

**CAMBRIDGE INTERNATIONAL EXAMINATIONS**

Cambridge International General Certificate of Secondary Education

**MARK SCHEME for the March 2016 series**

**0417 INFORMATION AND COMMUNICATION  
TECHNOLOGY**

**0417/12**

Paper 1 (Written Paper), 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.

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- 1 (a) PC/desktop [1]
- (b) Laptop [1]
- (c) Tablet [1]
- (d) Smartphone [1]

2

|   | <b>CLI</b><br>(✓) | <b>GUI</b><br>(✓) |
|---|-------------------|-------------------|
| Instructions have to be typed.          | ✓                 |                   |
| Applications are represented by icons.  |                   | ✓                 |
| Options are chosen from a menu.         |                   | ✓                 |
| Many instructions have to be memorised. | ✓                 |                   |

4 correct answers – 2 marks  
 2 or 3 correct answers – 1 mark  
 1 correct – 0 marks

[2]

3

|  | <b>TRUE</b><br>(✓) | <b>FALSE</b><br>(✓) |
|--|--------------------|---------------------|
| A multimedia projector is used to output slide shows.  | ✓                  |                     |
| A laser printer is a type of page printer.   | ✓                  |                     |
| An inkjet printer cartridge lasts longer than a laser printer toner cartridge producing the same output. |                    | ✓                   |
| A dot matrix printer produces very high quality printouts quickly.                                       |                    | ✓                   |

4 correct answers – 2 marks  
 2 or 3 correct answers – 1 mark  
 1 correct – 0 marks

[2]

|               |                                     |                 |              |
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4 (a) job sharing [1]

(b) part-time working [1]

(c) working flexible hours [1]

(d) working compressed hours [1]

5 Any **four** from:

Know how to block and report unwanted users,

Never arrange to meet anyone alone

Always tell an adult first when arranging to meet someone

Always meet in a public place

Avoid inappropriate disclosure of personal data/set privacy settings/Avoid giving email address or phone number when chatting

Avoid inappropriate disclosure of your own name/Avoid giving your full name

Avoid giving your address

Avoid giving your school name

Avoid displaying a picture in school uniform

Do not display pictures taken at home/Do not display pictures taken of the school with the name attached/Do not send pictures/videos of yourself to strangers

Ensure that the person you are befriending has very secure privacy settings

Check profiles before contacting people

Verify person's contact details with other trusted people/friends [4]

6 Good example of a strong password – (1 mark)

Good example of a weak password – (1 mark)

Any **two** from:

Weak password is easy to guess/strong password is difficult to guess

Weak passwords consist of all letters or all digits or all digits with one letter/all letters with one digit

Weak password is one that has few characters

Strong password uses mixture of upper case letters, digits and punctuation marks

Weak password has repeated characters

Weak password has characters next to each other on a QWERTY keyboard

Weak passwords are ones that are similar to the user name

Weak passwords are passwords that relate to the user [4]

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**7 Any four from:**

- Destination B is input by driver
  - Position of motor vehicle at A is calculated using GPS...
    - ...using data transmitted from 3/4 satellites
  - Algorithm calculates shortest distance from A to B (going through C)
  - Algorithm calculates distance from A to B not going through C
  - Makes allowances for traffic in town C
  - Takes into account average road speeds...
    - ...using traffic/speed sensors on roads
  - Takes into account regular updates of traffic conditions
  - Takes into account max. speed on the road/type of road
- [4]

**8 Any four from:**

*Router*

- The network software in the original computer determines that the destination computer is on a different network...
  - ...using IP addresses
- Data is sent to the switch/hub and then passed to router
- the router then passes it to the router of the other network
- that router passes it to the switch/hub...
  - ...to the destination computer

*Bridge*

- The computer sends the data to the bridge via the hub/switch...
    - ...using MAC addresses
  - if the protocol/MAC address is same, bridge passes data to the other network
  - Bridge passes it to the switch/hub...
    - ...to destination computer with correct MAC address
- [4]

**9 (a) Any two from:**

- Both involve you being assigned a fax (phone) number
  - Both can involve use of a hard copy original
  - Both require the use of a phone line
- [2]

**(b) Any three from:**

- Physical faxing requires purchase of a fax machine/electronic faxing requires use/purchase of a computer/scanner
  - Physical faxes can be picked up by anyone/electronic faxing goes straight to your email address
  - Physical faxes – phone-line could be busy/engaged – electronic faxes – phone line never registers as busy/engaged
  - Physical faxes – must have paper and can get paper jams
  - Electronic fax is quicker to arrive than physical
- [3]

|               |                                     |                 |              |
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**10 (a)** Any **three** from:

- Name
  - Passport number
  - Date of birth
  - Place of birth
  - Nationality
  - Issue date
  - Expiry date
  - Facial characteristics/photograph/fingerprint/retina scan
  - Biometric measurements (face)
  - Signature
  - Gender
  - Place of issue
- [3]

**(b)** Any **three** from:

- The chip is presented near a computer with a radio-frequency scanner
  - The scanning antenna puts out radio-frequency signals in a relatively short range.
  - It provides a means of communicating with the transponder/the RFID tag
  - The scanning device provides energy...
  - ...so that the chips can broadcast the information in them...
  - ...for the computer to read.
- [3]

**(c)** Any **two** from:

- More secure than a traditional passport as biometric measurement data difficult to forge
  - Counterfeits can be more easily identified than non-RFID passports
  - More rapid flow at security check points/quicker than reading it manually
- [2]

**11 (a)** Appropriate spacing for each field (1 mark)

- Forward/backward buttons/save (submit) - must have at least two navigation aids. (1 mark)
- Candidate attempts for information to fill the page AND is clearly a screen form (1 mark)

- All six of the given fields – 3 marks
  - Five of the given fields – 2 marks
  - Four of the given fields – 1 mark
  - Each additional field other than those given minus 1 mark, to a mark of zero of fields
- [6]

**(b) (i)** format/picture check  
must consist of one letter, three digits, space, three letters

[2]

**(ii)** range check  
must be  $\geq 140$  and  $\leq 180$

[2]

**(c) Engine\_size > 1.4 OR Parking\_sensors = "Y"**

- 1 mark for Engine\_size
  - 1 mark for > 1.4
  - 1 mark for Parking\_sensors
  - 1 mark for = "Y"
  - 1 mark for OR
- [5]

|               |                                     |                 |              |
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- (d) K674 TUV  
R123 AZN  
U283 BBV  
K943 SCG

2 marks is all four registrations are shown and correct.  
1 mark if all five registrations shown [2]

12 (a) B4\*C4 [1]

- (b) =\$B\$1\*D4 or =D4\*\$B\$1 or =B\$1\*D4 or =D4\*B\$1

1 mark for B1  
1 mark for correct absolute referencing B\$1 or \$B\$1  
1 mark for \*D4 or D4\*  
Minus 1 mark per incorrect or added operator [3]

- (c) Any **three** from:

When formulae are replicated/copied/dragged down/fill down...  
...some cell references must remain unchanged  
If it wasn't used when the formula in E4 was replicated down it would multiply by B2, B3 etc.  
These cells are either blank or contain values not equal to 25%/need to be 25% [3]

(d) SUM(F4:F8) [1]

13 (a) Any **two** from:

HyperText Transfer Protocol  
HTTP is a communication protocol used on the internet to allow communication between two computers (devices)  
HTTP is an application protocol/set of rules  
HTTP is the foundation of data communication for the World Wide Web [2]

- (b) Any **two** from:

HTTP is not secure/HTTPS is secure...  
...uses SSL/HTTP does not use SSL  
HTTPS transmits data over the internet in an encrypted form/HTTP transmits data over the internet in an unencrypted form  
HTTPS requires additional processing power in its servers which could result in slowdown of responses [2]

|               |                                     |                 |              |
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**14** Any **four** from:

Computer might be infected with spyware detecting key presses which slows down data transfer speeds over the internet

Computer might be infected with viruses taking up memory and limiting bandwidth.

If the computer's memory is close to full, data transfer speed over the internet can slow down considerably

The search might be too general giving irrelevant information as well as relevant information

Search providers add targeted marketing adverts from companies to the search results/ your search results are gathered to target further marketing/advertising

[4]

**15** .txt is a text (file) used by a variety of text editors (1 mark)

.rtf is rich text (format) for a rich text file that is readable by most word processing software (1 mark)

Any **three** from:

RTF has many more features than TXT.

RTF is capable of basic font formatting while TXT isn't.

RTF is capable of paragraph formatting while TXT isn't.

RTF is capable of creating bulleted lists while TXT isn't.

RTF files can include images while TXT cannot.

.TXT takes up less memory

[5]

**16** Any **five** from:

Change the font type to make it more informal/appealing

Change the font size bigger

Simplify the language

Make the heading centred

Make the font size for the heading larger than the body text

Add interesting/relevant images

Bold/underline/highlight/italicised keywords

Bold/underline/highlight headings

Line spacing after paragraphs/in paragraphs

Colour text to emphasise keywords/headings

Change the existing border to a more interesting/relevant border

[5]

**17** **Stage 1** reflected through the Y axis (1 mark)

**Stage 2** rotated through 90° (clockwise) about the origin (1 mark)

**Stage 3** reflected about the Y axis (1 mark)

Filled with black colour (1 mark)

[4]

|               |                                     |                 |              |
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**18 Any four from:**

When you want to apply different formatting in the same page without disrupting the formatting of the whole page.

When you want to use columns in a page, and have different amounts of columns on the same page.

When you want to use a heading across the whole page but the text below is in several columns.

When you don't want headers on pages with a title, but you do want them on other pages.

If you didn't have them, each page would have the same header.

To enable page orientation to change between 2 pages.

[4]

**19 To be marked as a level of response:**

**Level 3 (7–8 marks)**

Candidates will address both aspects of the statement and discuss/consider greater security but also possible lack of security.

The issues raised will be justified. There must be a reasoned conclusion.

The information will be relevant, clear, organised and presented in a structured and coherent format.

**Level 2 (4–6 marks)**

Candidates will address both aspects of the statement and discuss/consider greater security but also possible lack of security although development of some of the points will be limited to one side of the argument.

There may be a conclusion.

For the most part the information will be relevant and presented in a structured and coherent format.

**Level 1 (1–3 marks)**

Candidates may only address one aspect of the statement or give reasons why there is greater security but also possible lack of security

Answers may be simplistic with little relevance.

**Level 0 (0 marks)**

Response with no valid content

[8]

**Examples of more secure:**

Data more difficult to copy

Larger amount of information can be stored

Disabled people find it easier than signing

Reduces disputes at checkouts over validity of signature/Saves time at checkouts

Not affected by magnetic fields

Even when the card is stolen, the thief still needs the PIN, so it is much safer

Magnetic stripe reader had to be in a fixed location.

If the transaction did not take place near a terminal (in a restaurant, for example) the card had to be taken away from the customer to the card machine.

It was easily possible for a dishonest employee to swipe the card surreptitiously through a cheap machine...

...which would take a couple of seconds to record the information on the card and stripe

Even at the terminal, the criminal could bend down in front of the customer and swipe the card on a hidden reader.

Illegal cloning of cards easy, and a common occurrence.

only the magnetic stripe can be copied, and a copied card cannot be used on a PIN terminal



|               |                                     |                 |              |
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The introduction of chip and PIN coincided with wireless data communications technology becoming inexpensive and widespread  
Wireless PIN pads were introduced that could be brought to the customer and used without the card ever being out of sight  
However, this would have been possible, had the technology been available, with magnetic stripe cards  
Chip and PIN and wireless together reduce the risk of cloning of cards by brief swiping.

**Examples of not always secure because:**

Cards can still be cloned  
People can be careless when using their PIN.  
Credit and debit card fraud has gone down with chip and pin  
ATM fraud has gone up.  
Hidden cameras sometimes are used to see which keys are pressed for the PIN.  
The advent of chip and pin has also generated a rise in phishing