CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

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.

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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]

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]

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]

(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]

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]

(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]