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

4  (a) A graph plotter is used in CAD applications to produce very large printouts. [1]  
   (b) A multimedia projector is used to display data from a computer onto a very large screen. [1]  
   (c) A pressure sensor is used to send data to a microprocessor controlled washing machine. [1]  
   (d) A touchpad is an input device found in laptops. [1]  
   (e) A microphone is used to record voices for use in presentation software. [1]
5

<table>
<thead>
<tr>
<th>Software Type</th>
<th>Correct</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>

(1 mark for each correct statement)

[3]

6

```
LEFT  90
REPEAT 5
FORWARD 50
RIGHT 72
END REPEAT
```

1 mark for each correct statement

[5]

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]

8

<table>
<thead>
<tr>
<th>Statement</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>

(1 mark for each correct statement)

[4]

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]

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10

<table>
<thead>
<tr>
<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>
</tr>
<tr>
<td>Documents can be shared amongst participants in a video conference</td>
<td>✓</td>
</tr>
<tr>
<td>A microphone/headset is an essential item of equipment in video conferencing</td>
<td>✓</td>
</tr>
<tr>
<td>A codec is needed to convert data for transmission during a video conference</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) [3]

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 [4]

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 [4]

14 (a) Network card [1]

(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 [2]
(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 [2]

(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 [6]

(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 [3]

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

Back problems/neck pain
Get straight back chairs/sit with straight back/don’t slouch/change position/level of screen/specially designed chairs

Sight 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 [4]
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
- More 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

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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