

**UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS**  
International General Certificate of Secondary Education

**MARK SCHEME for the October/November 2011 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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- 1 A Magnetic stripe (1)  
 B Chip (1)  
 C Optical marks (1)  
 D Bar code (1) [4]

- 2 **Buzzer (1)** Graphics tablet Joystick  
**Monitor (1)** Optical character reader Web cam [2]

3

	True	False	
Computer programs are examples of hardware		✓	(1)
An internet browser is an example of software	✓		(1)
A pointer is used to select items in a command line interface		✓	(1)
A PDA is larger than a desktop computer		✓	(1)

[4]

- 4 (a) **A microphone** is used in the recording of voices for presentation software [1]  
 (b) **A remote control** is used to control a multimedia projector [1]  
 (c) **A keyboard** is used to write a letter [1]  
 (d) **A chip reader** is used to read information from a bank card [1]  
 (e) **A joystick** is used in a flight simulator [1]

- 5 **Three** from:  
 Can act as a web server  
 Can act as a buffer (between internet and LAN)  
 Server passes on requests to the internet  
 Passes the requested web pages to individual computers  
 Can cache/store the webpages  
 Subsequent requests for that/those web page(s) are responded to more quickly  
 Can be used to monitor internet usage  
 Can block certain sites [3]

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- 6 Three from:**  
 Can store more data  
 Easier to carry/more portable  
 Majority of computers have USB ports/many school computers don't have CD drives  
 Speed of access is quicker  
 Speed of data transfer is quicker  
 Pen drives are more robust/less prone to damage [3]

- 7** PENDOWN  
 FORWARD 70  
 PENUF  
 FORWARD 70  
 PENDOWN  
 FORWARD 40  
 RIGHT 90  
 FORWARD 50  
 RIGHT 90  
 FORWARD 80  
 1 mark for each pair of statements [5]

- 8 (a) Two from:**  
 Web log  
 Personal journal/online diary  
 Owners' observations/opinions on a topic  
 Can have links to other sites  
 Others can post comments  
 Frequently updated by owner [2]

- (b) Two from:**  
 Allows users to create/edit web pages using a web browser  
 Many people can contribute/edit/update entries  
 Anyone can contribute so not to be taken as totally accurate  
 Holds information on many topics which can be searched [2]

- 9**
- |                               | True | False |     |
|-------------------------------|------|-------|-----|
| Withdrawing money from an ATM | ✓    |       | (1) |
| Producing utility bills       |      | ✓     | (1) |
| Booking a plane ticket        | ✓    |       | (1) |
| Producing payslips            |      | ✓     | (1) |
- [4]

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**10 Three from:**

Normal data – data within a (given) range/appropriate for that data type (1)

Abnormal data – data outside the range/of the wrong data type (1)

Extreme data – data on the boundaries of the range (1)

[3]

**11 (a) Three from:**

Computer (readings) more accurate than students

Students might forget to take readings/readings can be taken at regular intervals

Students might be unavailable to take readings during school holidays

Computers can analyse the results immediately/ can produce graphs more quickly

Readings can be taken more frequently

Readings can be taken any time of day or night

[3]

**(b) Five from:**

Save spreadsheet in suitable format

Create graphs

Load word processing software

Frames could be created

Insert spreadsheet/ import spreadsheet/copy and paste spreadsheet/embed spreadsheet

Insert/copy and paste graphs

Type in text/description of weather

Edit text/description of weather

Import/insert pictures

Format report

[5]

**(c) Three from:**

Cheaper to make than the real thing

Real thing may represent too large a time scale (genetics etc.)

Real thing may be wasteful of materials

Real thing may be on too vast a scale

Easier to change data/variables

Costs less to change data/variables

The real thing may be impossible to access/create

[3]

**12 Five from:**

The stock file is searched

Until a match is found with the entered bar code

The number in stock of the matching record is read

One/number purchased is subtracted from the number in stock

The number in stock is compared with the re-order number

If it is equal to/less than the re-order number then more goods are automatically re-ordered

The new value of number in stock is written back to the file

Next bar code is read

[5]

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- 13 (a) C3** [1]
- (b)** Any one of A1:G1 or of A1:A6 or of B2:B6 or B8 or E8 or F8 [1]
- (c)** =E5–D5 [1]
- (d)** =C2\*F2 or =C2\*(E5–D5) [1]
- (e) Two** from:  
 Highlight/click on/select G2  
 Copy G2 and paste into G3:G6  
  
 Highlight/click on/select G2  
 Copy/Fill down to G6 [2]
- 14 (a) Three** from:  
 Examining documents about the system  
 Distribute questionnaires to users of the system  
 Interview users of the system  
 Observing the system/staff [3]
- (b) Three** from:  
 Field name  
 Field type  
 Key field  
 Field length  
 Validation check/rules [3]
- (c)** Direct changeover – new system replaces existing system immediately/overnight (1)  
 Parallel running – new system runs alongside/together with existing system (1)  
 Phased implementation – new system is implemented part by part (1)  
 Pilot running – system is implemented in one branch/one office (at a time) (1) [4]

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- 15 (a) Two** from:  
 Optical Mark Recognition  
 Pencil/pen marks are read by scanner/Reader  
 Position of marks are identified [2]  
 Exam papers/school registers/lottery/multiple choice questionnaires [1]
- (b) Two** from:  
 Optical Character Recognition  
 Text is read by scanner  
 image compared with characters stored in computer  
 Converted to text for use with other software [2]  
 Utility bill/turnaround documents/word processors/mail/passports/id cards/car number plates [1]
- (c) Two** from:  
 Magnetic Ink Character Recognition  
 characters read by magnetic reader  
 characters compared with characters stored in computer  
 Converted to text for entry into system [2]  
 Bank cheques [1]
- 16 (a) Three** from:  
 Robots produce the same standard every time  
 Cost – once bought they do not have to be paid/fewer employees so lower costs  
 No industrial disputes  
 Greater productivity  
 Greater accuracy  
 Can work in hazardous/extreme conditions/can lift heavier loads  
 Robots don't take breaks/can work 24 hours a day 7 days a week [3]
- (b) Three** from:  
 Robots have to be reprogrammed when there is a small change/can't think for themselves  
 Robots need programming in order to be adaptable  
 Expensive start up costs – redundancy payments  
 Expensive start up costs – have to spend money on training workers to use robots  
 Expensive start up costs – buying of robots/programming of robots  
 Computer crash would halt production  
 Maintenance/repair costs can be expensive [3]

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**17 Hardware:**

Network cards  
Modem/router  
Hub

**Software:**

(Internet) browser  
Firewall software  
Anti-virus software  
Anti-spyware software

**Others:**

ISP  
Cables  
Telephone line

Must have at least one hardware item and one software item to gain full marks. [4]

**18 (a) Two from:**

Pressure  
Moisture  
Motion

[2]

**(b)** Computers work in digital  
Sensors send analogue data  
ADC

[1]

[1]

[1]

**(c)** Compares temperature with pre-set value [1]  
If temperature lower than preset value microprocessor switches on heater [1]  
If temperature higher than/equal to preset value microprocessor switches off heater/does nothing [1]

**19 Two from:**

Visual verification/checking  
Read through data on screen  
Compare with source document

[2]

**Two from:**

Double data entry  
Data is typed in twice by one typist  
Data is typed in by two operators  
Computer compares versions  
If different freezes/sounds buzzer

[2]