Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME	

CENTRE NUMBER		CANDIDATE NUMBER	

INFORMATION AND COMMUNICATION TECHNOLOGY   **0417/12**

Paper 1 Theory   **May/June 2016**

                                                                                          2 hours

Candidates answer on the Question Paper.

No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

No marks will be awarded for using brand names of software packages or hardware.

Answer **all** questions.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

This document consists of **14** printed pages and **2** blank pages.

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1   Write down the **most** appropriate input device which matches the following descriptions:

   (a) This is provided with a laptop to imitate the functions of a mouse.

   .... [1]

   (b) This is not a mouse but is used to manoeuvre objects around the screen in computer video games.

   .... [1]

   (c) This is used to type in text.

   .... [1]

   (d) This is used for direct input of hard copy images.

   .... [1]

2   Tick whether the following statements are **true** or **false**.

	true (✓)	false (✓)
A microphone 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.		

[2]

3   Tick whether the following statements would most appropriately apply to the **internet** or an **intranet**.

	internet (✓)	intranet (✓)
A public computer network.		
Is easier to protect sensitive data from hackers.		
The content is more easily controlled.		
Exists within a single organisation only.		

[2]

4   Complete the following sentences.

   (a) A piece of programming code which maliciously deletes files is called

   .... [1]

   (b) The scrambling of data to make it unreadable by unauthorised users is called

   .... [1]

   (c) An internet protocol for delivering private messages using cryptography is called

   .... [1]

   (d) An attachment to an electronic message used to verify the identity of the sender is called

   .... [1]

5   Describe **four** methods you could use to minimise the likelihood of receiving spam emails.

   1 ....

   ....

   2 ....

   ....

   3 ....

   ....

   4 ....

   ....

                                                                                                              [4]

6 A school's Science department has a network which uses WiFi. A teacher has a laptop computer and whilst in school wishes to connect to this network.

(a) Write down the name of this type of network.

.... [1]

(b) In order to access the network the laptop must be within range of a type of WiFi network device.

(i) Write down the name of this type of device.

.... [1]

(ii) Describe how this device is connected to the network using an ethernet cable.

....

.... [1]

(c) WiFi networks can be limited in their range.

Describe **one** other disadvantage of a WiFi network compared to a cabled network.

....

.... [1]

7 (a) Explain what is meant by VOIP.

....

....

....

.... [2]

(b) Name **two** items of computer hardware that are needed in order to make a VOIP phone call from one computer to another.

1 ....

2 ....

[2]

8   There are many microprocessor controlled devices used in the modern home.

Describe **two** drawbacks in terms of lifestyle changes this has produced for the users of such devices.

1 ....

....

2 ....

....

[2]

9   A customer wishes to check the balance of their bank account and inserts their card into the ATM.

(a) Describe the computer processing which takes place at the ATM.

....

....

....

....

....

....

....

.... [4]

(b) Describe the computer processing which takes place at the bank's computer.

....

....

....

....

....

.... [3]

10 When a bank cheque is presented to a bank it is sent off to a cheque clearing centre.

(a) **(i)** Give **three** items of information that are pre-printed on the cheque in magnetic ink.

1 ....

....

2 ....

....

3 ....

....

[3]

(ii) Describe how MICR is used to read these details from the cheque.

....

....

....

....

....

.... [3]

(b) Explain why magnetic ink is used rather than bar codes on a cheque.

....

....

....

.... [2]

11 Name and describe **three** methods of implementing a new computer system. For each one describe the type of situation where each method might be used.

1 ....

....

....

....

....

2 ....

....

....

....

....

3 ....

....

....

....

....

[9]

12 Maria is the principal of the International Municipal school. She has employed Paulo, a systems analyst, to create a new database system to store records of her final year IGCSE students.

Examples of the details of the students which will be stored are:

Velia Grimaldi, A3058, Female, 161, Leaving

Giuseppe Campo, A3072 , Male, 177, Staying on to 6th form

Nicola Donati, B3085, Female, 173, Staying on to 6th form

Giovanni Agnelli, C3102, Male, 172, Leaving

(a) Complete the following table by entering the field names and **most appropriate** data type for each field.

For any numeric field, specify the type of number.

Field name	Data type
Name	
	Boolean
Height	

[7]

(b) Paulo wishes to save storage space. He does not change the Name field, but decides that two other fields could have their data shortened.

Apart from the Name field, identify the two other fields and describe how the contents will be shortened.

Field 1..

Shortened form 1...

Field 2..

Shortened form 2...

[4]

(c) There is no key field set. Maria's secretary typed in the data to the database in this order:

Giuseppe Campo, A3072, Male, 177, Staying on to 6th form

Giovanni Agnelli, C3102, Male, 172, Leaving

Nicola Donati, B3085, Female, 173, Staying on to 6th form

Velia Grimaldi, A3058, Female, 161, Leaving

Maria can get the database back in to the original order by sorting the data using one field.

Write down the name of this field and the order in which it will need to be sorted.

Field...

Order..

[2]

13 FTP is an internet protocol.

Explain what is meant by FTP and how it differs from HTTP.

....

....

....

....

....

....

....

.... [4]

14 Below is a spreadsheet showing contributions to a charity from different regions.

	A	B	C	D	E	F	G	H	I
1	The Manta Conservation Project								
2	Regional analysis								
3	Region	RCode		Currency	Regional income		Date	Rcode	Amount
4	Africa	AF		Rand	ZAR 65.00		20/01/2016	AF	15.00
5	Asia	AS		Yuan	¥3,752.50		20/01/2016	AS	150.00
6	Australasia	AU		Dollar	$142.50		20/01/2016	NA	2000.00
7	Europe	EU		Euro	€1,076.00		20/01/2016	EU	25.00
8	North America	NA		Dollar	$2,240.50		21/01/2016	NA	120.50
9	South America	SA		Real	R$75.75		21/01/2016	SA	50.00
10							21/01/2016	AF	50.00
11							21/01/2016	AS	25.00
12							21/01/2016	EU	15.00
13							22/01/2016	AU	140.00
14							22/01/2016	EU	1000.00
15							22/01/2016	NA	20.00
16							23/01/2016	SA	25.75
17							23/01/2016	EU	16.00
18							23/01/2016	NA	100.00
19							23/01/2016	AS	55.00
20							24/01/2016	AS	12.50
21							25/01/2016	AS	10.00
22							25/01/2016	AU	2.50
23							26/01/2016	EU	20.00
24							26/01/2016	AS	3500.00
25									
26							Number of donations		21

(a) Cell E4 contains the formula =SUMIF($H$4:$H$24,B4,$I$4:$I$24)

Using cell references explain what this formula does.

....

....

....

....

....

.... [3]

(b) What formula would you expect to see in cell E8?

.... [3]

(c) The formula in I26 only refers to the values in column I. Write down the formula you would expect to see in cell I26

.... [2]

15 Information on the internet can sometimes be unreliable. Discuss ways you could minimise the chance of finding unreliable information when searching the internet.

....

....

....

....

....

....

....

....

....

....

.... [6]

16 Describe what is meant by the following file formats.

   (a) .txt

   ....

   ....

   ....

   .... [2]

   (b) .gif

   ....

   ....

   ....

   .... [2]

   (c) .pdf

   ....

   ....

   ....

   .... [2]

17 The following is an external stylesheet which contains a number of mistakes.

```
h1 {
        colour: #000040;
        font-family: Arial, sans serif;
        font-size: 18 px;
        text-align: center;
}

h2 {
        color: 000000;
        font-family: Times New Roman, serif;
        font-size: 15px;
        text-align: centre;
}

body {
        background-image: url('j12backgd2.jpg');
        background-color: #025fb4;
}

table {
        border-collapse: collapse;
        border-width: 4px;
        border-style: solid;
        border-color: #000000;
}

td {
        border-width: 2px;
        border-style: solid;
        border-color: #000000;
}
```

Write down **five** mistakes which would prevent this stylesheet from working properly and, for each, give the correction.

1 ....

....

2 ....

....

3 ....

....

4 ....

....

5 ....

....

[5]

18 Discuss why different user interfaces require the use of different types of input device.

....

....

....

....

....

....

....

....

....

....

....

....

....

....

.... [8]

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