
<td>Legal documents may need to be signed</td>
<td>✓</td>
</tr>
</tbody>
</table>
8

<table>
<thead>
<tr>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrocutio from touching bare wires</td>
</tr>
<tr>
<td>Fire from overheating of equipment</td>
</tr>
<tr>
<td>Fire from overloading of sockets</td>
</tr>
<tr>
<td>Neck pain due to bad positioning of the screen</td>
</tr>
<tr>
<td>RSI due to continuous typing</td>
</tr>
<tr>
<td>Sight problems from staring at the screen continuously</td>
</tr>
</tbody>
</table>

9 (a) Four from:

- Illegal accessing of data
- Unauthorised access to data/computer system
- Usually remotely

  Two max.

- Deletion of data
- Amending/changing of data
- Copying and distributing data
- Using data for fraudulent purposes

  Three max.

(b) Four max from two descriptions:

Allocating User ID and one of password/PIN/Memorable data to network users
Password/PIN/Memorable data has to be entered before access is gained
Password/PIN can be changed frequently to avoid hackers guessing them
Unsuccessful logins can throw you out of the system

Allocating each user a Magnetic stripe/smart card/electronic key/bar code system/ID card
Card/key has to be read before access is gained
Prevents people without cards accessing system

Biometric data has to be used to enter the network
Fingerprint/retina/iris/face/voice recognition used as input
Biometric data is difficult to replicate
Biometric data is used because it is unique
Data is compared with those stored on the system.

Firewall is installed in the network
Only allows known computers to access network/prevents unknown computers accessing network
Only allows known or trusted programs to communicate across the firewall/with the computer

[4]
10  (a) Three from:
Less danger of mugging
Can shop when shops are closed
Doesn't have to spend time queuing/going around different shops
Can compare prices at different shops more easily
Can look at wide range of shops
Easier to search and find what you’re looking for [3]

(b) Three from:
Lack of socialising/social contacts
Customers must have a computer/Internet access/(basic) computer skills
Deprived of personal touch
Phone bills can increase
Without broadband other family members cannot use the phone
Cannot see/feel goods in reality [3]

11 Five from:
Anybody can set up a website (claiming to be factually accurate) so information is not necessarily reliable/accurate
Some commercial sites are bound to be biased
If site has excessive advertising it could be unreliable
If the advertising is related only to its own products it could be unreliable
Can use the final part of a URL to identify reliability .ac, .gov, .org are usually fairly reliable
Compare information from reliable sites or reliable/authenticated text books (to see if it is reliable)
See if responsible bodies have endorsed the site
Does it have links to other reliable sites/unreliable sites?
If site has testimonials it is likely to be reliable
If the date of the last update was a long time ago it is likely to be unreliable
If the author’s credentials are good it is likely to be reliable [5]

12 Three matched pairs from:
Direct changeover
New system replaces existing system immediately/overnight

Parallel running
New system runs alongside/together with existing system

Phased implementation
new system is implemented part by part

Pilot running
system is implemented in one branch/one office (at a time) [6]

13  (a) Three from:
Printer
Monitor
Speaker/buzzer
LCD display [3]

(b) Chip reader/magnetic stripe reader [1]
(c) **Seven from:**
- Details from customer’s card processed
- PIN is compared with that stored on the chip
- Card is checked for validity/reported stolen
- If PIN is OK/verified transaction is authorised
- (Bank code allows) shop computer to contact bank’s computer
- Account checked for sufficient funds
- If insufficient funds/ over the credit limit then transaction/card is rejected/If sufficient funds then transaction is authorised
- Amount deducted from customer’s bank account
- Amount credited to shop’s bank account
- Itemised receipt printed out

Card might be rejected if:
- PIN entered incorrectly
- Past its expiry date
- Registered as stolen
- Physical damage to chip
- Unusual spending patterns
- Unable to use some cards abroad  

14 **Four from:**
- Phishers send an e-mail…
  - … asking for a customer’s details
  - appears to be from the bank/says that the bank needs the information
  - asks the customer for password, card or account number
    - Three max.

So that they can use these details to log on to bank website
- Access account and transfer funds
  - Two max.

15 (a)

<table>
<thead>
<tr>
<th>Field name</th>
<th>Data type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Artist_name</td>
<td>text</td>
</tr>
<tr>
<td>CD_title</td>
<td>text</td>
</tr>
<tr>
<td>Price</td>
<td>Currency</td>
</tr>
<tr>
<td>Date_recorded/Year_recorded</td>
<td>Date</td>
</tr>
<tr>
<td>Number_of_tracks</td>
<td>Integer</td>
</tr>
</tbody>
</table>

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(b) Three matched pairs from:

Normal data
One of:
greater than or equal to 20 and less than or equal to 90

Abnormal data
One of:
greater than 90 or less than 20

Extreme data
One of:
90, 20

(c)  

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>purpose of the system</td>
<td></td>
</tr>
<tr>
<td>limitations of the system</td>
<td></td>
</tr>
<tr>
<td>program coding</td>
<td>✓</td>
</tr>
<tr>
<td>system flowcharts</td>
<td>✓</td>
</tr>
<tr>
<td>hardware and software requirements</td>
<td></td>
</tr>
<tr>
<td>file structures</td>
<td>✓</td>
</tr>
<tr>
<td>list of variables</td>
<td>✓</td>
</tr>
<tr>
<td>frequently asked questions</td>
<td></td>
</tr>
</tbody>
</table>

16 Six from:

*Batch processing:*
- data are collected together
- during the course of the day
- then processed all at once
- processed overnight
- letters sent to borrowers who are overdue
- letters sent to borrowers following morning
- no human intervention

*Online processing*
- results in immediate updating of records
- book details inputted as soon as book borrowed/returned
- records are searched until match is found
- recorded as being borrowed/returned