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

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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]

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]

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	
Name	Text/alphanumeric	[1]
Studentid	Text/alphanumeric	[1],[1]
Gender	*Boolean*	[1]
Height	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]

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]

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]

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

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]