

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.

Cambridge will not enter into discussions about these mark schemes.

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

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