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 Graphics tablet (1)
B Magnetic stripe reader (1)
C Remote control (1)
D Touch pad (1) [4]

2 CD RW (1) Graph plotter Hard disc (1)
Keyboard Mouse PIN [2]

3

<table>
<thead>
<tr>
<th>Statement</th>
<th>True</th>
<th>False</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct changeover needs two sets of workers to be employed</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Parallel running means that the original system is still available</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Phased implementation is implementing the system in parts</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Parallel running is the cheapest form of implementation</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

[4]

4 (a) The most suitable storage medium for making backups of data held on a network server is a magnetic tape [1]

(b) Data about the details of a PIN are stored on a bank card on a chip [1]

(c) An optical disc which can have data updated is a DVD RW [1]

(d) Details of a product are scanned at a POS using a bar code reader [1]

5 Word processing software        Finding specific web sites
Measuring program                Storing student records
Presentation software            A head teacher writing a letter to parents
Search engine                    Monitoring temperature in a science experiment
Database                         Producing a multimedia slide show about the school [5]

© University of Cambridge International Examinations 2011
6 Two matched pairs from:

Companies selling their software/games
Cheap method of production/quick to access data

Making personal backups/transferring data (from one computer to another)
Cheap to buy/quicker to retrieve data/expensive to buy tape drives

Downloading/copying films/music
Faster/easier to access individual scenes/tracks/better or higher quality

Two for each matched pair – 4 marks maximum

7 Three matched pairs from:

<table>
<thead>
<tr>
<th>INSTRUCTION</th>
<th>MEANING</th>
</tr>
</thead>
<tbody>
<tr>
<td>FORWARD $n$</td>
<td>Move $n$ mm forward</td>
</tr>
<tr>
<td>BACKWARD $n$</td>
<td>Move $n$ mm 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>
<tr>
<td>REPEAT $n$</td>
<td>Repeat the following instructions $n$ times</td>
</tr>
<tr>
<td>END REPEAT</td>
<td>Finish the REPEAT loop</td>
</tr>
</tbody>
</table>

1 for instruction
1 for meaning

[4] [6]
8 Three from:
Text messaging
Sending a photograph (as soon as it has been taken)
(Sending) emails
Using social networking sites
Creating blogs

9 (a) 

<table>
<thead>
<tr>
<th>Physical Variable</th>
<th>✓</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulse rate</td>
<td></td>
</tr>
<tr>
<td>Room temperature</td>
<td></td>
</tr>
<tr>
<td>Humidity</td>
<td></td>
</tr>
<tr>
<td>Body temperature</td>
<td>✓</td>
</tr>
<tr>
<td>Light</td>
<td></td>
</tr>
<tr>
<td>Blood pressure</td>
<td>✓</td>
</tr>
</tbody>
</table>

[3]

(b) Physical variables are analogue data
Computers can only work with digital data

[1]

(c) Three from:
Can monitor continuously/readings can be taken more frequently
Nurses can get tired and forget to take readings/nurses are so busy they might not be able to take readings regularly
Computer readings are more accurate/human errors are reduced
More than one variable can be measured at any one time
Results can be analysed automatically/charts are produced automatically
Automatic warnings can be generated/faster to react
Nurses are free to do other tasks
Reduces chances of nurses being exposed to contagious diseases
Reduced cost of wage bill

[3]
10 (a) 7

(b) 5

(c) Margarine

(d) Text/alphanumeric

(e) **Five** from:
   - The stock file is searched
   - Until a match is found with the entered bar code number/product id number
   - The number in stock of the matching record is read
   - Three is subtracted from the number in stock
   - The number in stock is compared with the re-order number
   - It will now be equal to the re-order number
   - More goods are automatically re-ordered
   - The new value of number in stock is written back to the file

11 **Two** matched features and uses from:

   - **Animation**
     - To move images or text
   
   - **Video**
     - Videos of school plays/performances/sports events
   
   - **Sound**
     - Background music/school concerts/voiceovers/sound effects when changing/opening a slide
   
   - **Hyperlinks**
     - To link to other slides
   
   - **Slide transitions**
     - To keep the viewer’s attention
12 (a) Two from:
All machines can access internet at the same time
Only one printer is needed
Only one scanner is needed
Data can be shared between computers/data can be accessed by one computer from another more easily
Software can be shared
All computers can access the internet through one connection
Network games can be played

12 (b) Two from:
Greater risk of hackers
Greater risk of viruses
Internet usage by children could be more difficult to monitor
The significant cost of extra equipment

13 (a) Two from:
User ID and one of password/PIN/memorable data – password has to be entered before access is gained/password can be changed frequently to avoid hackers guessing them/unsuccessful logins can throw you out of the system

Magnetic stripe/smart card/electronic key/bar code system/ID card/Dongle
Prevents people without cards accessing system

Biometric data
Fingerprint/retina/iris/face/voice recognition used as input/biometric data is difficult to replicate/is unique

(b) Two from:
Key needed to encrypt
Data is jumbled up
Key must be known to decrypt it
Prevents people from understanding data/reading data
**14 (a) Interview**  
Can change questions in light of previous answers/interviewer can detect body language  

**Questionnaire**  
Quicker to get every worker’s response/easier to collate responses  

**Examining documents**  
Can see exact details of inputs and outputs  

**Observation**  
Easier to see data flow/can get more accurate overview of whole system  

---

**14 (b) Four from:**  
Field name  
Field type  
Key field  
Field length  
Validation check/rules  

---

**14 (c) Direct changeover**  
**Two from:**  
Cannot afford to pay two sets of workers  
Would give him immediate benefits  
Does not need to set up pilot scheme – small company  

---

**15 Four from:**  
A graphical user interface has icons to help the user identify applications/folders  
A GUI has a system of menus to help the user choose options  
A GUI has windows to enable user to multi task  
A GUI has a pointer/pointing device to help navigate around the screen/to click to open files/software  
A CLI only allows you to type in commands  
With CLI syntax has to be precise  
Commands difficult to edit once entered  
Have to learn a lot of commands exactly/have to be familiar with the commands  

---
16  (a) Two from:
   ISP contract
   Router/modem

   (b) Four from:
      Less danger of mugging
      Can shop when shops are closed
      Doesn't have to spend time queuing-going around different shops/travelling to shop/can compare prices at different shops more easily
      Can look at wide range of shops
      No travelling expenses/don't waste fuel
      Easier to search and find what you're looking for

   (c) Four from:
      Lack of socialising/social contacts
      Hackers may intercept data and defraud customer/steal identity
      Deprived of personal touch
      Phone bills can increase
      Without broadband other family members cannot use the phone
      Cannot see/feel goods in reality/goods delivered may not be the same standard as those ordered
      More vulnerable to phishing/pharming
      More vulnerable to viruses
      Goods may not be delivered/can't check the standard of goods before buying
      May be hidden costs such as delivery charges

17  Four from:
    Customer is asked if they want a receipt
    The PIN number is compared with that stored in the chip
    If they are the same the transaction proceeds
    If they are not the same the customer is asked to re-enter PIN
    If three attempts transaction rejected and card withheld
    The customer is asked which service is required
    The customer selects required service (cash)
    The customer is asked how much money they want to withdraw
    The customer's account is checked to see if it has sufficient funds
    The amount is checked against the card limit
    If there are sufficient funds (and the amount is within the card limit) the transaction is authorised/if not transaction is rejected
    The amount is deducted from the customer account
    The bank notes are issued
    The card is returned (by the computer)
    If required receipt is printed
18 **Two** from:
   If the airplane crashed you wouldn’t need to replace it – saving money
   If the airplane crashed nobody is injured
   It is easy to recreate extreme weather conditions
   It is easy to create unusual flying conditions/any situation
   Can recreate mechanical/computer failure from previous real situations

19 **Two** matched pairs from:

   **Phishing**
   Hackers send an e-mail (appearing to be from the bank) asking for a customer’s (account) details/includes a website link so customers details are gathered

   **Pharming**
   Installing malicious code on a pc or server causing users to access websites which look authentic/websites are used to gain bank details/redirects a genuine website’s traffic to hacker’s website