

**CAMBRIDGE INTERNATIONAL EXAMINATIONS**

Cambridge International General Certificate of Secondary Education

**MARK SCHEME for the May/June 2015 series**

**0417 INFORMATION AND COMMUNICATION  
TECHNOLOGY**

**0417/11**

Paper 1 (Written), maximum raw mark 100

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- 1 (a) Sensor [1]  
Touchpad [1]
- (b) Printer [1]  
Screen [1]
- (c) Pen drive [1]  
DVD drive [1]

2

Use	MICR ✓	Trackerball ✓	Sensor ✓	
Reading data from a cheque	✓			[1]
Inputting the temperature of a greenhouse			✓	[1]
People with limited motor skills using computers		✓		[1]
For inputting the amount of humidity in a weather station			✓	[1]

3

Application	Device	
Produces very high quality printing where speed is not an issue	Inkjet printer	[1]
Production of continuous stationery where noise is not an issue	Dot matrix printer	[1]
Produces rapid, high quality and high volume printing	Laser printer	[1]
Produces very large printouts such as size A0	Graph plotter	[1]

4

	Blog ✓	Microblog ✓	Wiki ✓	
Very restricted on size of post		✓		[1]
Allows readers to edit posts			✓	[1]
Entries are <b>not</b> usually in chronological order			✓	[1]
Very difficult to customise		✓		[1]

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- 5 (a) The type of processing used for processing cheques is called **batch** [1]
- (b) The type of access used on a magnetic disc is called **direct** [1]
- (c) An item of hardware which is used to open a window is called a **motor** [1]

6

PENDOWN	<u>PENDOWN</u>	PENDOWN	PENDOWN
LEFT 90	<u>REPEAT 2</u>	LEFT 90	FORWARD 30
FORWARD 20	<u>FORWARD 30</u>	FORWARD 20	RIGHT 90
RIGHT 90	<u>RIGHT 90</u>	RIGHT 90	FORWARD 30
PENUP	<u>END REPEAT</u>	PENUP	RIGHT 90
<u>FORWARD 10</u>	<u>FORWARD 30</u>	FORWARD 10	FORWARD 30

**OR**

1 mark for each correct instruction [6]

7 (a)

Pressure sensor	✓	[1]
Oxygen level sensor		
Wind speed sensor		
Sound sensor	✓	[1]
Body sensor		
Moisture sensor		
Infra-red sensor	✓	[1]
Touch sensor		

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(b) Five from:

Microprocessor checks input from the user is authentic  
Microprocessor continually monitors sensors.

If infra-red sensor reading changes  
If pressure greater than pre-set value...  
If sound greater than pre-set value...  
Microprocessor sends signal to sound alarm  
Microprocessor sends signal to flashing light/house lights.  
Microprocessor automatically sends message/calls/texts owner

[5]

8 (a)

Activity	Analysis ✓	Design ✓	Evaluation ✓
Interviewing the users of the new system			✓
Interviewing the users of the existing system	✓		
Planning the validation routines		✓	
Examining existing documents	✓		

[1]

[1]

[1]

[1]

(b) Three names and descriptions from:

Parallel running  
Current system and new system run alongside each other

Pilot running  
New system introduced in one branch and other branches continue with old system

Direct changeover  
New system replaces old system immediately/overnight

Phased implementation  
New system is introduced one module/step at a time

[6]

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**(c) Three from:**

Program listing  
 Name of program language  
 Flowchart/algorithm  
 List of variables  
 File structure  
 Purpose of the system/program  
 Purpose of the program  
 Input format or example  
 Output format or example  
 Hardware requirements  
 Software requirements  
 Sample runs/test runs  
 Known bugs  
 Validation routines  
 Limitations of the system

[3]

**(d) Three 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  
 Troubleshooting guide/contact details/help line/FAQs  
 Error messages/handling  
 Tutorials

[3]

**9 (a) two from:**

Visual verification  
 Visually comparing the data on screen...  
 ...with the source document

**OR****two from:**

Double data entry  
 Data is typed in twice by one typist  
 Data is typed in by two operators  
 Computer compares versions

[2]

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(b) Type in =d3/c3 [1]  
\*100 [1]

OR OR

Type in =d3/c3 in e3 [1]  
Set the format to % [1]

(c) **Three** from:

Click on E3  
Manoeuvre to bottom right hand corner of cell  
Until black cross appears  
Black cross dragged down to E22

Or **three** from:

Right click on E3  
Select copy from menu  
Select E4 to E22  
Right click and click on paste [3]

(d) **Two** from:

Less dangerous to use a model  
Real thing may represent too large a time scale/ it may take a long time to obtain results from the real thing - genetics etc. Too large a time scale required  
Real thing may be wasteful of materials  
Real thing may be on too vast a scale  
Easier to change data/variables  
The real thing may be impossible to access/create  
You can test predictions more easily/model can make predictions more accurately  
You can ask many whatif questions which would be impractical in real life [2]

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10

Redundancy payments to former workers are expensive	✓	[1]
The cars produced are not of a consistent standard		
Robots are unable to think for themselves	✓	[1]
Robots do not go on strike		
Robots are expensive to buy	✓	[1]
Mistakes are never made.		
Maintaining robots costs money	✓	[1]
Car workers have to be paid more		

11 (a) **Two** from:

- Electronic junk mail/sending of unsolicited emails
- Sent to everybody on a mailing list/many emails sent at once
- Can slow down networks
- Can fill up the receiver's mail box and therefore hard disk

[2]

(b) **Four** from:

- Phishing
- Fraudster sends an e-mail which appear to be authentic
- is sent by a fraudster posing as a bank/organisation
- provides a link to a bogus website

- Pharming
- installing malicious code on a pc or server
- user is redirected to bogus website
- user accesses websites which look authentic
- website belongs to the fraudster/hacker

[4]

12 (a) **three** from:

- Network cards
- Modem/Router
- Hub/switch
- Cables
- Telephone line

[3]

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(b) **Three** from:

Using social networks  
 Booking tickets  
 Playing educational games  
 Watching videos/music  
 Send/receive emails  
 Create a blog/description of blogging  
 Researching current affairs/school work  
 Looking at the news  
 Reading ebooks/books online

[3]

(c) **Two** from:

Copy onto removable storage medium  
 At regular intervals  
 Store the medium away from the computer  
 Make incremental backups

[2]

(d) **Two** from:

User id can sometimes be easily guessed  
 Passwords can be hacked with key logging software  
 Passwords can be hacked by using random password generators

**Four** from:

Question is asked such as mother's maiden name/customer's birthplace/date of birth  
 Question selected can be difficult to answer by hacker.  
 Answers can be intercepted by hacker  
 Using a chip and pin reader with bank card to generate a one off transaction code which user enters into online banking  
 Bank issues a one off transaction code to the user's phone which user enters into online banking  
 Even if hacker intercepts code is no use to him/her as can only be used once  
 Inconvenient as have to keep reader and card with you if you want to bank remotely  
 Using fingerprint scanner to capture digital image of fingerprint  
 Each fingerprint is virtually unique/ Each retina is unique/ Each iris is virtually unique  
 Fingerprint scanners can be inaccurate  
 Fingerprints can alter when people do sustained heavy manual work  
 Civil liberty issues  
 Using a retina scanner to detect retina pattern  
 Cataracts/astigmatism can affect accuracy of reading  
 Equipment cost is high  
 Using a digital camera to record image of the iris  
 High quality images of an iris can be used to 'fool' the system  
 Biometrics are nearly impossible to forge

[6]



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13 (a)

Field name	Data type	
<i>Film_title</i>	Text/alphanumeric	[1]
Format/blu-ray/DVD	Boolean	[1], [1]
Rental_Cost	Currency	[1], [1]
<i>Name_of_director</i>	Text/alphanumeric	[1]

(b) **Four** from:

set up a query

rental cost &lt; 3

select appropriate fields to include in report

create an appropriate report title

set up a header

set up a footer

use appropriate alignment within fields

Select appropriate font/font size for heading

Select appropriate font/font size for field names

Select appropriate font/font size for field contents

[4]

14 **Six** from:*Borrower:*

Advantages:

Saves cost of travelling to the library

Saves time of travelling to library

More likely to be able to borrow a particular book/library has more copies

Will not be fined for going over borrowing period

Disadvantages:

Might not have finished reading book when it disappears

Have the expense of buying the correct hardware

*Library:*

Advantages:

Saves cost of salaries as some staff have been made redundant

Librarians will have more time to spend on other duties

Don't have to worry about books not being returned

Disadvantages:

Will lose income from not collecting fines

[6]