

**MARK SCHEME for the October/November 2013 series**

**0417 INFORMATION AND COMMUNICATION  
TECHNOLOGY**

**0417/11**

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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- 1 A Numeric keypad B Chip reader  
C Remote control D Trackerball [4]

2 **Bridge** DVD R Light pen [1]

Magnetic tape Printer **Switch** [1]

3

	TRUE	FALSE	
Withdrawing money from an ATM is an example of batch processing		✓	[1]
The processing of bank cheques is an example of batch processing	✓		[1]
Booking a theatre ticket is an example of online processing	✓		[1]
Producing utility bills is an example of online processing		✓	[1]

4 (a) The most suitable storage medium for storing data on a bank card is **a chip** [1]

(b) The tool which searches for matches in a knowledge base **an inference engine** [1]

(c) An optical disc which can have data updated is **a DVD RW** [1]

(d) Multi part stationery is used with **a dot matrix printer** [1]

5 **Bar code reader** → **To enter hard copy images into a computer** [1]

**Microphone** → **creating a piece of text** [1]

**Scanner** → **selecting items from a menu** [1]

**Keyboard** → **inputting data from a food item at a POS** [1]

**Mouse** → **creating a voice over for a presentation** [1]

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6 (a) **Two** from:

- Less likely to lose it
- May have stronger signal
- Display is larger/keyboard is larger
- Content is not as limited
- Can be faster to access internet
- No problem with batteries running out
- Has a mouse so is easier to navigate/use

[2]

(b) **Two** from:

- Don't always have access to PC/there may be a power cut
- Difficult to carry/not very portable/mobile phone is portable/Cannot access internet except in the house
- You have to buy extra hardware/router

[2]

7

	<b>Internet</b>	<b>Intranet</b>	
is a network of computer networks	✓		[1]
exists usually within one organisation		✓	[1]
anybody can access it	✓		[1]
can be expanded to become an extranet		✓	[1]

8

	<b>Spam</b>	<b>Pharming</b>	
is the sending of several emails at once	✓		[1]
requires malicious code to be downloaded		✓	[1]
re-directs the user to a fake website		✓	[1]
is the sending of unsolicited messages	✓		[1]

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9 **Four** instructions and **four** paired meanings from:

INSTRUCTION	MEANING
FORWARD $n$	Move $n$ mm forward
BACKWARD $n$	Move $n$ mm backward
LEFT $t$	Turn left $t$ degrees
RIGHT $t$	Turn right $t$ degrees
PENUP	Lift the pen
PENDOWN	Lower the pen
REPEAT $n$	Repeat the following instructions $n$ times
END REPEAT	Finish the REPEAT loop

1 for instruction and 1 for meaning

[8]

10

	True	False	
A file is a collection of related records	✓		[1]
A field is one item of data such as name or address	✓		[1]
The same value can occur several times within a key field		✓	[1]
A record is the complete data about one student	✓		[1]

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11 (a) Four from:

Sensors are used to monitor patient's vital signs  
 ...such as temperature, blood pressure, pulse, sugar levels (2 required for mark)  
 Sensors send data/signals back to computer  
 ADC converts analogue signals from sensors...  
 ...to digital so that computer can understand/read the data  
 Graphs are output  
 Inputs are compared to acceptable range of values  
 If higher/lower warning signal is triggered [4]

11 (b) Four from:

Readings can be taken more frequently  
 Nurses can get tired and forget to take readings/nurses are so busy they might not be able to take readings regularly  
 Computer readings are more accurate/human errors are reduced  
 More than one variable can be measured at any one time  
 Results can be analysed automatically/Charts are produced automatically  
 Automatic warnings can be generated/faster to react  
 Nurses are free to do other tasks  
 Reduces chances of nurses being exposed to contagious diseases  
 Reduced cost of wage bill/fewer nurses will be needed [4]

12 (a) E5 [1]

(b) Any of A1:B6, C1:G1, B8, E8 [1]

(c) 7 [1]

(d) = C2\*F2 or = C2\* (E2–D2) [1]

(e) 1 mark per point

Highlight F2 and click copy  
 Highlight F3:F6 and click paste

**OR**

Highlight F2 and manoeuvre to bottom right hand corner of F2  
 Using fill handle/little black square/cross drag down to F6/double click on fill handle/little black square/cross

**OR**

Highlight F2:F6  
 Click on fill then down [2]

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**12 (f) Three** from:

- Real thing may be too expensive to build/cost of rebuilding/repairing is expensive
- Real thing requires too large a time scale/it may take a long time to obtain results from the real thing
- Real thing would be too wasteful of materials
- Real thing is too vast a scale
- Easier to modify/change data/variables
- Costs less to change data/variables
- The real thing may be impossible to access/create
- Real thing may be too dangerous
- You can test predictions more easily/model can make predictions more accurately
- You can ask many what if questions which would be impractical in real life

[3]

**13 Four** from:

- With a CLI Instructions must be typed to get a computer to carry out an action
- With a GUI you just click on an icon
- With a GUI icons represent applications
- With a CLI you have to remember the exact path and name of application
- With a CLI it is more important that users understand how a computer works
- With a GUI menus are offered to help choose an action
- With CLI have to learn/understand commands

[4]

**14 (a)**

Field name	Validation Check	
Reference_number	Character check/range check/length check/check digit	[1]
Year	Range check/Character check	[1]
First_name	None	[1]
Family_name	None	[1]
Sibling	Yes or No	[1, 1]

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(b) **Five** from:

Verification is checking that data has been entered/copied correctly  
 Usually achieved by double data entry...  
 ...or visual check  
 Validation is checking that data entered is reasonable/sensible  
 One mark is available for a correct explanation of an example of one validation check

*Must have both because:*

Data might be sensible but has not been transcribed/transferred accurately  
 Data might have been transcribed/transferred accurately but may not be sensible [5]

15 (a) **Two** from:

Browser to access bank's website [1]  
 ISP to have access to internet [1]

(b) **Six** from:

*Advantages*

Don't have to waste time travelling (long distances) to banks  
 Don't have to spend money on travelling expenses travelling (long distances) to banks  
 No embarrassment of having to ask for loans face to face  
 Can bank when banks are closed  
 Can use it anywhere if there's an internet connection

*Disadvantages*

May not like the lack of personal touch  
 There may be less opportunity for socialising with friends/neighbours  
 Possibly more expensive phone bills  
 Hackers can access personal details and transfer money to their account  
 You have to have Internet access  
 Unable to withdraw cash

One mark is available for a reasoned conclusion  
**Maximum** four advantages or disadvantages [6]

16 **Four** from:

Can be a website/software  
 Users can create/add content/pages  
 Users can modify content/pages  
 Users can delete content/pages  
 Using a web browser  
 Using a simplified mark-up language/a rich-text editor  
 Are often created collaboratively by multiple users  
 Examples include community websites, corporate intranets, knowledge management systems [4]

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**17 Three from:**

Electrocution – RCB installed/don't allow liquids near computers/make sure cables are insulated  
 Fire – CO<sub>2</sub> extinguisher/don't overload sockets  
 Tripping – create ducts/cover cables with carpets etc. [3]

**18 Five 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  
 Can lead to unhealthy eating due to dependency on ready meals  
 Can lead to laziness/lack of fitness  
 Can encourage a healthy lifestyle because of smart fridges analysing food constituents  
 Microprocessor controlled burglar alarm provides a sense of security  
 Do not have to leave home to get fit  
 Manual household skills are lost/deskilling regarding household tasks [5]

**19 Five 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

Benefits:  
 Protects sensitive data...  
 ...from being understood if it falls in to the wrong hands  
 Only user/computer with key can understand data

Drawbacks  
 Data can still be deleted from system  
 Criminals can use encryption to keep incriminating material secure [5]