

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

**MARK SCHEME for the May/June 2013 series**

**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.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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- 1 A touch screen [1]  
 B scanner [1]  
 C video camera [1]  
 D sensor [1]

- 2 **buzzer** [1]  
**magnetic tape**  
**DVD R**  
**plotter** [1]  
**joystick** [1]  
**touch pad** [1]

3

	True	False
A numeric keypad is used to type a letter		✓
Word processing software is used to monitor physical variables		✓
A laser printer works best in an industrial environment		✓
A palmtop computer is easier to carry than a laptop computer	✓	
Sensors are used to input data to a microprocessor	✓	

[5]

4

	✓
Hub	✓
Printer	
Bridge	✓
Router	✓
Scanner	
Passwords	
Monitor	
Switch	✓

[4]

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5

	Control	Measurement only
Automatic cookers	✓	
Weather stations		✓
Microwave ovens	✓	
Automatic washing machines	✓	

[4]

6

PEN DOWN		PENDOWN	
FORWARD	40	REPEAT	6
RIGHT	90	FORWARD	80
FORWARD	70	RIGHT	60
PENUP		END REPEAT	
FORWARD	50		

1 mark for each correct statement  
[8]

- 7 (i) A CD ROM is used to store music for sale
- (ii) A blu-ray disc is used to store high definition films
- (iii) A magnetic tape is used to store backups of file servers
- (iv) A flash memory card is used to store photographs in a digital camera [4]

8 Four from:

Read only memory  
 Can be read from but not written to/can't be changed/edited  
 Used to store BIOS/start up programs for computer  
 Used to store software that must not change e.g. games  
 Non-volatile/permanent (memory)

[4]

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**9 Three from:**

Car production is more consistent/robots produce the same standard every time  
 Cost – once bought they do not have to be paid/fewer employees so lower costs/don't have to pay robots wages/lower running costs  
 No industrial disputes  
 Greater productivity  
 Greater accuracy/robots are more accurate  
 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/can work continuously [3]

**10 (a)**

	✓
Graph plotter	
Inference engine	✓
Interactive input screen	✓
Knowledge base	✓
Rules base	✓
Scanner	
Spreadsheet	
Web cam	

[4]

**(b) Two from:**

Medical diagnosis  
 Prospecting  
 Tax  
 Careers  
 Chess games  
 Animal/plant classification/identification [2]

**11 Three from**

Don't have to type in commands/just use mouse to select options  
 Easier to change/edit action  
 Don't have to learn/be familiar with a lot of commands  
 Easier to open/load programs [3]

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**12 (a) Three** from:

Observing the users using the current system  
 Questionnaires are distributed to users asking questions about the current system  
 Interviewing the users about the current system  
 Examining documents from the current system [3]

**(b)** Visual verification/checking [1]  
 Read through data on screen and compare with source document [1]

Double data entry [1]

**One** from:

Data is typed in twice by one typist  
 Data is typed in by two operators  
 Computer compares versions [1]

**(c) Three** from:

Source document may contain errors  
 Verification only checks that data is copied correctly  
 Verification does not check if data is reasonable/sensible  
 A correct explanation of an example of one validation check [3]

**13 (a) Three** from:

A piece of programming code/software/program/script  
 It replicates itself  
 Attaches itself to files  
 Corrupts/deletes files/data  
 Can corrupt or erase the contents of the hard disk  
 Can completely fill the hard disk/memory making it unusable/slows down operations  
 Makes software/operating system unusable  
 One mark is available for an accurate description of method of transmission [3]

**(b) Three** from:

Regularly update antivirus/use/install antivirus  
 Only use storage media from known sources  
 Only accept software/download software from known/trusted websites  
 Only visit trusted websites  
 Only open attachments from known sources/people you know [3]

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**14 (a) Three** from:

Either

It looks through (the cells) A2 to B9 in Sheet 1  
Compares with 'E'/the contents of B2 (in Sheet 2)

Or

It reads the contents of B2 (in Sheet 2)  
Compares with the contents of A2:B9 in Sheet 1

until it finds the first matching value

It records the corresponding value from column 2 of the range A2:B9 in Sheet 1  
B2 (in Sheet 2) contains E

Produces /records Edinburgh [3]

**(b) London** [1]

**(c) Three** from:

It looks through (the contents of) C9 to C18....  
... to see if they contain the code E/contents of B2  
Counts all the cells where there is a match  
Cell B2 contains the code E  
Produces/records the answer 2

[3]

**(d) 1** [1]

**(e) Three** from:

It reads the contents of B9 (0) and checks if it is greater than 0...  
...if it is it records Y  
If it is not greater than 0 it records N  
In this case it produces/records N

[3]

**(f) N** [1]

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15 (a)

Field name	Data type	
Model	Text	[1]
Camera	Boolean	[1], [1]
Free texts	Integer	[1], [1]
Monthly payment	Currency	[1]

(b) Three matched pairs from:

Range check on Monthly payment  
No less than \$10, no more than \$100

(Invalid) character/type check on 'Free texts' field  
Only digits allowed

Presence check on any field  
To make sure data has been entered in that field

Consistency check on Monthly payment field and Free texts field  
To make sure that number of free texts corresponds to the monthly payment [6]

16 Three from:

Limited area of network  
Strength of signal is weaker  
Easier to hack into/less secure  
Physical obstacles can interfere with signal/can cause disconnection [3]

17 Four from:

Internet is network of networks/intranet doesn't have to be a network of networks  
Internet is global  
Intranet is within one organisation  
Intranet is private/Internet is public  
Intranets tend to be policed/managed  
Intranet has an extra layer of security  
Data found in an intranet is likely to be more reliable/relevant than that found on the Internet  
Internet has more information than an intranet [4]

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**18 Six from:**

Electronic Funds Transfer at Point of Sale

Enables payment for goods at a checkout using credit/debit cards

Goods are purchased and bill is calculated

Customer inserts card into chip reader

Card is checked for validity/reported stolen

PIN is entered

PIN is compared with that stored on the chip

If PIN is OK/verified transaction is authorised

If not, customer is asked to re-enter PIN

Supermarket computer contacts customer's bank

Checks if sufficient funds

If sufficient funds, transaction is completed/if not, transaction is rejected

Amount deducted from customer's bank account

Amount credited to supermarket's bank account

The supermarket EFTPOS terminal produces a receipt

[6]