CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2012 series

0417 INFORMATION AND COMMUNICATION TECHNOLOGY

0417/13 Paper 1 (Written), maximum raw mark 100

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CAMBRIDGE
International Examinations

1 A Pen drive (1) B Chip reader (1)
C Remote control (1) D Graphics tablet (1) [4]

2 **CD RW** **hard disc** **hub**

PIN **plotter** **switch** [2]

3

	User	Technical	
frequently asked questions	✓		(1)
program coding		✓	(1)
system flowcharts		✓	(1)
trouble-shooting guide	✓		(1)

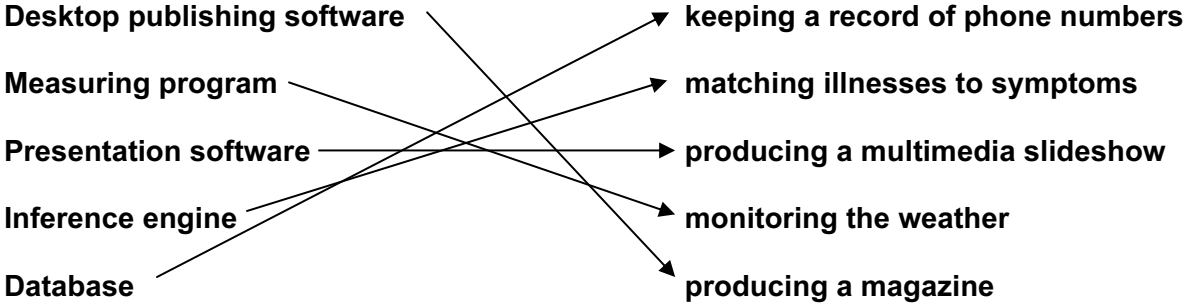
4 **(a)** The **most suitable** storage medium for storing data on a network server is **a magnetic hard disc** [1]

(b) lists of illnesses and their symptoms are stored in **a knowledge base** [1]

(c) An optical disc which cannot have data updated is **a CD ROM** [1]

(d) Photos are output using **an inkjet printer** [1]

5



[5]

6

Instructions must be typed to get a computer to carry out an action	✓		
Icons represent programs		✓	
It is more important that users understand how a computer works	✓		
Menus are offered to help choose an action		✓	[4]

7 **Four** matched pairs from:

INSTRUCTION	MEANING
FORWARD *n*	Move *n* forward
BACKWARD *n*	Move *n* backward
LEFT *t*	Turn left *t* degrees
RIGHT *t*	Turn right *t* degrees
PENUP	Lift the pen
PENDOWN	Lower the pen

1 for instruction
1 for meaning [8]

8 **(a)**

Humidity	✓	
Temperature	✓	
Pressure		
Wind speed		
Light	✓	
Wind direction		[3]

(b) Measurement is the monitoring of physical variables without the microprocessor taking action [1]

Control is when the microprocessor takes action depending on sensor readings [1]

(c) Four from:

Computer (readings) are more accurate than students
Students might forget to take readings/readings can be taken at regular intervals
Computer takes more reliable readings
Readings can be taken/control can be carried out more frequently
Readings can be taken/control can be carried out any time of day or night
Computers can respond to changes immediately/quicker than students
Students might be unavailable to take readings during school holidays/computers can work continuously/without taking a break [4]

9 **(a)** C5 [1]

(b) Any cell from e2:e6 [1]

(c) 6 [1]

(d) =b2-c2 [1]

(e) **Two** from:

Highlight D2 and click copy
Highlight D3:D6 and click paste
OR
Highlight D2 and manoeuvre to bottom right hand corner of D2
Using fill handle/little black square/cross drag down to D6
OR
Highlight D2:D6
Click on fill then down [2]

(f) **Two** from**:**

Simulations
Mathematical models
Scientific models
Civil engineering models [2]

(g)

The real thing may need to large a timescale	✓
Computer models waste a lot of raw materials	
The real thing is quicker to build	
If a computer model fails it doesn't need rebuilding	✓
Once a computer model is built it doesn't cost a lot to run	✓
A model doesn't cost anything to make	

[3]

10 (a) Two from:

Only one printer is needed
Only one scanner is needed
Data can be shared between computers/data can be accessed by one computer from another more easily
Software can be shared/updated more easily
All computers can access the internet through one connection [2]

(b) Router/modem [1]

(c) Advantages – **two** from:
Can communicate with other companies by email
Can use the internet to place orders
Can use the internet to buy materials
Can hold video conferences
Can create own website to publicise company

Disadvantages – **two** from:
Workers may access undesirable sites
Workers may waste time playing games/going on social network sites/updating their blog/ online shopping/banking
Viruses/malware could be downloaded
Could make the company susceptible to hackers [4]

11 (a) **Three** from:

Authentication techniques such as user names and passwords identify the user to the system
Without authentication anybody would be able to access data
Hackers would be able to amend/delete data without being prevented
Would have to rely on other methods such as firewalls to prevent unauthorised access. [3]

(b) **Three** from:

Causes data to be scrambled/encoded
Requires an encryption key/software to encrypt
Requires a decryption key/encryption software to decrypt
Results in data which is not understandable/readable
Protects sensitive data…
… from being understood if it falls in to the wrong hands [3]

12 Spyware
Two from:
Software that gathers data from computers without the user realising
It monitors and records all key presses
It sends this information back to the hacker who sent it out

Spam
Two from:
Electronic junk mail/sending of unsolicited emails
Sent to everybody on a mailing list/many emails sent at once
Can slow down networks
Can fill up the receiver's mail box and therefore hard disk

Social networking site
Two from:
Online communities of like minded users
Enables users to share photos
Enables users to communicate with each other
Enables users to organise meetings
Allows users to set up profiles [6]

13 (a)

Field name	Data type
Race_ID	**Text**
Race_length	**integer**
Name	**Text**
position	**integer**

[7]

(b) Format/Picture [1]
Checks the data is of the format beginning with a letter and ending in three digits and is only four characters long. [1]

(c) **Five** from:

Appropriate spacing for each field
Buttons to go forward/backwards
Screen filled/not too much white space
Drop down lists to choose an option (such as race length)
Button to save data/submit/accept
Clearly defined input area for each field
Tick boxes/radio buttons to enter choices
An easy to read font/font size
A sensible font colour/background colour
Easy to follow instructions for completing screen/help icon
No overlapping of items [5]

14 (a) Two from:

Smart phone
Laptop with internet access
Tablet computer [2]

(b) Six from:

Advantages:
Fewer bank tellers so less paid out in wages
Less actual cash handled – fewer robberies
Have access to a wider customer base
Fewer branch offices needed – less spent on rates/rent/utilities
Less money spent on security staff

Disadvantages
Initial cost of hardware/software is expensive
Need to retrain staff
Loss of customers/more difficult to sell other services due to lack of personal touch
Costs of system maintenance

Must have at least one of each to gain full marks [6]

15 Four from:

No embarrassment of not having sufficient funds
Less time spent queuing
Can get money any time of day or night
Own bank may be further to travel to than nearest ATM
Can use most ATMs/does not have to be own bank
Have choice of languages so is easier to understand/be understood [4]

16 Four from:

You get immediate feedback
You know you have the right person/don't have to worry that you've got the wrong email address
You can ask questions immediately based on feedback/carry out an interactive conversation
Less impersonal/less risk of upsetting recipient
Can make yourself understood more easily
You can see the other person's reaction [4]