MARK SCHEME for the October/November 2014 series

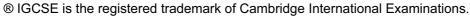## 0417 INFORMATION AND COMMUNICATION TECHNOLOGY

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.

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the October/November 2014 series for most Cambridge IGCSE®, Cambridge International A and AS Level components and some Cambridge O Level components.

1   (a) **Two** from:
        Number pad
        Keyboard
        Microphone
        Web cam
        Touchpad   [2]

    (b) Screen   [1]
         Speaker   [1]

2   Magnetic stripe   [1]
    Chip   [1]

3

Using Multipart stationery	✔	[1]
Producing high quality printouts		
Producing A0 printouts		
CAD applications		
Producing continuous printouts	✔	[1]
Producing printouts of photographs		

4

Software	Task	
Measuring program	monitoring atmospheric pressure	[1]
Control program	keeping temperature constant in a greenhouse	[1]
Spreadsheet	Modelling personal finances	[1]
Presentation software	Creating a slide show	[1]
Search engine	finding information on the internet	[1]

5

Pen drives are used to make backups on large company file servers.		✓	[1]
Magnetic tapes use direct access when searching for records.		✓	[1]
Fixed hard discs have slower access times than optical discs.		✓	[1]
DVD RWs allow you to save new data to them	✓		[1]
A CD has greater storage capacity than a DVD		✓	[1]

6 (a) Command Line Interface/CLI [1]

(b) Graphical User Interface/GUI [1]

7 (a) 5 [1]

(b) Any cell in the range B3:D6 [1]

(c) A1 or any cell in ranges A2:E2 or A3:A6 [1]

(d) = b4–c4
b–c formula [1]
Row 4 [1]

(e) = if(c5 > 150, "Yes", "No")
Correct syntax of if() [1]
C5 > 150 [1]
"Yes", "No" [1]

8

PEN DOWN	FORWARD 20	[1]
FORWARD 10	PENUP	[1]
LEFT 90	FORWARD 40	[1]
FORWARD 25	PENDOWN	[1]
RIGHT90	FORWARD 25	
FORWARD 30	RIGHT 90	
RIGHT 90	FORWARD 40	[1]

9 (a) **Two** from:
Make their file/work read only
Password encrypt their file/work
Grant people access to their file/work without permission to edit
Make their file/work hidden [2]

(b) Modem/router [1]

(c) **Two** from:
Email
Instant messaging
VOIP
Video conferencing [2]

(d) Advantage
Unauthorised users won't be able to understand data/only person/computer with key can understand data

Disadvantage
The data can still be deleted/if the person encrypting the data accidentally deletes the encryption key the data will be unreadable [2]

10 (a) Issue – heavy equipment falling injuring users [1]
Prevention – sturdy tables/place heavy equipment in centre of tables [1]

Issue – fire might be caused [1]
Prevention – CO_2 extinguisher/don't overload sockets/have fans/cooling system [1]

(b) **Three** from:
A piece of programming code/software/program/script
It replicates itself
Attaches itself to files
Corrupts/deletes files/data
Can corrupt or erase the contents of the hard disk
Can completely fill the hard disk/memory making it unusable/slows down operations
Makes software/operating system unusable
One mark is available for an accurate description of method of transmission [3]

(c) **Three** from:
Software that gathers data from computers without the user realising
It monitors and records all key presses
It sends this information back to the hacker who sent it out
Used to gain personal details of users [3]

11 (a) **Two** matched pairs from:

Interview users of the existing system
Asking questions about the system face to face/in person

Distribute questionnaires to users of the existing system
Asking questions about the system in hard copy form

Observation of the existing system/workers in action
To see all aspects of the system/whole overview to see how system works

Examining documents about the current system
To see inputs and outputs to the system [4]

(b) **Four** from:
Data capture forms
Screen layouts
Report layout
Screen displays
Validation routines
Data/file structures [4]

(c) **Two** matched pairs from:

Parallel running
There is always the old system to fall back on in the event of the new system failing/training can be gradual

Phased implementation
You still have most of old system to fall back on/training can be gradual

Pilot running
Only one branch is affected if new system fails/other branches can learn from the branch's experiences [4]

12 (a) **Two** from:
Router
Web cam
Microphone
Network card
Speakers [2]

(b) **Four** from:
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 [4]

13

Patients are always cured.		
Patient records can be sorted into order more easily.	✓	[1]
Doctors can find patient records more quickly.	✓	[1]
Patients' medicines are never lost.		
Fewer doctors are needed.		
Nurses don't have to be paid as much.		
Takes up less filing space	✓	[1]

14 (a) Two from:
Pen drives are easier to carry than CDs
Most computers have USB ports not all have CD drives
Pen drives store more data than a CD   [2]

(b) Two from:
Pen drives are more expensive than CDs
Pen drives are easier to lose than CDs
Saving directly to a pen drive can be problematical   [2]

15 (a) (i) Bar code reader   [1]

(ii) Chip/magnetic strip readers   [1]

(b) Check digit   [1]

(c) Four from:
Product number is searched for in stock file
Matching number in stock reduces by 1
Compare number in stock with re-order level
If number in stock is less than re-order level product is re-ordered
Order is automatically sent to supplier   [4]

(d) The PIN on the chip is compared with the typed in PIN   [1]

(e) Four from:
Bank looks up customer account number
Checks available balance
If insufficient funds then transaction is rejected
If sufficient funds then transaction is authorised
Amount deducted from customer account
Amount credited to supermarket account   [4]

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16 Three from:
Cheques are collected together…
…during the course of the day
Cheques are then processed all at once
Cheques are processed overnight
Bank accounts updated following morning [3]

17 (a) Three from:
Customers can pay bills
Customers can amend/create standing orders/direct debits
Customers can order a new PIN
Customers can stop a cheque
Customers can see recent/pending transactions
Customers can apply for a loan
Have access to up-to-date bank statements/can check account balances
Can transfer funds between the customer's different accounts
Can amend personal details [3]

(b) Withdraw cash/pay in cash [1]

(c) Three from:
Fewer bank tellers so less paid out in wages
Less actual cash handled – fewer robberies
Have access to a wider customer base
Fewer branch offices needed – less spent on rates/rent/utilities
Less money spent on security staff [3]

(d) Three from:
Initial cost of hardware/software is expensive
Need to retrain staff
Loss of customers/more difficult to sell other services due to lack of personal touch
System maintenance may be expensive/costs of system maintenance [3]