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 May/June 2012 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.
1. A Flash memory card  [1]  
   B Magnetic disc  [1]  
   C Magnetic stripe  [1]  
   D Joystick  [1]  

2. CRT monitor  [1]  
   DVD ROM  magnetic tape  [1]  
   Number pad  plotter  trackerball  [1]  

3. 

| Control software is used to create slide shows | True  
| Palmtop computers do not have DVD drives   | True  
| Presentation software can be used to produce databases | True  
| An internet browser uses an inference engine | True  
| Motors are output devices  | True  

4. (a) A dot matrix printer  produces hard copy in harsh conditions.  [1]  
   (b) A microphone  inputs sounds.  [1]  
   (c) A multimedia projector  is used to show slideshows.  [1]  
   (d) A presence check  is a validation rule.  [1]  
   (e) A magnetic tape  is used to create backups from a server’s hard disc.  [1]  

5. Three from:  
   Temperature sensor  
   Pressure sensor  
   Moisture sensor  
   Humidity sensor  
   Light sensor  
   Motion sensor  [3]
6 to select options from a list  
   keyboard

to type data into a database  
   optical mark reader

to input candidate examination answers  
   chip reader

to input data directly from a bank card  
   mouse

7 PEN DOWN  
   BACKWARD 140

LEFT 90 PENDOWN

REPEAT 5.... REPEAT 4

FORWARD 50 FORWARD 60

RIGHT 72 RIGHT 90

END REPEAT  END REPEAT

PENUP

One mark for every line except the square then one mark per two instructions

8

<table>
<thead>
<tr>
<th>Encryption prevents hackers from understanding the data</th>
<th>True</th>
</tr>
</thead>
<tbody>
<tr>
<td>Encryption destroys viruses</td>
<td>True</td>
</tr>
<tr>
<td>Encryption prevents unauthorised access to computer systems</td>
<td>True</td>
</tr>
<tr>
<td>Encryption is the scrambling of data</td>
<td>True</td>
</tr>
</tbody>
</table>

9 Five from:

Data is gathered/collected from experts
Knowledge base is designed/created
A structure to relate each item in the database / knowledge base is created
An interrogation technique to access the data is created
A user interface/method of displaying the results/method of inputting data/ input screen/output screen is designed/created
The inference engine is designed/created
The rules base is designed/created
The system is tested
10 **Four** from:
User/customer is in direct contact with the main computer/CPU
Appears that nobody else can access system at that point/processing is almost immediate
Computer asks customer for details of flight
Computer asks for personal details of passengers
Computer searches for matching flights
Computer may display list of seats available
Computer may ask customer to select a seat
(Customer selects seat from those available and) computer flags seat as booked
Computer asks customer to complete payment details
Computer checks details are valid by communicating with customer’s bank
Computer checks if sufficient funds
Airline’s database is updated immediately
Number of seats available reduces by number booked
Prevents double booking
Confirmation/e-ticket may be sent to customer by email

11 **Three** matched pairs from:

- **Hub**
  - Broadcasts data packets to computers in a LAN

- **Switch**
  - Directs data to specific computers

- **Bridge**
  - Connects two LANs together to form a larger LAN/Directs data packets to specific networks

- **NIC**
  - Enables computer to be connected to a network

12 (a)

<table>
<thead>
<tr>
<th><strong>Number of bedrooms</strong></th>
<th>integer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Price</strong></td>
<td><em>currency</em></td>
</tr>
<tr>
<td><strong>Property Type</strong></td>
<td><em>Boolean</em></td>
</tr>
<tr>
<td><strong>Floor space/area</strong></td>
<td><em>numeric</em></td>
</tr>
</tbody>
</table>

1 mark for each correctly filled gap
(b) **Five** from:
- Parallel running is running the old and new system together
- Direct changeover is stopping the old system and starting the new one immediately
- Parallel running is more expensive to implement than direct changeover....
  ....more expensive as two sets of workers have to be employed
- Benefits of direct changeover are immediate whereas this is not the case with parallel running.
- Parallel running is slower to implement
- If new system fails there is no backup system with direct changeover but there is with parallel running
- With parallel running training can be gradual unlike direct changeover which is difficult to organise  

13 **Three** matched pairs from:

Normal
Within a given range such as 30 out of 50

Abnormal outside the given range or of wrong data type such as 56 out of 50 or ‘sixty’

Extreme
At the boundaries of the given range e.g. 0 or 50

14 **Two** matched pairs

Proxy server
The proxy server can restrict the web sites students can access/can block access to sites with objectionable material

Firewall
Limits the computers (using IP address) that can access the system/that can be accessed from within the school

Applying parental guidance settings.
Can block undesirable topics

15 (a) **Six** from:
- Checks to see if the value of A7 is “D”
- If it is, the value in B7/4.00 is multiplied by the value in B2/10%
- If it isn’t, checks to see if the value in A7 is “N”
- If it is, the value in B7/4.00 is multiplied by the value in B3/15%
- If it isn’t, checks to see if the value in A7 is “P”
- If it is, the value in B7/4.00 is multiplied by the value in B4/20%
- If it isn’t, “FALSE” is generated
- A7 contains “D”

In this example answer is $4.00 \times 10\%$/ answer is $0.40$

(b) $1.00$
(c) Three from:
Clicked on C7 and manoeuvred to bottom right hand corner of cell
Until black cross appears
Black cross dragged down to C18

Or three from:
Right clicked on C7 select copy from menu
Selected C8 to C18
Right click and click on paste
Highlight cells C7 to C18
Click on Fill
Click on down [3]

(d) = b7 – c7 [1]

(e) two from:
can see what will happen without spending a lot of money
results can be seen in a shorter space of time
you can ask many whatif questions which would be impractical in real life
Easier to change data/variables
You can test predictions more easily/model can make predictions more accurately [2]

16 Window – an area on the screen that displays information for a specific program. [1]
Icon represents a folder or a program – can be seen within a window or freestanding on screen [1]
Menus – contains lists of options for a certain program/software [1]
Pointing device/Pointer – used to select menu options/icons/close/open windows [1]
17 Six from:

Advantages of DTP
Can be sure every local family gets to see it
Not everybody has a computer/internet/modem
Can read it anywhere/not limited to where computer is.

Disadvantages of website
Can't be sure every local family gets to see it
Not everybody has a computer/internet/modem
Can't read it anywhere/limited to where computer is.

Disadvantages of DTP
Takes time to physically distribute by hand
Might need to pay somebody to distribute by hand
Costs of ink/paper/printing
Not as easy to update
Not interactive/hyperlinks
No animation/video
No sound

Advantages of website
No costs of ink/paper/printing
Easier to update
Interactive/hyperlinks
Animation/video
Sound

Allow one mark for a reasoned conclusion

18 Six from:

Car workers have been made unemployed
Car workers have had to be retrained
Car workers have become deskilled
More technical staff have been employed
Work areas are cleaner
There is a healthier environment
Workers have a safer environment
Fewer manual tasks