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

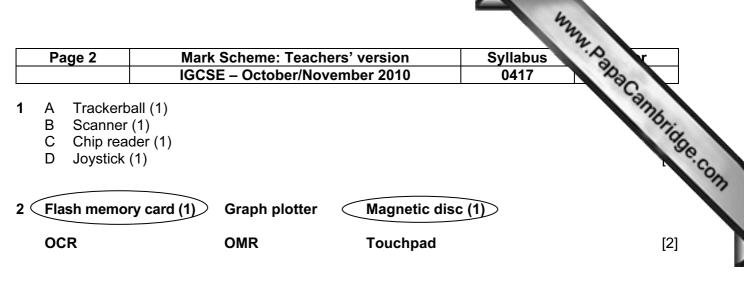## 0417 INFORMATION AND COMMUNICATION TECHNOLOGY

0417/13 Paper 1 (Written), maximum raw mark 100

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.

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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**   [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]

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]

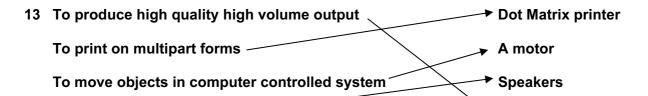**(c)** 20/11/10 or 18/11/10 or 16/12/10 or 23/11/10 [1]

(d) 10 or 15 or 20 [1]

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]

(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   [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]

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]