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 2014 series for most Cambridge IGCSE®, Cambridge International A and AS Level components and some Cambridge O Level components.
1 A optical disc drive  B USB ports  C memory card slot  D on/off button [4]

2 Two from:
Bridge
Hub
Switch
Router
Proxy server
Network card [2]

3

<table>
<thead>
<tr>
<th>Task</th>
<th>Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Look away from the screen from time to time</td>
<td>✓</td>
</tr>
<tr>
<td>Use a keyboard instead of a mouse</td>
<td></td>
</tr>
<tr>
<td>Position your chair so that you are looking straight at the screen.</td>
<td>✓</td>
</tr>
<tr>
<td>Work without a break.</td>
<td></td>
</tr>
<tr>
<td>Keep the screen as bright as you can</td>
<td></td>
</tr>
<tr>
<td>Grip the mouse tightly</td>
<td></td>
</tr>
</tbody>
</table>

4

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spreadsheet</td>
<td>✓</td>
</tr>
<tr>
<td>Digital camera</td>
<td>✓</td>
</tr>
<tr>
<td>Bar code reader</td>
<td>✓</td>
</tr>
<tr>
<td>Web page authoring program</td>
<td>✓</td>
</tr>
</tbody>
</table>

5 Two from:
Control
Measuring
Spreadsheet [2]
6

PENDOWN 90

PENDOWN

REPEAT 8

FORWARD 50

LEFT 45

END REPEAT

PENDOWN and REPEAT 8 are interchangeable.

7  (a) Four from:

(i) 4  
(ii) Engine size  
(iii) Make  
(iv) Maximum speed

(b) Engine size  
Make  

Maximum speed  
Registration number

(c) It is the only unique field

(d) Two from:

Parallel running
Direct changeover
Phased implementation
Pilot running

8  (a) Two from:

Temperature sensor
Light sensor
pH sensor
O₂ sensor
CO₂ sensor

(b) Two from:

There are no output control devices
The computer is not acting as a result of the input
The output has no effect on the input
(c) Spreadsheet/database

(d) DTP/Word processing/Presentation/web authoring software/database

(e) Four from:
- Sensors are placed in the river
- The sensors feedback/sends data to computer
- Data is converted from Analogue to Digital/sent through an ADC
- Graphs are automatically produced by computer…
- Graphs/charts are plotted against time

9 Two from:
- Do not download software/music/games from unknown/untrusted sources/(only) download files from reputable sources
- Do not open email (attachments) from unknown/untrusted sources
- Do not use media from unknown sources

10 (a) (i) Two from:
- LAN is a Local Area Network
- LAN covers a small area/one building
- A school network is a LAN

(ii) Two from:
- WAN is a wide area network
- WAN covers a large geographical area/worldwide
- The Internet is a WAN
- A WAN consists of connected LANs

(b) Router/modem/cable

11 (a) Three from:
- Animation such as cartoons/moving text
- Sound such as voiceovers/special sound effects/music
- Hyperlinks/hotspot to move between pages/sites
- Video such as moving images/reasonable example
- Rollovers to change images
- Search box to find items on that site quickly

(b) (i) Two from:
- It is a copy of data
- Leaving the original intact
- Stored away from the original
(ii) **Two from:**

- Data could be corrupted on original medium
- Data could be accidentally amended/overwritten on original medium
- Data could be accidentally deleted from original medium
- Data could be maliciously deleted/edited from original medium

12 **(a) (i)** Joyce Alonzo and Aftab Ali

(ii) Maria Jones

(iii) David Senior

(b) Visual verification/visually comparing data entered with original
- Double data entry-entering data twice and the computer compares them

(c) (i) Range (check)/lookup (check)

(ii) (Invalid) character (check)/type (check)

(iii) Length (check)

13 **Three from:**

- In the event of a crash – safer, no loss of life/injuries
- In the event of a crash – don’t have to pay for replacement vehicle/repairs
- Can simulate situations which don’t often occur in real life
- Can train even in extreme conditions

14 **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/Computers are more accurate
- More than one variable can be measured at any one time
- Results/data 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

15 **Five from:**

- Data is gathered/colllected from experts
- Knowledge base is designed/created
- A structure to relate each item in the 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
16 (a) Two from:
(Cannot) deposit cash
(Cannot) withdraw cash
(Cannot) deposit cheques with most banks [2]

(b) What is the name of the fourth planet from the Sun?
What is your favourite place? ✓ [1]
How many miles is it from New York to Washington?
What is your mother’s maiden name? ✓ [1]
Who is the prime minister of Australia?
What is the capital of France?

(c) Two from:
Initial cost of hardware/software (is expensive)
Need to retrain staff
Loss of customers/more difficult to sell other services – due to lack of personal touch
System maintenance may be/is expensive/cost of system maintenance [2]

(d) Three from:
Causes data to be scrambled/encoded
Requires an encryption key/software to encrypt
Requires a decryption key/encryption/key/software to decrypt
Results in data which is not understandable/readable
Protects sensitive data…
… from being understood if it falls in to the wrong hands [3]

17 Five from:
Adequate space for response/individual character boxes
Fonts/font size should be easy to read
Instructions how to complete form/clearly labelled field names
Logical order of questions
Questions spaced out/group relevant fields together
Not too much text
Sensible colour scheme
Use of tick boxes
Strikethroughs
Appropriate white space/fills the page [5]
18 Six from:

Fax
Personal data more likely to be intercepted by another office worker
Quicker to receive message than using post
Document with signature is legally acceptable via fax
Documents can be lower quality when received

Email
Personal data less likely to be intercepted by another office worker
No need to do printouts therefore more secure
Attached documents are better quality in attachment
Email is more environmentally friendly
Email attachments can be edited by recipient easier than fax/post
Multimedia attachments can be sent by email
Quicker to receive message than using post
You can send from anywhere there is an internet connection by email
Easier to send to several recipients at the same time using email
Has a lower running cost such as paper/ink than fax
More people have access to email than fax machines
You cannot send solid objects by email

Post
Received more slowly by recipient
Attached documents are better quality in post
Multimedia documents can be sent by post
Solid objects can be sent by post
You can send from anywhere
Document with signature is legally acceptable
Don’t have to worry about equipment being faulty
More people have access to post than fax machines

One mark can be awarded for a reasoned conclusion

19 Six from:

Internet is not regulated
Danger of accessing inappropriate websites.
Can take long time to find required information
Have to have internet connectivity/computer/phone line/modem
Internet tends to be up to date
Internet has vast amounts of information/wide range of information
Can access biased/inaccurate/unreliable websites
Lack of expertise can lead to inefficient searching
Easy to plagiarise information
20 Two advantages from:
   Can reach more people
   Easier to update
   Can have multimedia which would attract more customers/eye-catching [2]

Two disadvantages from:
   More expensive to start up/pay programmers/developers
   More expensive to maintain
   Need specialist equipment to start with
   May not reach target audience [2]