CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

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.

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the October/November 2013 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

CAMBRIDGE
International Examinations

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	**inputting data from a food item at a POS** [1]
Microphone	**creating a voice over for a presentation** [1]
Scanner	**To enter hard copy images into a computer** [1]
Keyboard	**creating a piece of text** [1]
Mouse	**selecting items from a menu** [1]

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

	Internet	Intranet	
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

	Spam	Pharming	
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]

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]

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]

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 date/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]

(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]

17 **Three** from:

Electrocution – RCB installed/don't allow liquids near computers/make sure cables are insulated
Fire – $\underline{CO_2}$ 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]