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]

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]

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
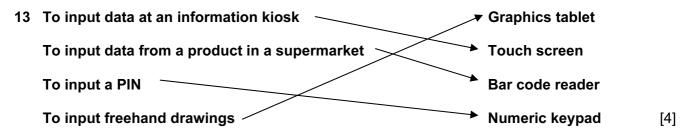 Insurance risk assessment
  Tax systems
  Plant identification
  Animal identification   [1]

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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]

Page 6	Mark Scheme: Teachers' version	Syllabus	Paper
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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_2 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]

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]