CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the October/November 2014 series

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.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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CAMBRIDGE
International Examinations

1 **(a)** **Two** from:
Microphone
Keyboard
Mouse **[2]**

(b) Speakers **[1]**
Screen **[1]**

(c) **Two** from:
DVD drive
Internal hard disc drive
Pen drive **[2]**

2

Reading data from bank cheques			✓	**[1]**
Reading data from candidate exam answer papers	✓			**[1]**
Inputting data ready for processing by a word processor		✓		**[1]**
Inputting pencil mark data from a school register	✓			**[1]**

3

Dot matrix printer	printing on multipart stationery	**[1]**
Chip reader	reading information from the front of bank cards	**[1]**
Magnetic tape drive	making fileserver backup copies	**[1]**
Bar code reader	to read data from a product at a POS terminal	**[1]**

4

It is easy to keep in immediate contact with friends	✓		**[1]**
You can share photographs with friends	✓		**[1]**
You can do internet banking using a social networking site		✓	**[1]**
You can access everybody's personal details		✓	**[1]**

5 **(a)** On-line **[1]**

(b) Serial **[1]**

(c) Sensor **[1]**

6

PEN DOWN	FORWARD 20
LEFT 90	RIGHT 90
FORWARD 20	FORWARD 70
RIGHT 90	REPEAT 2
PENUP	RIGHT 90
FORWARD 15	FORWARD 35
PENDOWN	END REPEAT

1 mark for each correct instruction **[6]**

7 **(a)** Temperature **[1]**
Time **[1]**

(b) **Five** from:
Microprocessor switches heater on
Microprocessor receives data from temperature sensor
Temperature of oven is compared with pre-set value by microprocessor
If higher microprocessor switches heater off
If lower microprocessor leaves heater on
Time is constantly monitored by microprocessor
Time elapsed/finish time is compared to pre-set time by microprocessor
If equal then heater is switched off by microprocessor…
…microprocessor causes buzzer to sound **[5]**

8 **(a)** Range check **[1]**

(b) **(i)** 0, 25 or 80 **[1]**

(ii) 0 or 80 **[1]**

(iii) 87 **[1]**

(c) =if(C2>=45,”Pass”,”Fail”)

Correct syntax of if() **[1]**
C2>=45 **[1]**
“Pass”,”Fail” **[1]**

(d) **Three** from:
Click on D2 and manoeuvre to bottom right hand corner of cell
Until black cross appears
Drag black cross down to D32

Or

Right click on D2 select copy from menu
Select D3 to D32
Right click and click on paste

Or

Highlight cells D2 to D32
Click on Fill
Click on down **[3]**

(e) **Two** from:
Cost of building real thing may be expensive
Real thing may waste raw materials/natural resources
Easier to change data/variables
Costs less to change data/variables
The real thing may be impossible to access/create
Real thing may be on too vast a scale
Extremes which can't be tested in real life can be tested using models **[2]**

9 **(a)** A flowchart **[1]**

(b) Analysis **[1]**

(c) Hacking **[1]**

(d) A password **[1]**

10

Higher charges can be made	
They have fewer bad risks	
Less paid out in wages as fewer staff need to be employed	✓ **[1]**
Lower costs as fewer buildings need to be rented	✓ **[1]**
A wider customer base is available	✓ **[1]**
Mistakes are never made.	
Less actual cash handled so there are fewer robberies	✓ **[1]**
The initial cost of hardware is cheap	

11 (a) **Four** from:
Robots have to be reprogrammed when there is a small change/can't think for themselves
Robots need programming in order to be adaptable
Expensive start-up costs – redundancy payments
Expensive start-up costs – have to spend money on training workers to use robots
Expensive start-up costs – buying of robots/programming of robots
Computer crash would halt production
Maintenance/repair costs can be expensive **[4]**

(b) **Two** from:
It is quieter
They have a safer environment
It is a cleaner environment **[2]**

12

Producing the payroll	
Producing utility bills.	
Printing credit card statements.	
Paying for goods using EFTPOS.	✓
Processing bank cheques overnight	
A microprocessor controlled greenhouse.	✓

[1]

[1]

13 (a) **Two** from:
Primary key/key field(s)/foreign key would be identified… **[1]**
…would be used to link the tables together **[1]**

(b) **Two** from:
Data does not have to be typed in twice
Quicker to enter/update/edit data
Fewer errors are likely
Reduces storage requirements **[2]**

(c) **Three** from:
Can store vast amount of information
Has a fast data access speed
Has a fast data transfer speed
Most computer systems come with hard discs **[3]**

(d) *Member number:* Length check/(invalid) character check/type check/range check

Sport code: Length check/format check **[2]**

(e) Chip reader/magnetic stripe reader **[1]**

(f) **Two** from:
It is faster to enter data
More accurate/fewer errors **[2]**

(g) **Three from:**
How to load software/ run software/install software
How to save a file
How to search
How to sort
How to print
How to add records
How to delete/edit records
Purpose of the system
Input format or example
Output format or example
Hardware requirements
Software requirements
Sample runs/test runs
Limitations of the system
Troubleshooting guide/contact details/help line/FAQs
Error messages/handling
Tutorials **[3]**

(h) **Three** from:
Program coding/listing
Name of program language
System flowchart
Program flowchart/algorithm
List of variables
File structure
Known bugs
Validation routines
Purpose of the program **[3]**

14 **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]**

15 **(a)** **Three** from:
Microprocessor controlled devices do much of housework
Do not need to do many things manually
Do not need to be in the house when food is cooking
Do not need to be in the house when clothes are being washed
Can leave their home to go shopping/work at any time of the day
Greater social interaction/more family time
More time to go out/more leisure time/more time to do other things/work
Are able to do other leisure activities when convenient to them
Microprocessor controlled burglar alarm provides a sense of security
Do not have to leave home to get fit
Can encourage a healthy lifestyle because of smart fridges analyzing food constituents **[3]**

(b) **Three** from:
Can lead to unhealthy eating due to dependency on ready meals
Can lead to laziness/lack of fitness
Manual household skills are lost
These may malfunction and, because the individual has left the device unattended, this can lead to fires/damage to the house **[3]**

16 **Three** matched pairs (with a different method for each one) from:
Data could be amended
Use a username and password so that only the person who knows these can access the data
Use biometrics so that only that person who has those characteristics can access the data
Use a firewall which prevents unknown computers accessing a network

Data could be deleted
Use a username and password so that only the person who knows these can access the data
Use biometrics so that only that person who has those characteristics can access the data
Use a firewall which prevents unknown computers accessing a network

Data could be read and passed on
Encryption so that data is unreadable to unauthorised users **[6]**

17 **Four** from:
If computer is switched off work in RAM goes but backing storage stores data for future use
Backing storage is cheaper than IAM per unit of memory so more cost effective to have both
IAM is bulkier than backing storage per unit of memory so more sensible to have both
IAM provides faster access than backing storage so as there has to be backing storage computer needs IAS to speed up operations
Software package may be so large that it is physically impossible for RAM to store it
Data may need to be transferred from one computer to another and can't do that with RAM **[4]**