

**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.

Mark schemes must be read in conjunction with the question papers and the report on the examination.

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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)

[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]

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]

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]

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	✓	(1)
Analyse the existing system		
Identify any limitations of the system	✓	(1)
Identify any necessary improvements to the system	✓	(1)
Analyse the users' responses to the results of testing the system	✓	(1)
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]