UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

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

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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]

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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]

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)

Number of bedrooms	integer
Price	*currency*
Property Type	**Boolean**
Floor space/area	*numeric*

   1 mark for each correctly filled gap   [6]

(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]

(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]

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]