

**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**

**0417/12**

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.

In numbered responses 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 TFT monitor (1)  
B CRT monitor (1)  
C Inkjet printer (1)  
D Graph plotter (1) [4]

- 2 **Blu-ray disc (1)**      **CD ROM (1)**      **MICR**  
**Motor**      **Sensor**      **Trackerball** [2]

3

	True	False	
Control software is used to access the Internet		✓	(1)
A Graphical User Interface has windows, icons, menus and pointers	✓		(1)
Laptop computers are popular because they are portable	✓		(1)
Word processing software is used to monitor physical variables		✓	(1)
Presentation software is used to create slide shows	✓		(1)

[5]

- 4 (a) **OCR** is used to convert an image into text for use in a word processor. [1]
- (b) **A web camera** is used to input moving pictures into a computer. [1]
- (c) **An inkjet printer** is used to output photographs [1]
- (d) **A motor** is an output device used in robotics [1]
- (e) **A bar code reader** is used to read the ISBN from a book. [1]

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A multimedia projector	✓	(1)
A dot matrix printer		
Measuring software		
A chip reader		
A remote control	✓	(1)
Presentation software	✓	(1)

[3]

6	RIGHT	90
	FORWARD	100
	RIGHT	90
	FORWARD	80
	PENUP	
	FORWARD	40
	PENDOWN	
	FORWARD	80
	RIGHT	90
	FORWARD	100

1 mark for each pair of statements

[5]

7

	True	False	
The identifying number is the foreign key in a class list table	✓		(1)
The student's surname would be the primary key		✓	(1)
In order to have relational tables there must be a primary key	✓		(1)
The school's database is an example of a flat file		✓	(1)

[4]

8

	True	False	
Payroll processing		✓	(1)
Microprocessor controlled central heating	✓		(1)
The use of robots in manufacture	✓		(1)
Printing monthly utility bills		✓	(1)

[4]

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- 9 **Boolean:** Re-order (Y/N) (1)  
**Date:** Last order received (1)  
**Alphanumeric:** Food type (1)  
**Numeric:** Number in stock (1) [4]

10 (a)

Web cam	✓	(1)
Dot matrix printer		
Magnetic tape drive		
Modem/Router	✓	(1)
A trackerball		
A codec	✓	(1)
Broadband	✓	(1)
A telephone		

[4]

(b) **Two** from:

- Microphone
- Speakers/Headphones
- Headset

[2]

11 **Magnetic tape:** To make backups (1)

**CD R:** To transfer data/programs from computer to computer/to save user data (1)

**DVD ROM:** For companies to distribute software/movies/For users to install software/view multimedia (1) [2]

12 (a) **Four** from:

- Questions appear on screen
- Symptoms typed in
- Answers to questions typed in
- Further questions appear on screen
- Suggested illnesses/diagnoses are output
- Probabilities of illnesses are output

[4]

(b) **One** from:

- Car fault diagnosis
- Chess games
- Mineral prospecting
- Financial advice
- Insurance risk assessment
- Tax systems
- Plant identification
- Animal identification

[1]

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- 13 To input data at an information kiosk → Graphics tablet  
 To input data from a product in a supermarket → Touch screen  
 To input a PIN → Bar code reader  
 To input freehand drawings → Numeric keypad [4]

14 (a) **Three** from:

Mouse  
 Keyboard  
 Printer  
 Mobile phone  
 PDA  
 Headphones  
 Webcam  
 Camera  
 Microphone  
 Laptop  
 Scanner  
 Graphics tablet  
 Modem

[3]

(b) **Two** from:

Increased risk of hacking  
 Limited range of connection  
 Likelihood of interference  
 Reduced speed of connection (compared to cabled networks)

[2]

(c) **2 marks** for each pair (max 3) from:

Encryption (1)

Data becomes indecipherable to unauthorised users (1)

Firewall (1)

Prevents unauthorised computers having access to the network (1)

Anti spyware (1)

Removes spyware from computers (1)

Keylogging detection (1)

Enables user to delete software which hacker has planted (1)

Antivirus (1)

Removes viruses from storage media (1)

[6]

15 (a) **Two** from:

Take regular breaks  
 Exercise wrists/fingers etc.  
 Wristpads/wrist rests  
 Ergonomic keyboards

[2]

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**(b) Two** from:

- Don't bring food and drink near computers
- Use ducting for cables/tie cables together tidily
- Use recommended support devices for heavy equipment/don't place heavy equipment near to the edge of tops of tables
- Don't put too many plugs in a socket/use a RCB
- Ensure presence of CO<sub>2</sub> fire extinguishers

[2]

**16 Four** from:

- Adequate space for response/individual character boxes
- Fonts/font size should be easy to read
- Instructions how to complete form/clearly labelled field names
- Logical order of questions
- Questions spaced out/group relevant fields together
- Not too much text
- Sensible colour scheme
- Use of tick boxes
- Strike throughs
- Appropriate white space
- Provide box/place to sign in

[4]

**17 (a) Three** from:

- Data/file structures
- Validation routines
- Input methods/data entry screens
- Output formats/reports
- Error messages
- Processing/calculations

[3]

**(b) (i)** Normal data (1)

8 is within the acceptable range 0–10 (1)

[2]

**(ii)** Extreme data(1)

10 is on the edge of the 0–10 range (1)

[2]

**(iii)** Abnormal data (1)

13 is outside the acceptable range 0–10 (1)

[2]

**18 (a) Two** from:

- Purpose of the system
- Limitations of the system
- Hardware and software requirements
- Contact details of manufacturer/support network

[2]

**(b) Two** from:

- How to use the system
- Trouble-shooting guide
- Frequently asked questions

[2]

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- 19 (a) Two** from:  
 Lawful protection...  
 ... given to authors and publishers  
 Relates to the software the author/publisher created/published  
 Prevents purchaser from making unlimited copies/lend it to others/change the software/sell it without the company's permission [2]
- (b) Two** from:  
 Alteration of the code which is included to block copying  
 Digital signature on the CD/DVD itself which prevents writers from copying exactly  
 Encryption of the execution code requires a key to run  
 Use of a dongle  
 Registration system requiring the typing in of a registration code  
 "Guards" are hardware or software modules that monitor the running program and ensure that it has not been tampered with in any way.  
 Activation code which can be used only on a limited number of machines [2]
- 20 Six** from:  
**Laser printer**  
 High quality output  
 Fast output  
 Relatively quiet  
 To print out invoices/letters etc.  
 Relatively cheap to buy  
**Graph plotter**  
 High quality output  
 Capable of very large printouts  
 Print out car designs  
**Dot matrix printer**  
 Cheaper running costs  
 Can work in industrial environment ...  
 ...without losing performance  
 To make instantaneous copies  
 Can print continuously  
 Requires multipart stationery  
 Can print payslips
- Points which are repeated will only gain credit on the first mention [6]
- 21 Four** from:  
 You get immediate feedback/You can ask questions immediately based on feedback  
 You can be sure the person has received the message  
 You know you have the right address/number  
 Less impersonal/less risk of upsetting recipient/can detect emotions  
 Can make yourself understood more easily  
 You can see the other person's reaction [4]