CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the May/June 2015 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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Cambridge is publishing the mark schemes for the May/June 2015 series for most Cambridge IGCSE®, Cambridge International A and AS Level components and some Cambridge O Level components.

CAMBRIDGE
International Examinations

1 (a) **Two** from:

Joystick
Microphone
Tracker ball
Concept keyboard
Touch screen
Scanner
Digital camera
Graphics tablet
Webcam [2]

(b) **Two** from:

Hard disk drive
Optical disc drive
Flash memory card reader/writer
Solid State Drive [2]

(c) **Two** from:

Dot matrix printer
Laser printer
Inkjet printer
Speakers
Monitor [2]

2

	Parallel running ✓	**Direct Change-over** ✓	**Pilot running** ✓	
All of the old and new systems run at the same time	✓			[1]
If the system fails in one branch the rest of the company is not affected			✓	[1]
The new system has to be completely free of errors before implementation		✓		[1]
The benefits of the new system are available immediately		✓		[1]

3

	Input device ✓	Output device ✓	Storage device ✓	
Making a backup of work			✓	[1]
Typing a document	✓			[1]
Printing out student records		✓		[1]
Reading details from a bar code	✓			[1]
Making a soft copy for future use			✓	[1]

4

	User ✓	Technical ✓	Both ✓	
Systems flowchart		✓		[1]
How to save a document	✓			[1]
List of variables		✓		[1]
The purpose of the system			✓	[1]

5 **(a)** MICR [1]

(b) a bar code reader [1]

(c) Chip reader [1]

6 **(a)** FORWARD 10 is missing before first PENUP/5th instruction/after 4th instruction/first RIGHT 90/ between 4th and 5th instruction [1]

(b) First FORWARD 20 (6) should be FORWARD 10 [1]

Second PENUP (8) should be PENDOWN [1]

FORWARD 90 (9) should read FORWARD 35 [1]

RIGHT 35 (10) should read RIGHT 90 [1]

7 (a)

Pressure sensor	✓
Height sensor	
Wind speed sensor	
Sound sensor	
Temperature sensor	✓
Moisture sensor	✓
Cold sensor	
Detergent sensor	

[1]

[1]

(b) **Five** from:

Microprocessor stores pre-set values
Reads data from sensors
Microprocessor compares readings with pre-set value
If temperature is at or above the pre-set value microprocessor sends a signal to turn the heater off
If temperature is below pre-set value microprocessor sends a signal to turn the heater on
At start of cycle, microprocessor sends a signal to open valve to let in water
If water level reached microprocessor sends a signal to switch off valve
If pressure is above preset value microprocessor sends a signal to sound alarm
Microprocessor checks pressure reading and calculates the amount of water to use [5]

8 **Six** from:

Contactless systems reduce the time taken by retailers to deal with each customer
Customers don't need to queue for so long as contactless cards speed up the transactions/ quicker than inserting the card and entering the PIN
Only checks whether the card is not cancelled or stolen not always making a full check on what the balance of the holder's account is.
Customers are limited in what they can buy as transactions must be below a certain value
In some cases, the customer can unwittingly pay for another customer's purchase if they get too close to the terminal.
A thief armed with a suitable reader, within a few feet of the customer, would be able to interrogate all of the cards in their wallet without their knowledge.
If customer lost card a thief could make purchases without having to know a PIN
Customer can pay twice as terminal may detect the card for contactless payment but has inserted the card to use the PIN.
Customer doesn't have to worry about PIN being overseen/shoulder surfed [6]

9 (a) Four from:

Searches for the value 38
38 is the lookup value
Searches in the range A2:C10
It returns the value that is contained in the third column of the range...
…and on the same row as the lookup value…
…if it's an exact match of 38 [4]

(b) Four from:

There is no return value/FALSE/0…
…to force an exact match
The data is not sorted on column D
So only an approximate match will be made
First four items in column D are sorted so as soon as it gets to D6 it's is no longer sorted…
…so it doesn't get to 33…
So formula will return David [4]

10 Five from:

Max four from:
e.g.
Fewer secretaries needed – computers provide much of the secretarial expertise once provided by a secretary
Fewer general office staff needed – workload has been reduced by the storage capacity of computers
Computerised accounting packages – fewer accountants needed
Stock control used to require specialists but is now done through computerised checkout systems
Security systems – computerised security gates have caused a reduction in the number of people employed for store security
Automated return and issue systems in libraries have led to a number of library staff being made redundant
Production lines are now operated by robots reducing the number of jobs available to production line workers

Max four from:
Increase in employment of ICT systems/network maintenance workers
Increase in employment of robot maintenance workers
Increase in employment of programmers
Increase in employment of web designers
Increase in employment of computer operators
Increase in employment of van drivers by online retail industries
More workers needed to manufacture robots [5 max]

11 **Four** matched pairs from:

Modem/Router
To connect the network to the internet

Hub/Switch
To connect the computers to form a network

(Internet) browser
To access the bank's website/to search on different websites/allow access to internet (if not given elsewhere)

ISP (contract)
To access the internet/to provide internet services

Telephone line
To connect the router to the internet [8]

12 **Six** from:

Load/open web authoring package
Create tables
Take photo using digital camera/ordinary camera or video camera
Upload from camera
Save the image/video
Load webpage
Import/copy and paste/insert image into document/embed image source into markup
Position the image/resize image/edit image
Type text/import text files
Edit/format text
Insert spreadsheet
Insert/copy data from spreadsheet
Paste data into table
Create chart from spreadsheet
Edit chart
Insert chart/ copy and paste chart
Upload web page to internet [6]

13

	✓	
Initial purchase of hardware and software is expensive	✓	[1]
Bank workers will have to be paid more		
Extra buildings will be need to be rented		
System maintenance costs may be high	✓	[1]
Cost of lighting and electricity will be higher		
More cashiers will need to be employed		
More security staff will need to be employed		
Redundancy payments will need to be made to cashiers who are now unemployed	✓	[1]

14 **(a)** .csv/.txt/.rtf [1]

(b) Text/alphanumeric [1]
Text/alphanumeric [1]
Text/alphanumeric [1]
Numeric/Integer [1]
Date [1]

(c) **Two** matched pairs:

Student_Id [1]
It would make sure that it would consist of two letters followed by 6 digits [1]

joined_the_school [1]
It would make sure that it would consist of two digits, a slash, two digits, a slash followed by 4 digits [1]

(d) All 5 correct fields – 2 marks
4 correct fields – 1 mark
fewer than 4 correct fields – 0 marks
Additional fields lose 1 mark each down to a minimum of 0 marks [2]

Three from:

Appropriate spacing for each field
Forward and backward buttons
Drop down boxes for joined_school field/calendar to choose dates from
Information fills the page [3]

15 **Six** from:

Testing modules with abnormal data
Testing modules with data that is outside the range
Testing modules with data that is of the wrong type/format/length
Testing modules with normal data
Testing modules with data that is within the range
Testing modules with data that is of the correct type/format/length
Testing modules with extreme data
Testing modules with data that is at the boundaries/ends of the range
After testing each module thoroughly…
…testing the whole system
Description of user testing
Testing with live data [6]

16 **(a)** **Six** from:

Uses interactive interface/interactive interface asks questions about geological profile
Answers to questions are typed in
geological profile is typed in
Further questions are asked based on previous responses
expert system analyses data
inference engine compares data…
…compares data with that held in the knowledge base...
...using rules base
matches are found
Probabilities of oil being present are suggested
Depths of likely deposits are suggested
Predictions of geological strata above the deposits of oil are output [6]

(b) **Two** from:

Medical diagnosis
Car engine fault diagnosis
Computer fault diagnosis [2]