



Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

INFORMATION AND COMMUNICATION TECHNOLOGY

0417/12

Paper 1 Written

May/June 2016

MARK SCHEME

Maximum Mark: 100

Published

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 May/June 2016 series for most Cambridge IGCSE[®], Cambridge International A and AS Level components and some Cambridge O Level components.

© IGCSE is the registered trademark of Cambridge International Examinations.

This syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **9** printed pages.

- 1 (a) Touchpad [1]
- (b) Joystick/trackerball [1]
- (c) Keyboard [1]
- (d) scanner [1]

2

	TRUE (✓)	FALSE (✓)
A mouse is an output device		✓
The Control Unit is part of the Central Processing Unit	✓	
The Arithmetic and Logic Unit is part of the Central Processing Unit	✓	
A temperature sensor is an input device	✓	

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

[2]

3

	Internet (✓)	Intranet (✓)
A public computer network	✓	
It is easier to protect sensitive data from hackers		✓
The content is more easily controlled		✓
Exists within a single organisation only		✓

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

[2]

Page 3	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – May/June 2016	0417	12

- 4 (a) a (computer) virus [1]
- (b) encryption [1]
- (c) https/SSL/TLS [1]
- (d) a digital certificate [1]
- 5 **Four** from:
- Use a spam filter/anti-spam software
 - Do not reply to spam/suspicious messages
 - Do not click on any links/attachments in a spam/suspicious message
 - Use a disposable email address
 - Use a complex email user name
 - Do not give out your email address online/do not register using email on untrusted websites/opt out of marketing
 - Read messages as text
 - Do not use your email address as an online username
 - Changing to an email provider who filter spam [4]
- 6 (a) A WLAN [1]
- (b) (i) A (Wireless) Access Point/wireless node [1]
- (ii) It is connected to a switch/hub [1]
- (c) Can get interference from another radio signal/speed of data transmission can be slower
Other valid answers like physical obstacles/walls [1]
- 7 (a) **Two** from:
- Voice over Internet Protocol
 - A set of rules that enable people to use the Internet to make telephone calls/talk each other
 - Sends voice data in packets using IP [2]
- (b) **Two** from:
- Microphone
 - Speakers/headphones
 - Headset [2]

Page 4	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – May/June 2016	0417	12

8 Two from:

Can lead to unhealthy eating due to dependency on ready meals

Can lead to laziness

Lack of fitness/exercise

Manual household skills are lost

[2]

9 (a) Four from:

The bank account details are read from the chip

The (ATM) checks to see if the card is valid

The customer is asked which language/currency they require

The customer is asked to type in their PIN

The typed PIN number is compared with that stored in the chip...

...if they are the same the transaction proceeds

...if they are not the same the customer is asked to re-enter PIN

If three failed attempts transaction rejected and card withheld

The customer is asked which service is required

Customer is asked if they want a printed balance/onscreen balance

If yes, signal sent to print balance/message sent to screen giving balance

The customer is asked if further services are required

[4]

(b) Three from:

Checks whether card is stolen/account number exists

Customer account number is searched

Balance field is read/is calculated

Message sent to ATM giving balance

[3]

10 (a) (i) Account number

[1]

Bank/branch sort code

[1]

Cheque number

[1]

(ii) Three from:

Requires a special Magnetic Ink Character reader/scanner/Details are scanned

The magnetic ink on the cheque passes over a magnet in the reader/scanner which

charges/magnetises the ink

The MICR reader/scanner then reads the magnetic signal given out by the magnetic ink characters on the cheque.

Each character produces a unique signal which is read and translated by the MIC reader

[3]

(b) Two from:

More difficult to forge

Even if overwritten/damaged can still be read by computer

Information is human readable

[2]

11 Three matched triples from:

- Direct changeover [1]
 New system replaces existing system immediately/overnight [1]
 A small organisation which can afford to lose data/where system needs to be up and running very quickly/where the new system has been thoroughly tested [1]
- Parallel running [1]
 New system runs alongside/together with existing system [1]
 An organisation with large amounts of data which would take too long to re-enter / cannot afford to lose data/where time taken/cost to implement is not an issue/where the new system needs to be thoroughly tested [1]
- Phased implementation [1]
 New system is implemented part by part [1]
 An organisation where there are clearly defined separate processes/where the new system needs to be thoroughly tested [1]
- Pilot running [1]
 (Whole) system is implemented in one branch/one office (at a time) [1]
 An organisation where there are several branches all doing the same work)/where the new system needs to be thoroughly tested [1]
- [9 max]

12 (a)

Field name	Data type	
<i>Name</i>	Text/alphanumeric	[1]
Studentid	Text/alphanumeric	[1],[1]
Gender	<i>Boolean</i>	[1]
<i>Height</i>	Integer	[1]
Staying on/Leaving	Boolean/Logical	[1],[1]

(b) Two matched pairs:

- Gender
 M for male, F for female
- Staying on to 6th form /Leaving
 S/6 for Staying on to 6th form, L for Leaving [4]

(c) Studentid... – 1 mark
 ...Ascending – 1 mark [2]

Page 6	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – May/June 2016	0417	12

13 *FTP*

File Transfer Protocol/is used to transfer files from one computer to another (1 mark)

Differences

Three from:

HTTP is used to access the world wide web/web sites

FTP is used to download from file servers whereas http is used to download from web servers

FTP – files are transferred from one device to another and copied into memory

HTTP transfers the contents of a web page into a browser for viewing.

FTP upload is used in cases when the file size is very large

HTTP upload is used for smaller files.

[4]

14 (a) **Three** from:

Looks through the (contents of cells) H4 to H24

See if they are equal to (the contents of cell) B4/'AF'

It totals the contents of the corresponding cells from I4 to I24

Produces the result 65

[3]

(b) =SUMIF(\$H\$4:\$H\$24,B8,\$I\$4:\$I\$24)

= SUMIF(\$H\$4:\$H\$24, – 1 mark

B8, – 1 mark

\$I\$4:\$I\$24) – 1 mark

[3]

(c) =COUNT(I4:I24)

COUNT – 1 mark

(I4:I24) – 1 mark

OR

=COUNTA(I4:I24)

COUNTA – 1 mark

(I4:I24) – 1 mark

[2]

Page 7	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – May/June 2016	0417	12

15 Six from:

avoid using information from sites that have excessive advertising
 avoid using sites where the information from sites where advertising is related only to its own products...
 avoid sites where the date of the last update was a long time ago...
 avoid using wikis/sites which the user can edit
 avoid using blogs/sites which are clearly the owner's point of view/social networking sites
 Avoid using sites which have grammatical/spelling mistakes
 Don't just rely on using first website you come to in the results of using a search engine

use information from sites where responsible bodies have endorsed the site/sites which have links to other reliable sites/sites which have testimonials
 use sites where the author's credentials are good
 use sites which have .ac... , .gov, .edu as the final part of the URL/only use government/academic sites
 Compare information from different sites/ reliable/authenticated text books to see if the results are similar
 Ask teachers for advice on a site

In order to obtain full marks candidates must have at least one mention of things they should do and things they should avoid doing [6]

16 (a) .txt

Two from:

Text file with very little/no formatting/used by a variety of text editors
 Can be opened by any software package that reads text/generic text format
 Any formatting is lost when saved [2]

(b) .gif

Two from:

Graphic interchange format
 Bitmap graphic format/GIF files use data compression to reduce the file size
 Image format that will allow still or moving images to be stored [2]

(c) .pdf

Two from:

Portable document format
 Makes it possible to display text and graphics in the same fixed layout on any computer screen
 Reduces file size of read only document for transmission [2]

Page 8	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – May/June 2016	0417	12

17 Five from:

- In h1 colour should be color
- In h1 sans serif should be sans-serif
- In h1 18 px should be 18px (no space)
- In h2 color: 000000 should be color: #000000/color: #000
- In h2 Times New Roman should be "Times New Roman"/'Times New Roman'
- In h2 centre should be center

[5]

18 To be marked as a level of response:

Level 3 (7–8 marks)

- Candidates will describe in detail at least two types of user interface
- Detailed reasons why a keyboard is used with CLI systems will be given
- Detailed reasons why pointing devices are used with GUI systems
- Detailed reasons why different input devices relating to other different types of user interface are used may be given
- Descriptions of different types of pointing device
- The information will be relevant, clear, organised and presented in a structured and coherent format
- Specialist terms will be used correctly and appropriately

Level 2 (4–6 marks)

- Candidates will describe at least two types of user interface
- Reasons why a keyboard is used with CLI systems will be given
- Reasons why pointing devices are used with GUI systems
- Reasons why different input devices relating to different types of user interface are used may be given
- Different types of pointing device will be listed
- For the most part, the information will be relevant and presented in a structured and coherent format
- Examples will be given and will be mostly appropriate
- Specialist terms will be used appropriately and for the most part correctly

Level 1 (1–3 marks)

- Candidates will identify at least one user interface
- Input devices may be in the form of a list
- There will be little or no use of specialist terms
- Errors of grammar, punctuation and spelling may be intrusive

Level 0 (0 marks)

- Response with no valid content

Examples

Command Line Interface

- With a CLI Instructions must be typed to get a computer to carry out an action
- keyboard is used to type
- Typing is key component of CLI
- With CLI syntax has to be precise
- Devices other than a keyboard would be less accurate when entering text

Page 9	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – May/June 2016	0417	12

Graphical User Interface

With a GUI you just click on an icon

With a GUI icons represent applications

Separate windows are used for different pieces of work/software

With a GUI menus are offered to help choose an action

Moving a mouse enables users to manoeuvre a pointer around a screen

A mouse can be used to drag windows/icons around a screen

People with physical disabilities can use a trackerball to manoeuvre the pointer around a screen

Pointing devices are easier to control a pointer/menu selection/icon clicking

Joysticks can be used to mimic the behaviour of a mouse

Buttons on the mouse enable users to select icons

Buttons on a mouse enable users to see menus on a screen

Touchscreen can be used to directly select options from a screen

[8]