

**MARK SCHEME for the May/June 2014 series**

**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 should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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- 1 **A** Laptop computer [1]  
**B** Laser printer [1]  
**C** Bar code reader [1]  
**D** Graphics tablet [1]

- 2 **Two** from:  
Touch screen  
Microphone  
Buttons  
Keypad [2]

3

	True	False
Viruses can be transmitted by opening e-mail attachments.	✓	
MICR is used to read data from bar codes		✓
Hard discs can store more data than Blu-ray discs	✓	
Regular use of computers can cause headaches	✓	

[4]

- 4 **Two** from:  
Send an email  
Send an SMS/text message  
Use instant messaging  
Send a fax  
Leave a message on voicemail  
Make a phone call  
Use VOIP  
Send an alert on the company intranet/website  
Social networking  
Video conference [2]

- 5 **Three** from:  
Sensors take more accurate readings  
Possibly less danger to students  
Students could lose concentration and forget taking some readings  
More readings can be taken in a short period of time  
Results can be automatically/more quickly produced  
Graphs are automatically produced [3]

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- 6 RIGHT 90
- PENDOWN [1]
- REPEAT 6 [1]
- FORWARD 100 [1]
- LEFT 60 [1]
- END REPEAT [1]

7 (a) A1/A2/A4/A5/A6/A7/B2/C2/D2/E2 [1]

(b) D5 [1]

(c) 5 [1]

(d) Any cell in range B4:D7 [1]

(e) = C5–B5 [1]

8 (a) Visual verification [1]  
Double data entry [1]

(b) Range: Number\_in\_Stock [1]  
Length: Area\_code [1]  
Check digit: Serial\_number [1]

9

	True	False	
Robots never take breaks.	✓		
More workers are employed.			
Faster cars are produced.			
Standard of the product is more consistent.	✓		
Robots never break down.			
Robots don't need paying.	✓		
No humans are needed.			
Greater productivity.	✓		[4]

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- 10 (i) Webcam
- (ii) Microphone
- (iii) Speaker
- (iv) Router [4]
- 11 (a) Appropriate spacing for each field [1]  
 Forward/backward buttons/save(submit) – must have at least two navigation aids [1]  
 Information fills the page AND is clearly a screen form [1]
- Title [1]  
 Author's name [1]
- Four** from:  
 Reference number/ISBN/Publisher/Picture of cover/Dewey number/Genre or  
 Category/fiction or non-fiction/target age group/picture of author/date [2]
- Three** from:  
 Published/revision date/summary of contents/no. of copies/cost price/selling price  
 Number of pages/hardback or softback [1]
- Maximum of five marks**
- (b) Fixed hard/magnetic disc [1]
- Two** from:  
 Fast data access  
 Stores a lot of data  
 Cannot be misplaced [2]
- (c) **Three** from:  
 Firewalls to only allow authorised computers to use the system  
 User name/id and password will prevent users who do not know the password from accessing  
 the system  
 Biometric methods – fingerprints/retina scans are unique  
 Description of twin factor system [3]
- (d) **Three** from:  
 Parallel running is running the old and new system together  
 Direct changeover is stopping the old system and starting the new one immediately  
 Phased implementation – new system is implemented part by part  
 Pilot running – system is implemented in one branch/office (at a time) [3]

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- (e) (i) **Two** from:
- How to load software/ run software/install software
  - How to save a file
  - How to search
  - How to sort
  - How to print
  - How to add records
  - How to delete/edit records
  - Purpose of the system
  - Input format or example
  - Output format or example
  - Hardware requirements
  - Software requirements
  - Sample runs/test runs
  - Limitations of the system
  - Troubleshooting guide/contact details/help line/faqs
  - Error messages/handling
  - Tutorials
- [2]

- (ii) **Two** from:
- Program coding/listing
  - Name of program language
  - System flowchart
  - Program flowchart/algorithm
  - List of variables
  - File structure
  - Purpose of the program
  - Purpose of the system (only if not mentioned in user documentation)
  - Input format or example (only if not mentioned in user documentation)
  - Output format or example (only if not mentioned in user documentation)
  - Hardware requirements (only if not mentioned in user documentation)
  - Software requirements (only if not mentioned in user documentation)
  - Sample runs/test runs (only if not mentioned in user documentation)
  - Limitations of the system (only if not mentioned in user documentation)
  - Known bugs
  - Validation routines
- [2]

12 (a) Chip/magnetic stripe/bar code reader [1]

- (b) Advantages – **Two** from:
- Unique so students can't check each other in
  - Students could forget cards
  - Students could lose cards
  - Sets of cards may be expensive to buy
- Disadvantages – **Two** from:
- Students will feel personal liberty infringed/parents might object to children's fingerprints being taken
  - Method can be slower than cards
  - Equipment/set up is more expensive
  - Time taken to gather all the fingerprints would be very long
- [4]

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**13 Five from:**

*Advantages:*

- Don't have to spend money on travelling to shops
- Goods may be cheaper as shops have less staff to pay/less premises to rent
- Don't have to pay car parking charges
- Don't have to pay for shopping bags
- Vouchers/special deals are often only available online
- Comparison websites will find you the cheapest option/can compare prices more easily

*Disadvantages:*

- May have to pay delivery charges
- Postal costs of returning items
- Initial cost of equipment/phone line
- ISP costs/Possible high connection charges

Must have at least one advantage and disadvantage to gain full marks.

One mark is available for a reasoned conclusion

[5]

**14 Four 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 analyzing 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

[4]

**15 (a) Up to two from:**

- Save photos to memory card
- Insert memory card to computer
- Copy photos to a new folder/desktop/hard disc
- Connect camera lead to computer
- Import/upload photos

**Up to two from:**

- Load word processing package/open document
- Insert image from folder/copy and paste/drag and drop
- Edit/position the image

If camera is phone-based/web-enabled allow email/SMS for 1 mark

**Maximum of three marks**

[3]

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**(b) Two** from:  
 Internet  
 Create own using a painting/drawing package  
 CD of images  
 Clipart library [2]

**(c) Four** from:  
 Laser is cheaper to buy than a dot matrix  
 Laser is faster at printing than other two for this task  
 Laser has a better quality printout than dot matrix  
 Laser has a larger paper tray than inkjet  
 Laser doesn't need to change cartridges as often as an inkjet [4]

**16 Three** from:  
 Highlight A4 to C6/highlight A4 to A6 and C4 to C6  
 Select insert chart  
 Select type of chart  
 Label axes  
 Select legend/no legend  
 Create a heading/title [3]

**17 Five** from:  
 Microprocessor is programmed with pre-set values  
 Microprocessor starts cycle at specified time  
 Microprocessor reads data from sensors  
 Checks contact switch on door is closed  
 If it isn't microprocessor will not start the cycle/if it is microprocessor starts cycle  
 Microprocessor compares sensor readings with pre-set value  
 If temperature is above pre-set value, microprocessor switches off heater  
 If temperature is below pre-set value, microprocessor switches on heater  
 If pressure is greater than preset value, microprocessor sounds alarm  
 Microprocessor checks pressure reading and calculates the amount of water to use  
 At start of cycle, microprocessor opens valve to let in water  
 If water level reached, microprocessor switches off valve  
 Microprocessor ends cycle at specified time [5]

**18 (a) Three** from:  
 Is credit card number valid/exists  
 Does name entered match that on system  
 Is expiry/start date valid/matches date stored on system  
 Does security code/CVV entered match that stored on system  
 Is there available credit/funds  
 Checks for unusual spending patterns  
 Is card blocked/reported stolen/lost [3]

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**(b) Four** from:

- Looks up required date of performance
  - Checks that seats are available
  - Flags seats as being booked
  - Stores name of customer with seats booked
  - Sends email confirmation/text
  - Prints tickets ready to post or to be collected/sends electronic version of ticket
  - Deducts number of seats booked from number of seats available/reduces number of seats available (by one)
- [4]

**19 Six** from:

- Mobile phones/laptops are portable, PCs are not
  - Keyboard on mobile phone is smaller/difficult to type
  - Mobile phone display is smaller than laptop or PC
  - Mobile phone may not be able to access certain sites
  - Signal is likely to be more reliable with PC/laptops as they can be cabled
  - Slower to access the internet with mobile phone
  - May not always be able to access the internet using a mobile phone or laptop
  - More likely to have a mobile phone with you
  - Can access the internet from greater number of places with a mobile phone
  - Easier to use a mobile phone while on the move
  - Some sites do not have full facilities for mobile phones
- [6]