

MARK SCHEME for the May/June 2012 question paper
for the guidance of teachers

**0417 INFORMATION AND COMMUNICATION
TECHNOLOGY**

0417/13

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 Flash memory card [1]
 B Magnetic disc [1]
 C Magnetic stripe [1]
 D Joystick [1]

- 2 CRT monitor DVD ROM magnetic tape [1]
 Number pad plotter trackerball [1]

3

	True	False
Control software is used to create slide shows		✓
Palmtop computers do not have DVD drives	✓	
Presentation software can be used to produce databases		✓
An internet browser uses an inference engine		✓
Motors are output devices	✓	

[5]

- 4 (a) A dot matrix printer produces hard copy in harsh conditions. [1]
 (b) A microphone inputs sounds. [1]
 (c) A multimedia projector is used to show slideshows. [1]
 (d) A presence check is a validation rule. [1]
 (e) A magnetic tape is used to create backups from a server's hard disc. [1]

- 5 Three from:
 Temperature sensor
 Pressure sensor
 Moisture sensor
 Humidity sensor
 Light sensor
 Motion sensor [3]

- 6
- | | |
|---|-----------------------|
| to select options from a list | → keyboard |
| to type data into a database | → optical mark reader |
| to input candidate examination answers | → chip reader |
| to input data directly from a bank card | → mouse |
- [4]

7

PEN DOWN		BACKWARD	<u>140</u>
<u>LEFT</u>	90	PENDOWN	
REPEAT	<u>5</u>	<u>REPEAT</u>	4
<u>FORWARD</u>	50	FORWARD	<u>60</u>
RIGHT	<u>72</u> ..	<u>RIGHT</u>	90
<u>END REPEAT</u>		<u>END REPEAT</u>	
PENUP			

One mark for every line except the square then one mark per two instructions [8]

8

	True	False
Encryption prevents hackers from understanding the data	✓	
Encryption destroys viruses		✓
Encryption prevents unauthorised access to computer systems		✓
Encryption is the scrambling of data	✓	

[4]

- 9 **Five** from:
- Data is gathered/collected from experts
 - Knowledge base is designed/created
 - A structure to relate each item in the database / knowledge base is created
 - An interrogation technique to access the data is created
 - A user interface/method of displaying the results/method of inputting data/ input screen/output screen is designed/created
 - The inference engine is designed/created
 - The rules base is designed/created
 - The system is tested
- [5]

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10 Four from:

- User/customer is in direct contact with the main computer/CPU
- Appears that nobody else can access system at that point/processing is almost immediate
- Computer asks customer for details of flight
- Computer asks for personal details of passengers
- Computer searches for matching flights
- Computer may display list of seats available
- Computer may ask customer to select a seat
- (Customer selects seat from those available and) computer flags seat as booked
- Computer asks customer to complete payment details
- Computer checks details are valid by communicating with customer's bank
- Computer checks if sufficient funds
- Airline's database is updated immediately
- Number of seats available reduces by number booked
- Prevents double booking
- Confirmation/e-ticket may be sent to customer by email

[4]

11 Three matched pairs from:

Hub

Broadcasts data packets to computers in a LAN

Switch

Directs data to specific computers

Bridge

Connects two LANs together to form a larger LAN/Directs data packets to specific networks

NIC

Enables computer to be connected to a network

[6]

12 (a)

<i>Number of bedrooms</i>	integer
Price	<i>currency</i>
<i>Property Type</i>	<i>Boolean</i>
<i>Floor space/area</i>	<i>numeric</i>

1 mark for each correctly filled gap

[6]

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(b) Five from:

Parallel running is running the old and new system together
 Direct changeover is stopping the old system and starting the new one immediately
 Parallel running is more expensive to implement than direct changeover....
more expensive as two sets of workers have to be employed
 Benefits of direct changeover are immediate whereas this is not the case with parallel running.
 Parallel running is slower to implement
 If new system fails there is no backup system with direct changeover but there is with parallel running
 With parallel running training can be gradual unlike direct changeover which is difficult to organise [5]

13 Three matched pairs from:

Normal

Within a given range such as 30 out of 50

Abnormal outside the given range or of wrong data type such as 56 out of 50 or 'sixty'

Extreme

At the boundaries of the given range e.g. 0 or 50 [6]

14 Two matched pairs

Proxy server

The proxy server can restrict the web sites students can access/can block access to sites with objectionable material

Firewall

Limits the computers (using IP address) that can access the system/that can be accessed from within the school

Applying parental guidance settings.

Can block undesirable topics [4]

15 (a) Six from:

Checks to see if the value of A7 is "D"

If it is, the value in B7/4.00 is multiplied by the value in B2/10%

If it isn't, checks to see if the value in A7 is "N"

If it is, the value in B7/4.00 is multiplied by the value in B3/15%

If it isn't, checks to see if the value in A7 is "P"

If it is, the value in B7/4.00 is multiplied by the value in B4/20%

If it isn't, "FALSE" is generated

A7 contains "D"

In this example answer is \$4.00 x 10%/ answer is \$0.40 [6]

(b) \$1.00

[1]

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(c) **Three** from:
 Clicked on C7 and manoeuvred to bottom right hand corner of cell
 Until black cross appears
 Black cross dragged down to C18

Or **three** from:

Right clicked on C7 select copy from menu
 Selected C8 to C18
 Right click and click on paste

Highlight cells C7 to C18
 Click on Fill
 Click on down

[3]

(d) = $b7 - c7$

[1]

(e) **two** from:

can see what will happen without spending a lot of money
 results can be seen in a shorter space of time
 you can ask many whatif questions which would be impractical in real life
 Easier to change data/variables
 You can test predictions more easily/model can make predictions more accurately

[2]

16 Window – an area on the screen that displays information for a specific program. [1]

Icon represents a folder or a program – can be seen within a window or freestanding on screen [1]

Menus – contains lists of options for a certain program/software [1]

Pointing device/Pointer – used to select menu options/icons/close/open windows [1]

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17 Six from:

Advantages of DTP

Can be sure every local family gets to see it
 Not everybody has a computer/internet/modem
 Can read it anywhere/not limited to where computer is.

Disadvantages of website

Can't be sure every local family gets to see it
 Not everybody has a computer/internet/modem
 Can't read it anywhere/ limited to where computer is.

Disadvantages of DTP

Takes time to physically distribute by hand
 Might need to pay somebody to distribute by hand
 Costs of ink/paper/printing
 Not as easy to update
 Not interactive/hyperlinks
 No animation/video
 No sound

Advantages of website

No costs of ink/paper/printing
 Easier to update
 Interactive/hyperlinks
 Animation/video
 Sound

Allow one mark for a reasoned conclusion

18 Six from:

Car workers have been made unemployed
 Car workers have had to be retrained
 Car workers have become deskilled
 More technical staff have been employed
 Work areas are cleaner
 There is a healthier environment
 Workers have a safer environment
 Fewer manual tasks

[6]