

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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| | | | |
|---------------|--|-----------------|--------------|
| Page 2 | Mark Scheme | Syllabus | Paper |
| | Cambridge IGCSE – May/June 2015 | 0417 | 11 |

- 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 not usually in chronological order | | | ✓ | [1] |
| Very difficult to customise | | ✓ | | [1] |

| | | | |
|---------------|--|-----------------|--------------|
| Page 3 | Mark Scheme | Syllabus | Paper |
| | Cambridge IGCSE – May/June 2015 | 0417 | 11 |

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 | | |

| | | | |
|--------|---------------------------------|----------|-------|
| Page 4 | Mark Scheme | Syllabus | Paper |
| | Cambridge IGCSE – May/June 2015 | 0417 | 11 |

(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]

| | | | |
|---------------|--|-----------------|--------------|
| Page 5 | Mark Scheme | Syllabus | Paper |
| | Cambridge IGCSE – May/June 2015 | 0417 | 11 |

(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]

| Page 6 | Mark Scheme | Syllabus | Paper |
|--------|---------------------------------|----------|-------|
| | Cambridge IGCSE – May/June 2015 | 0417 | 11 |

(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]

| | | | |
|--------|---------------------------------|----------|-------|
| Page 7 | Mark Scheme | Syllabus | Paper |
| | Cambridge IGCSE – May/June 2015 | 0417 | 11 |

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]

| | | | |
|---------------|--|-----------------|--------------|
| Page 8 | Mark Scheme | Syllabus | Paper |
| | Cambridge IGCSE – May/June 2015 | 0417 | 11 |

(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]

| | | | |
|--------|---------------------------------|----------|-------|
| Page 9 | Mark Scheme | Syllabus | Paper |
| | Cambridge IGCSE – May/June 2015 | 0417 | 11 |

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 < 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]