

**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]

5

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 CO₂ 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]