MARK SCHEME for the October/November 2010 question paper for the guidance of teachers

0417 INFORMATION AND COMMUNICATION TECHNOLOGY

0417/13 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.

- CIE will not enter into discussions or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the October/November 2010 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.
1 A Trackerball (1)  
B Scanner (1)  
C Chip reader (1)  
D Joystick (1)  

2 Flash memory card (1)  
Graph plotter  
Magnetic disc (1)  
OCR  
OMR  
Touchpad  

3

<table>
<thead>
<tr>
<th>True</th>
<th>False</th>
</tr>
</thead>
<tbody>
<tr>
<td>An Internet browser is used to look at pages on the world wide web</td>
<td>✓</td>
</tr>
<tr>
<td>Desk top computers don’t have hard disk drives</td>
<td>✓</td>
</tr>
<tr>
<td>DTP software can be used to produce magazines</td>
<td>✓</td>
</tr>
<tr>
<td>Measurement software is used for data logging</td>
<td>✓</td>
</tr>
<tr>
<td>Sensors are output devices</td>
<td>✓</td>
</tr>
</tbody>
</table>

4 (a) A graph plotter is used in CAD applications to produce very large printouts.  
(b) A multimedia projector is used to display data from a computer onto a very large screen.  
(c) A pressure sensor is used to send data to a microprocessor controlled washing machine.  
(d) A touchpad is an input device found in laptops.  
(e) A microphone is used to record voices for use in presentation software.
5

<table>
<thead>
<tr>
<th>Software Type</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Word processing software</td>
<td>✓</td>
</tr>
<tr>
<td>Measuring software</td>
<td></td>
</tr>
<tr>
<td>Control software</td>
<td></td>
</tr>
<tr>
<td>Spreadsheet software</td>
<td>✓</td>
</tr>
<tr>
<td>Animation software</td>
<td></td>
</tr>
<tr>
<td>Database software</td>
<td>✓</td>
</tr>
</tbody>
</table>

(3 marks)

6

\[
\begin{array}{c}
\text{LEFT} \quad 90 \\
\text{REPEAT} \quad 5 \\
\text{FORWARD} \quad 50 \\
\text{RIGHT} \quad 72 \\
\text{END REPEAT}
\end{array}
\]

1 mark for each correct statement

(5 marks)

7

Three from:
- More than one table/file
- Tables are linked
- Primary keys
- Foreign keys
- Less duplication of data
- Data from more than one table can be used in the same report

(3 marks)

8

<table>
<thead>
<tr>
<th></th>
<th>True</th>
<th>False</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-line processing requires a transaction file to be created</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Batch processing results in immediate updating of records</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Real time processing requires immediate response from a computer</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>On-line processing is needed for operating ATMs</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

(4 marks)

9 (a) Y or N

(b) Full Circle/Sanditon/Vanity Fair/The Old Curiosity Shop

(c) 20/11/10 or 18/11/10 or 16/12/10 or 23/11/10

(d) 10 or 15 or 20

(1 mark each)

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10

<table>
<thead>
<tr>
<th>Statement</th>
<th>True</th>
<th>False</th>
</tr>
</thead>
<tbody>
<tr>
<td>A large hall has to be hired for video conferences to take place</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Documents can be shared amongst participants in a video conference</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>A microphone/headset is an essential item of equipment in video conferencing</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>A codec is needed to convert data for transmission during a video conference</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

11 So that users can transfer data from one computer to another/to backup files/security dongle (1) To enable large high definition/quality video files to be recorded (1) So that users can have quick access to their data/software/so that software can be stored (1)

12 **Four** from:
- Questions appear on screen
- Questions about geological profile are asked
- Geological profile is typed in
- Answers to questions are typed in
- Further questions appear on screen
- Suggested probabilities of oil are output
- Suggested depths of likely deposits are output
- Predictions of geological strata/contour maps are output
- Probabilities of finding oil are output

13 **To produce high quality high volume output**

- Dot Matrix printer
- To print on multipart forms
- A motor
- To move objects in computer controlled system
- Speakers
- To output voiceovers
- Laser printer

14 (a) Network card

(b) **Two** from:
- Reduced cost of cabling
- Safer – won’t trip over wires
- Easier to connect other devices to the network
- Some situations make it impossible to use wired networks
- Makes the computer portable as long as it’s within range of the wireless access point/use it anywhere within range of the WAC
(c) **Two** from:
    Very slow data transfer speeds
    Short distance of coverage/limited signal strength
    Greater risk of interception of data/less secure
    Supports a limited number of devices in a network  

(d) **6 max** from:
    They are worried that unauthorised users may get into the network
    Introduction of viruses/malware…
        … which could result in data being deleted
    Spyware could be used…
        … which logs key presses to get passwords to access the system
    Personal data could be deleted by hackers
    Accidental deletion/corruption of data…
        … loss of payroll data would mean workers would not be paid
    Data could be amended by hackers…
        … changing payroll data might result in lower wages being paid
    Data could be copied by hackers and passed on to other people/workers…
        … worker could be embarrassed about other workers knowing their pay  

(e) **Three** from:
    Use Biometrics
    Have usernames and passwords
    Encrypt data
    Install a virus checker/anti virus
    Introduce firewall(s)
    Install anti-spyware
    Use an intranet/don’t connect network to internet
    Introduce methods of physical security such as locks and security guards
    Introduce levels of access  

15 **Two** matched pairs from:
    **Headaches**
    Get anti-glare screens/look away from screen periodically/take regular breaks/adjusting contrast and brightness/use non refreshing screens
    Get straight back chairs/sit with straight back/don’t slouch/change position/level of screen/specially designed chairs
    Slight problems/Eye strain/dry eyes
    Have eyesight tested/get glasses/get anti glare screens/look away from screen periodically/take regular breaks/adjusting contrast and brightness/use non refreshing screens

    Can only have one mark if prevention point is repeated
16 (a) **Five** from:
- All fields included
- Appropriate spacing for all fields
- Buttons to go forward/backwards
- Screen filled/not too much white space
- Data has text boxes for completion
- Date of birth is a drop down list
- Gender field has radio buttons for male/female/tick box/drop down
- Button to save data

(b) **Four** from:
- Data that has already been used in the previous system
- Data that has known results
- A table of expected results is drawn up
- Live data is input to the system
- Actual results are recorded
- The results are compared
- Any resulting differences will highlight limitations of the system

17 **Three** from:
- Direct changeover
- Parallel running
- Phased implementation
- Pilot running

18 **Four** from:
- Program coding
- Program flowcharts
- System flowcharts
- File structures
- List of variables
- Validation routines

19 (a) **Three** from:
- Temperature
- Pressure
- Motion
- Moisture
- Humidity
- Light

(b) Sensor measures analogue (1)
- Computer works in digital (1)

(c) Analogue to Digital convertor
20 Six from:

**Laser printer advantages**
- Fast output
- Relatively quiet
- Cheap to buy compared to dot matrix printer

**Laser printer disadvantages**
- More expensive running costs than dot matrix

**Inkjet printer advantages**
- Faster output than dot matrix printer
- Relatively quiet compared with dot matrix printer
- Cheap to buy

**Inkjet printer disadvantages**
- Ink more expensive than dot matrix
- Ink needs changing regularly on long print runs
- Difficult to print a sealed secure payslip

**Dot matrix printer advantages**
- Cheaper running costs
- Continuous paper feed available
- Can print multi part forms
- Can print through a payslip cover
- Can produce carbon copies
- High quality is not needed when printing payslips

**Dot matrix printer disadvantages**
- More expensive to buy
- Noisy
- Relatively slow

One mark available for reasoned conclusion

Points which are repeated will only gain credit on the first mention [6]

21 Four from:

Less likely to go to the wrong address/number
Personal data unlikely to be intercepted by another office worker/no need to do printouts therefore more secure
Quicker/Easier to transmit message/Received quicker by person addressed to
Attached documents are better quality
Multimedia attachments can be sent
You can send from anywhere there is an internet connection
Easier to send to several recipients at the same time
Email has lower running costs such as paper/ink
Email is more environmentally friendly
Email attachments can be edited by recipient easier than fax
More people have access to email than fax machines [4]