

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**

0417/11

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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Accept answers which have been crossed out UNLESS they've been replaced
 Mark first answer only except if other answer spaces have been left blank
 Do not accept generalised terms such as quicker/cheaper/more efficient unless qualified

- 1 A Remote control (1)
 B Touch pad (1)
 C Web cam (1)
 D numeric keypad (1) [4]

- 2 bar code reader DVD RAM (1) joystick
 magnetic tape (1) sensor touch screen [2]

3

	True	False	
DTP software can be used with sound files		✓	(1)
Measurement software is used to send emails		✓	(1)
Spreadsheet software is used to create models	✓		(1)
A command line interface can be used to communicate with a computer	✓		(1)
PDA's are usually bigger than laptops		✓	(1)

[5]

- 4 (a) A temperature sensor is used to send data to a microprocessor controlled cooker [1]
- (b) A chip reader is used to read details from a bank card [1]
- (c) A joystick is used to control a car driving simulator [1]
- (d) A digital camera is used to take photographs for inclusion in a web site [1]
- (e) An optical mark reader is used to read data from a school register [1]

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A modem		
A virus scanner	✓	(1)
An email package	✓	(1)
Another PC		
A browser	✓	(1)
A keyboard		

[3]

6

	Field	File	Record	
All the information about one student			✓	(1)
One piece of information about the students	✓			(1)
A primary key	✓			(1)
All the information about all the students		✓		(1)

[4]

7 **RIGHT** 90
REPEAT 6
FORWARD 50
LEFT 60
END REPEAT

1 mark for each correct statement

[5]

8

	True	False	
Computerised booking of a theatre ticket	✓		(1)
Clearing cheques overnight		✓	(1)
Paying at a supermarket using Electronic Funds transfer	✓		(1)
Printing monthly credit card bills		✓	(1)

[4]

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9 (a)

Companies don't have to employ so many workers		
Companies can call meetings at short notice	✓	(1)
Employees don't have to prepare for meetings		
Companies do not have to pay travelling expenses	✓	(1)
Employees can work from home	✓	(1)
Companies don't have to have any offices		

[3]

(b)

It is difficult to call international meetings because of time differences	✓	(1)
Employees can't see the documents which are being discussed		
The initial cost of hardware can be expensive	✓	(1)
There is a loss of personal and social contact	✓	(1)
Companies are unable to contact the employees about having a conference		
Companies have to hire expensive halls		

[3]

10 (a) **Registration number** – Alphanumeric/Text (1)**Day/Month/Year of Manufacture** – Date (1)**Doors** – Numeric/integer (1)**Air conditioning** – Boolean/logical (1)

[4]

11 **RAM** – So that users are able to make changes to the data they are working on/to store the program or data they are currently using (1)**ROM** – So that programs/coding/software can be stored permanently/cannot be changed (1)**Backing storage** – So that users can have a permanent copy of the work they are doing/can have a copy of their work when the computer is switched off (1)

[3]

12 **Four** from:

Inference engine

Rules base

Knowledge base

(Interactive) user interface

Explanation system

Easy to understand output screen

[4]

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storing data in online applications	→	DVD ROM	
to store data that cannot be changed	→	Fixed hard disc	
saving work and transporting it to other computers	→	Magnetic tape	
taking backups of file servers	→	Pen drive	[4]

14 (a) **Two** from:

Clicking the mouse (can cause pains in the fingers)

Typing on the keyboard (can cause wrist pains/carpal tunnel syndrome)

Holding of mobile/cell phones with bent elbow (can cause pain in the elbows/cubital tunnel syndrome)

Texting using PDAs/mobile/cell phones (can cause pain in the thumbs) [2]

(b) **Two** from:

Electrocution by touching loose wires/spilling liquids on electrical contacts

Tripping and falling over trailing wires or cables

Physical injury to feet/legs etc. caused by heavy equipment falling

Fire caused by too many plugs in multisocket and thereby overheating/over heating of equipment [2]

15 (a) Hub (1)

Switch (1)

Bridge (1) [3]

(b) **Two** from:

It stores information about which computer is connected to which network

It receives data packets from an individual computer

It passes the data packets to the appropriate switch

To reduce data collisions

It can connect the LANs to the internet [2]

(c) 2 **max** for **three** pairs from:

User name and password (1)

It is very difficult for hackers to guess passwords/if you don't know password cannot gain access to system/data/need to know both username and password to gain access/(1)

Biometric data – retina scan, fingerprints/handprints, voice recognition etc. (1)

Each of these is unique/very difficult to replicate (1)

Magnetic stripe card for entry into company premises (1)

Difficult to replicate security information on stripe (1)

PIN for entry to company premises (1)

It is very difficult for hacker to guess PIN (1)

Digital certificate (1)

Confirms the origin of the document (1) [6]

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16 Four from:

Technical documentation has to be produced for systems analysts/programmers
Without technical documentation analysts programmers would not know how the system works
Without technical documentation analysts/programmers would not be able to update/improve system
Without technical documentation analysts/programmers would not be able to repair system when it malfunctions
User documentation needs to be phrased in a way that the average non-expert can understand
Without user documentation users would not be able to operate/use the system

Must gain at least one mark for each of user and technical to gain full marks [4]

17 (a) Two from:

A piece of programming code/software
Which replicates itself
Transmitted through email attachments/portable media
Corrupts/Deletes files/data
Can corrupt or erase the contents of the hard disk/can completely fill the hard disc/memory [2]

(b) Two from:

Gaining unauthorised access to a computer system
(May lead to) illegally copying data from a system
(May lead to) illegally amending data in a system
(May lead to) illegally deleting data from a system
Gaining authorised access to a system but exceeding their authority [2]

18 (a) Five from:

Data/fields should be spread out more/font size increased
Data for name/address/customer ID could have text boxes for completion
Date of birth could be a drop down list/prompt to show order of data e.g. dd/mm/yyyy/calendar prompt (to choose a date)
Gender field could have radio buttons for male/female/tick box/drop down list
To go back or forward could have buttons/arrow icons
More data/fields could have been used (accept examples)
Include a heading (name of company/Logo)
Add a submit/accept/save button [5]

(b) (i) Data that is outside the range/not of the right type (1)
Example: a number less than one/a number greater than 12/text (1)

(ii) Data that is valid/acceptable/within the range/correct type (1)
Example: any number between 1 and 12 inclusive (1)

(iii) Data that is at the edge of the range (1)
1 or 12 (1)

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19 Three from:

Data/file structures may need to be amended/improved
 Validation routines may need to be amended/improved
 Input methods may need to be amended/improved
 Output formats may need to be amended/improved
 Errors in processing/calculations may need amending/correcting
 Errors may mean that parts of system need amending/correcting
 If system does not work at all may need to restart at the design stage

[3]

20 Six from:

Laser printer/Inkjet printer higher quality output than Dot matrix printer
 Laser printer/Inkjet printer faster output than Dot matrix printer
 Laser printer/Inkjet printer are relatively quiet compared to Dot matrix printer
 Laser printer has limited sizes of paper available/Inkjet has greater sizes of paper available/Dot matrix is unlimited in size in one direction only
 Laser printer/Inkjet printer is susceptible to break down in oily/dirty conditions/Dot matrix printer less likely to break down in oily/dirty conditions
 Laser printer/Inkjet printer more expensive running costs than dot matrix
 Laser printer/Inkjet printer cheaper to buy than dot matrix
 Inkjet printer cheaper to refill ink than laser/more expensive to refill than dot matrix printer
 Laser printer/Inkjet printer needs regularly refilling with paper/Dot matrix printer has continuous paper feed available
 Dot matrix printer/Laser printer – ink needs changing less often than Inkjet printer
 Dot matrix printer has fewer colour options than laser printer/Inkjet printer
 Dot matrix printer produces instantaneous copies
 Noise is not a problem in this environment

One mark available for reasoned conclusion.

[6]

21 Four from:

You can get immediate feedback/interaction/You can ask questions immediately based on feedback
 You know you have the right address/number
 Laptop is not as portable as a phone
 Laptop is difficult to use 'on the move'
 Less impersonal/less risk of upsetting recipient/can detect emotions
 Can make yourself understood more easily
 Can be easier to get a connection

[4]