MARK SCHEME for the May/June 2012 question paper
for the guidance of teachers

0417 INFORMATION AND COMMUNICATION TECHNOLOGY

0417/12 Paper 1 (Written), maximum raw mark 100

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 Laser printer  [1]  
   B Speakers  [1]  
   C CRT Monitor  [1]  
   D Plotter  [1]  

2. buzzer  [1]  
   DVD R  [1]  
   joystick  [1]  
   magnetic tape  [1]  
   plotter  [1]  
   touch pad  [1]  

3. True    False

<table>
<thead>
<tr>
<th>Statement</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring software is used to monitor physical variables</td>
<td>✓</td>
</tr>
<tr>
<td>Presentation software is used to create models</td>
<td>✓</td>
</tr>
<tr>
<td>Laptops can be used even when not plugged in to an electricity socket</td>
<td>✓</td>
</tr>
<tr>
<td>Control software is used to create slide shows</td>
<td>✓</td>
</tr>
<tr>
<td>A graph plotter is used to print newsletters</td>
<td>✓</td>
</tr>
</tbody>
</table>

4. Abnormal Normal

<table>
<thead>
<tr>
<th></th>
<th>Abnormal</th>
<th>Normal</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>thirty</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>99</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

5. Blog Wiki

<table>
<thead>
<tr>
<th>Description</th>
<th>Blog</th>
<th>Wiki</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usually in some form of chronological order</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Usually many contributors and authors</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Usually personal</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Postings tend to be short in length</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>
6 To store a high definition movie Fixed hard disc
To store school work to use at home Blu-ray disc
To store server backups Pen drive
To store an online database Magnetic tape

7 Four instructions and four paired meanings 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>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>

8 (a) A light sensor is used to input data in a computer controlled greenhouse.

(b) An optical character reader is used to input text to a computer ready for processing.

(c) A bar code reader is used to input numbers from products at a POS terminal.

(d) A web camera is used to input moving pictures from a fixed position into a computer.

(e) A light pen is used for drawing applications where a graphics tablet might be too big
9

Sound ✔
Bullets
Animation ✔
Serif fonts
Graphs
Video ✔

10 Six from:
Symptoms are entered using the user interface
User interface displays questions...
...based on previous responses
User answers questions using user interface
inference engine compares symptoms
compares symptoms with those in the knowledge base
compares symptoms using rules base...
…matches of symptoms are found
User interface/screen displays possible diagnoses/illnesses/probabilities

11 Six from:
The customer is asked to type in their PIN
The (ATM) checks to see if the card is valid
The customer is asked which language/currency they require
The bank account details are read from the chip
Customer is asked if they want a receipt
The typed 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 failed 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.
12 (a) Three from:
- Temperature sensor
- Infra red sensor/Movement sensor/camera/motion sensor
- light sensor
- Pressure sensor/pad
- Contact switch
- Sound sensor/microphone
- key pad/touch screen
- Biometric devices

(b) Five from:
- Microprocessor checks input from the user is authentic
- Microprocessor (continually) monitors sensors.
- If light/infra red sensor reading changes
- If movement sensor activated...
- If contact switch activated...
- If pressure greater than pre-set value.....
- If sound greater than pre-set value.....
- If temperature greater than pre-set value....
- Microprocessor sends signal to sound alarm
- Microprocessor sends signal to flashing light/house lights.
- Microprocessor sends signal automatically to police
- Microprocessor automatically sends message/calls/texts owner

13 (a)

<table>
<thead>
<tr>
<th>Field name</th>
<th>Data type</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Title</strong></td>
<td>Text</td>
</tr>
<tr>
<td><strong>Film length</strong></td>
<td>Numeric</td>
</tr>
<tr>
<td><strong>Date/Year of release</strong></td>
<td>Date</td>
</tr>
<tr>
<td><strong>Format/Blu ray/DVD</strong></td>
<td>Boolean</td>
</tr>
</tbody>
</table>

(b) Two from:
- If field length is too long storage space is wasted...
- Greater memory requirements increases cost
- Takes longer to type in data

- If it’s too short not all data within the field will be entered
- If it’s too short abbreviations would be needed making the field contents difficult to interpret
(c) User documentation [1]

**Two** from:
- How to load software/run software/install software
- How to save a file
- How to search
- How to sort
- How to print
- How to add records
- How to delete/edit records
- Input format or example
- Output format or example
- Hardware requirements
- Software requirements
- Sample runs/test runs
- Limitations of the system
- Troubleshooting guide/contact details/help line/FAQs
- Error messages/handling
- Tutorials

Technical documentation [1]

**Two** from:
- Program listing
- Name of program language
- Flowchart/algorithm
- List of variables
- File structure
- Purpose of the system/program
- Purpose of the program
- Input format or example (only if not mentioned in user documentation)
- Output format or example (only if not mentioned in user documentation)
- Hardware requirements (only if not mentioned in user documentation)
- Software requirements (only if not mentioned in user documentation)
- Sample runs/test runs (only if not mentioned in user documentation)
- Limitations of the system (only if not mentioned in user documentation)
- Known bugs
- Validation routines

14 **Two** advantages from:
- More likely to have it with you
- Can access internet from greater number of places
- Easier to use while on the move

**Two** disadvantages from:
- Display is more difficult to see/display screen is smaller
- Keyboard is smaller so more difficult to type
- Some sites do not have full facilities for mobile phone [4]
15 (a) Three from:
It looks through A8 to A18
Cell B2 contains the code BRA
Checks whether A8 to A18 contains the code BRA/contents of B2
Counts all the cells where there is a match
Produces the answer 4. [3]

(b) 2 [1]

(c) Three from:
Checks whether A8 to A18 contains the code BRA/cell B2
Where there is a match adds up…
…all the corresponding cells in B8 to B18
Produces the answer 48 [3]

(d) 31 [1]

(e) three from:
Put the formula =SUM(D2:D5) in cell D6
Put the formula =SUM(B8:B18) in cell B19
Put the formula =D6-B19 in cell D7/suitable IF formula in cell D7/compare the values of D6
and B19 they should be the same [3]

(f) Absolute cell referencing is being used [1]

Two from:
When formulae are replicated.
...some cell references must remain unchanged
This makes sure they will stay consistent when replicated [2]

16 Three from:
A piece of program code
Which replicates itself
Fills up hard disc making it unusable
Deletes data/changes data (from hard disc)
Makes software/operating system unusable [3]

17 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
Faster to search only if referring to use of search engine
Can access biased/inaccurate/unreliable websites
Lack of expertise can lead to inefficient searching
Easy to plagiarise information [6]