UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2011 question paper for the guidance of teachers

0417 INFORMATION AND COMMUNICATION TECHNOLOGY

0417/12 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 Laser printer (1)
 - B Plotter (1)
 - C Multimedia projector (1)
 - D Monitor (1)

[4]

2 Blu ray disc Graphics tablet (1) Inkjet printer

Motor Optical mark reader (1) Speaker [2]

3

| | True | False | |
|--|----------|----------|-----|
| A magnetic stripe reader is an example of hardware | ✓ | | (1) |
| A memory stick is an example of software | | ✓ | (1) |
| A word processor is a form of operating system | | ✓ | (1) |
| A CD has a greater storage capacity than a DVD | | ✓ | (1) |
| | • | | ſΔ |

[4]

4 Fixed hard disc

Making backups of file servers

Flash memory card

Transferring files from one computer to another

Magnetic tape

Storing software sold by a company

Pen drive

Storing data which needs to be accessed quickly

DVD ROM

Storing photographs in a digital camera [5]

5 (a) Birthday Date

(b) Gender Boolean

(c) Home phone number Text

(d) Number of brother and sisters Integer [4]

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6

| | True | False | |
|--|----------|-------|-----|
| RAM is volatile | √ | | (1) |
| RAM is used to store the startup instructions of a computer | | ✓ | (1) |
| The data in ROM is easier to change than that in RAM | | ✓ | (1) |
| ROM is used to store the data the user is currently working on | | ✓ | (1) |

[4]

7 FORWARD 50
PENUP
FORWARD 40
PENDOWN
FORWARD 60
PENUP/RIGHT 90
RIGHT 90/PENUP
FORWARD 60
RIGHT 90/PENDOWN
PENDOWN/RIGHT 90
FORWARD 80

1 mark for each 2/3 statements

[5]

8

| Hub | > | (1) |
|---------|-------------|-----|
| Printer | | |
| Scanner | | |
| Switch | ✓ | (1) |
| Bridge | ✓ | (1) |
| Monitor | | |

[3]

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9

| | True | False | |
|--|----------|-------|----|
| Paying for goods at an EFTPOS terminal | | ✓ | (1 |
| Booking a holiday using a computer | | ✓ | (1 |
| Producing credit card bills | ✓ | | (1 |
| Processing cheques | ✓ | | (1 |

[4]

10 (a) Three from:

Humidity Moisture Temperature Light

[3]

(b) Five from:

Computer monitors sensors

Temperature is compared with preset value

If lower than preset value computer switches on heater

If lower than preset value computer shuts windows

If higher than preset value computer switches heater off

If higher than preset value computer switches fan on

If higher than preset value computer opens windows

Humidity is compared with preset value

Moisture level is compared with preset value

If lower than preset value computer switches on sprinkler

If higher than preset value computer switches off sprinkler

Light is compared with preset value

If lower than preset value computer switches on light bulb

If higher than preset value computer switches off light bulb

[5]

(c) Three from:

More reliable readings taken at regular intervals

Computers are more accurate than human beings

Computers can work continuously/without taking a break

Computers do not forget to take readings

Computers can take readings more frequently

Computers can respond to changes immediately/quicker than human beings

[3]

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11 (a) 3 [1]

(b) 5 [1]

(c) Three from:

The personal details file and test results files would be saved as separate tables
Primary key/key field(s)/foreign key would be identified
The 'Unique ID number' set to primary key would be used to link the tables together
[3]

(d) 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]

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12 (a)

| | True | False | |
|---|------|-------|-----|
| Defining field length is part of the design of the file structure | ✓ | | (1) |
| Screen layouts are designed before the system is implemented | ✓ | | (1) |
| The new system is evaluated before it is designed | | ✓ | (1) |
| The existing system is analysed before the new system is designed | ✓ | | (1) |

[4]

(b) Normal data – data within a (given) range/appropriate for that data type (1) Abnormal data – data outside the range/of the wrong data type (1) Extreme data – data on the boundaries of the range (1)

[3]

(c)

| Produce user documentation | |
|---|---|
| Design the new system | |
| Compare the solution with the original task requirements | ✓ |
| Analyse the existing system | |
| Identify any limitations of the system | ✓ |
| Identify any necessary improvements to the system | ✓ |
| Analyse the users' responses to the results of testing the system | ✓ |
| Produce technical documentation | |

[4]

(d) Technical documentation

Two from:

So improvements can be made to system

To know how to repair system

To know how to maintain system

[2]

User documentation

Two from:

Help users to learn/know how to use system

Help users to overcome problems

[2]

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13 (a) Router/modem (1)

- **(b)** Email (1)
- (c) Web browser (1)

(d) ISP (1) [4]

14 (a) Encryption

Two from:

Despite hackers being able to intercept data

Data is scrambled

So that hackers cannot understand/read the data

Need to have encryption/decryption key to make data readable/understandable

[2]

Passwords

Two from:

Linked to username

Compared to stored data

Hackers cannot access data without knowing the password

Password can be regularly changed/robust passwords make it difficult for hackers to guess

[2]

Biometric data

Two from:

Use of fingerprints/retina scans

Compared to stored data

Almost impossible to replicate [2]

(b) Three from:

Fewer cashiers/security staff needed – less spent on wages

Fewer branch offices needed – less spent on rates/rent/utilities

Less actual cash handled – fewer robberies

Cheaper to advertise

Lower postal charges

Have access to a wider customer base

[3]

(c) Three from:

Less danger of mugging

Don't have to waste time travelling to bank

Don't have to spend money on travelling

Can bank at any time of day or night/can bank when banks are closed

Can use it anywhere if there's an internet connection

Can ask for a loan over the Internet without being embarrassed

[3]

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15 Six from:

Advantages

Can call meeting at short notice

No need to pay travelling expenses

Can work from home

Will save time travelling

Do not have to pay hotel expenses

Do not have to pay for conference room facilities

Safer as participants do not have to travel

Don't have to transport/carry equipment/lots of documents/documents don't get lost in transit

Disadvantages

Takes time to learn new technology/to be trained

Difficult to have international meetings because of time differences

Initial cost of hardware

Equipment can break down/power cuts can stop conference

Strength of signal/time lag/lip sync can be a problem/ connection can be lost/power cuts

Loss of personal/social contact

Legal documents cannot be signed

+1 for reasoned conclusion

[6]

16 Three from:

Phishing is done by email

Can invite you to go to a website/respond to an email

Pharming is done by installing malicious code on a pc or server

Redirects a genuine website's traffic to hacker's website

[3]

17 Seven from:

Type in/use keyboard

Use touch screen

Scan Bar code/use bar code reader

Swipe Magnetic stripe/magnetic stripe reader

Use biometric methods

OMR

Chip reader

Three max. for methods

Magnetic stripe quicker than keying in

Bar codes more accurate than keying in

Magnetic stripe more accurate than keying in

Keyboard entry more robust than bar codes

Keyboard can be used to enter additional data unlike bar code reader

Magnetic stripe more robust than bar codes

Biometric methods difficult to forge

Biometric methods more accurate than other methods

[7]