CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2012 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 2012 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

1   A   Webcam   B   Speaker
    C   Number pad   D   Touchpad   [4]

2   graphics tablet   keyboard   ⬭laser printer⬮   [1]

    ⬭motor⬮   optical character reader   web cam   [1]

3

	True	False	
Computer programs are examples of software	✓		[1]
A web authoring package is an example of hardware		✓	[1]
An icon is a component of a command line interface		✓	[1]
A mobile phone (cell phone) uses flash memory	✓		[1]

4

    (a)   **A dot matrix printer**   is used to print on continuous multi-part stationery   [1]

    (b)   **A buzzer**   is used to output sound   [1]

    (c)   **A graph plotter**   is used in CAD applications for very large printouts.   [1]

    (d)   **A laser printer**   is used to produce high quality and high volume printouts. [1]

    (e)   **A tracker ball**   is used to move a pointer on a screen.   [1]

5   **Three** from:

    Monitors and controls incoming and outgoing data traffic
    Helps to prevent malware getting into computer/from the internet
    Prevents computer accessing undesirable/unauthorised sites
    Prevents unauthorised computers using the internet accessing the computer
    Keeps a list of undesirable sites/IP addresses
    Keeps a list of acceptable sites/IP addresses
    Warns you regarding threats/allows you to accept/reject downloaded programs   [3]

6 (a) **Two** from:

Data could be corrupted on original medium
Data could be accidentally amended/overwritten on original medium
Data could be accidentally deleted from original medium
Data could be maliciously deleted from original medium   [2]

   (b) **Two** from:

Virus is a piece of programming code
Which replicates itself...
Can fill up storage medium making it unusable
Deletes data/change data
Makes software/operating system unusable   [2 max]

If the original medium has a virus the backup will have it as well/backup will have no effect on the hard disc so it is still susceptible to viruses   [1]

7 **Three** from:

Blog usually has a single author/ a Wiki usually has many authors
Blog is usually in reverse chronological structure/ a Wiki has a structure determined by content and users
Blog is usually personal/someone's opinion/ a Wiki is usually objective
Can't edit a blog/ a Wiki can be edited/ Can only add comments to a blog   [3]

8

	Online	Batch	
Paying for goods at an EFTPOS	✓		[1]
Producing electricity bills		✓	[1]
Booking a holiday	✓		[1]
Producing payslips		✓	[1]

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Page 4	Mark Scheme	Syllabus	Paper
	IGCSE – October/November 2012	0417	11

9

PENDOWN	FORWARD 70
FORWARD 70	REPEAT 4
RIGHT 90	FORWARD 40
PENUP	RIGHT 90
FORWARD 70	END REPEAT
PENDOWN	

1 mark for each statement correctly placed

Other less economical solutions can gain full marks   [8]

10 Five from:

Benefits:
Can call meeting at short notice
No need to pay travelling expenses
Can work from home
Employees 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

Four max.

Drawbacks:
Takes time/costs money to learn new technology/to be trained
Difficult to have international meetings because of time differences
Initial cost of hardware (and software)
Equipment can break down/power cuts can stop conference
Poor strength of signal/time lag/lip sync can be a problem/ connection can be lost
Loss of personal/social contact
Legal documents cannot be signed

Four max.   [5]

11

Take regular breaks from working at the computer	
Do not overload electrical sockets	✓ [1]
Make sure all cabling is securely tied	✓ [1]
Sit with your back upright at all times	
Always have a CO_2 fire extinguisher in the room	✓ [1]
Use a wrist rest when typing	

12 (a) **Two** from:

Temperature
Humidity
Moisture
pH   [2]

(b) Sensor measures analogue   [1]
Computer works in digital   [1]
Analogue to digital converter   [1]

(c) **Four** from:

microprocessor compares light reading with preset value
if lower than pre-set value microprocessor sends signal to switch on light bulb
if higher than pre-set value microprocessor sends signal to switch off light bulb
process is continuous/ monitoring of sensors is continuous   [4]

13 (a) **Three** from:

Card number
PIN
Expiry date
Type of card/issuer
Security number   [3]

(b) **Three** from:

Card is valid/card number exists
Card is in date
PIN entered matches that on card
Checks if card is stolen   [3]

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Page 6	Mark Scheme	Syllabus	Paper
	IGCSE – October/November 2012	0417	11

(c) Five from:

Customer bank contacted
Bank looks up customer account number
Checks available balance
Checks daily (card) limit
If insufficient funds then transaction is rejected
If sufficient funds then transaction is authorised
Money deducted from customer account
Money credited to supermarket account   [5]

14 (a) Three from:

Examining documents of the current system
Distribute questionnaires to users of the current system
Interview users of the current system
Observing the current system/workers/users   [3]

(b)

Field name	Validation Check	
Book Title/Author	none	[1]
Author/ Book Title	none	[1]
Price	Range check	[1]
Fiction/Non-Fiction	Boolean	[1], [1]
Hardback/Paper back	Boolean	[1], [1]

(c) Any **three** matched pairs from

A value between 0 and 20
This is normal data and should be accepted by the system

0 or 20
This is extreme data and should be accepted by the system

Any number above 20 or text
This is abnormal data and should be rejected by the system   [6]

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Page 7	Mark Scheme	Syllabus	Paper
	IGCSE – October/November 2012	0417	11

15 (a) Optical Mark Recognition/Reader   [1]
        Optical Character Recognition/Reader   [1]

   (b) **Six** from:

       OCR and OMR are quicker methods of entering data compared to a keyboard
       OMR has limited uses such as exam answers
       OMR can be used in school registers
       Optical Character Recognition is more prone to errors
       OCR can be used by utility companies to read meters/to make entered text editable
       Keyboard is used to input data manually/typing
       Keyboard can be more accurate than OCR/less accurate than OMR
       Keyboard and OCR can input text more easily than OMR
       Pre printed stationery is required for OMR
       Specialised equipment is required for OCR/OMR   [6]

16 (a)

Robots are cheap to buy	
Running costs are lower as humans have to be paid wages	✓
Robots never need maintenance	
Humans cannot work continuously	✓
Robots can work in hazardous conditions	✓
There is lower productivity with robots	
Robots produce the same standard of finished product every time	✓
Humans have greater accuracy than robots	

                                                                                 [4]

   (b) **Three** from:

       Programming robots
       Changing robot arm tools/end effectors
       Maintaining robots
       Supervising operations
       Quality control/inspecting finished cars   [3]

17 **Three** from:

   installing malicious code on a PC or server
   user is redirected to bogus website
   user accesses websites which look authentic
   but belong to the fraudster/hacker
   are used to gain bank/personal details   [3]