

**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  
 B Magnetic disc  
 C Magnetic stripe  
 D Joystick

- 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          140.....
LEFT.....          90          PENDOWN
REPEAT            5.....  REPEAT.....  4
FORWARD.....     50          FORWARD     60.....
RIGHT            72..    RIGHT.....     90
END REPEAT.....  END REPEAT.....
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]

<b>Page 4</b>	<b>Mark Scheme: Teachers' version</b>	<b>Syllabus</b>
	<b>IGCSE – May/June 2012</b>	<b>0417</b>

**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)**

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

1 mark for each correctly filled gap

[6]

Page 5	Mark Scheme: Teachers' version	Syllabus	
	IGCSE – May/June 2012	0417	

(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]

Page 6	Mark Scheme: Teachers' version	Syllabus	
	IGCSE – May/June 2012	0417	

(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]

Page 7	Mark Scheme: Teachers' version	Syllabus	
	IGCSE – May/June 2012	0417	

**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