

**UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS**  
International General Certificate of Secondary Education

**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

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<b>Page 2</b>	<b>Mark Scheme: Teachers' version</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>IGCSE – October/November 2010</b>	<b>0417</b>	<b>13</b>

- 1 A Trackerball (1)  
 B Scanner (1)  
 C Chip reader (1)  
 D Joystick (1) [4]

- 2 **Flash memory card (1)**    **Graph plotter**    **Magnetic disc (1)**  
**OCR**                                      **OMR**                                      **Touchpad** [2]

3

	True	False	
An Internet browser is used to look at pages on the world wide web	✓		(1)
Desk top computers don't have hard disk drives		✓	(1)
DTP software can be used to produce magazines	✓		(1)
Measurement software is used for data logging	✓		(1)
Sensors are output devices		✓	(1)

[5]

- 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]

<b>Page 3</b>	<b>Mark Scheme: Teachers' version</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>IGCSE – October/November 2010</b>	<b>0417</b>	<b>13</b>

- 5
- |                          |   |     |
|--------------------------|---|-----|
| Word processing software | ✓ | (1) |
| Measuring software       |   |     |
| Control software         |   |     |
| Spreadsheet software     | ✓ | (1) |
| Animation software       |   |     |
| Database software        | ✓ | (1) |
- [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
- |  | True | False |     |
|--|------|-------|-----|
| On-line processing requires a transaction file to be created     |      | ✓     | (1) |
| Batch processing results in immediate updating of records        |      | ✓     | (1) |
| Real time processing requires immediate response from a computer | ✓    |       | (1) |
| On-line processing is needed for operating ATMs                  | ✓    |       | (1) |
- [4]
- 9 (a) Y or N [1]
- (b) Full Circle/Sanditon/Vanity Fair/The Old Curiosity Shop [1]
- (c) 20/11/10 or 18/11/10 or 16/12/10 or 23/11/10 [1]
- (d) 10 or 15 or 20 [1]

<b>Page 4</b>	<b>Mark Scheme: Teachers' version</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>IGCSE – October/November 2010</b>	<b>0417</b>	<b>13</b>

10

	True	False	
A large hall has to be hired for video conferences to take place		✓	(1)
Documents can be shared amongst participants in a video conference	✓		(1)
A microphone/headset is an essential item of equipment in video conferencing	✓		(1)
A codec is needed to convert data for transmission during a video conference	✓		(1)

[4]

- 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]

<b>Page 5</b>	<b>Mark Scheme: Teachers' version</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>IGCSE – October/November 2010</b>	<b>0417</b>	<b>13</b>

**(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]

<b>Page 6</b>	<b>Mark Scheme: Teachers' version</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>IGCSE – October/November 2010</b>	<b>0417</b>	<b>13</b>

- 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 [5]
- (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 [4]
- 17 Three** from:  
 Direct changeover  
 Parallel running  
 Phased implementation  
 Pilot running [3]
- 18 Four** from:  
 Program coding  
 Program flowcharts  
 System flowcharts  
 File structures  
 List of variables  
 Validation routines [4]
- 19 (a) Three** from:  
 Temperature  
 Pressure  
 Motion  
 Moisture  
 Humidity  
 Light [3]
- (b)** Sensor measures analogue (1)  
 Computer works in digital (1) [2]
- (c)** Analogue to Digital convertor [1]

<b>Page 7</b>	<b>Mark Scheme: Teachers' version</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>IGCSE – October/November 2010</b>	<b>0417</b>	<b>13</b>

**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]