

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.

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- 1 A Webcam B Speaker
 C Number pad D Touchpad

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]

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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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- 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]

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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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(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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15 (a) Optical Mark Recognition/Reader
Optical Character Recognition/Reader

(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]