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Cambridge International General Certificate of Secondary Education

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INFORMATION AND COMMUNICATION TECHNOLOGY

0417/12

Paper 1 Theory

October/November 2019

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 in the spaces at the top of this page and any additional pages you use.

Write in dark blue or black pen.

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.

Any businesses described in this paper are entirely fictitious.

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

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



- 1 A student is creating a test plan for a validation routine. The input to be tested is an integer between 1 and 10. Tick whether the following are the most appropriate examples of normal data, abnormal data or extreme data.

	normal (✓)	abnormal (✓)	extreme (✓)
one			
4			
10			
3.2			

[4]

- 2 Tick whether the following statements relate to a command line interface (CLI) or a graphical user interface (GUI).

	CLI (✓)	GUI (✓)
This interface does not need a pointing device		
This is an example of a WIMP interface		
The user has to type in instructions		
This interface takes up more memory in the computer		

[2]

- 3 Complete the following sentences, using the most appropriate items from the list.

An app **Coding** **A data projector** **A linker** **Pen drive**
Quantum cryptography **A TFT monitor** **A touch screen** **Vision enhancement** **Web cam**

- (a) is an example of system software.
 (b) is an example of an output device that can also act as an input device.
 (c) projects an image inside the headset of the user.
 (d) is a form of encryption of data.

[4]

4 This diagram shows a smartphone.



(a) Name **three** input devices found on a smartphone.

- 1
- 2
- 3 [3]

(b) Name **one** storage device which is available in a smartphone.

..... [1]

(c) Name **two** output devices found in a smartphone.

- 1
- 2 [2]

5 People are buying laptop computers rather than desktop computers.

Give **four** advantages of using a laptop computer rather than a desktop computer.

- 1
-
- 2
-
- 3
-
- 4
-

6 The computer technician at Tawara School is planning to set up ten new computers to be placed in the staffroom to form a network. The network will not be connected to the internet. Assume the school currently has no hardware or software for this network.

(a) State the steps that the technician would need to take to set up this network.

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.....
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.....
.....
..... [4]

(b) The teachers have asked the head teacher if they can access the internet. The computer technician will need to attach a router to the network.

Explain how a router works.

.....
.....
.....
.....
.....
.....
.....
..... [3]

8 Files can be saved in a generic file format.

(a) Explain why generic file formats are needed.

.....
.....
.....
..... [2]

(b) Complete the following sentences, using the most appropriate file format from the list below.

- | | | | | |
|-------------|-------------|-------------|-------------|-------------|
| .css | .csv | .doc | .gif | .htm |
| .pdf | .png | .rar | .sdb | .xls |

- (i) is a stylesheet used in the creation of web pages. [1]
- (ii) is a generic archive file format. [1]
- (iii) is a generic file format that stores still and moving images. [1]
- (iv) takes data in the form of tables and saves it as text. [1]

- 9 The director of a small airport has asked his airport manager to look into the punctuality of departures. The manager obtained details of some of the departures on one day. He has created a spreadsheet, which contains both the airport data and the times of departure. Part of the spreadsheet is shown.

	A	B	C	D	E	F
1	Airport code	Airport name				
2	ALG	Algiers				
3	BKK	Bangkok				
4	BXW	Bawean				
5	DEL	Delhi				
6	DOH	Doha				
7	CPH	Copenhagen				
8	GVA	Geneva				
9						
10	Scheduled departure time	Actual time of departure	Minutes late	Airport code	Destination	Late/on time
11	14:00	15:13	73	CPH	Copenhagen	L
12	14:15	17:40	205	ALG	Algiers	L
13	14:45	14:58	13	DOH	Doha	L
14	14:45	14:48	3	DOH	Doha	L
15	14:50	15:05	15	BKK	Bangkok	L
16	14:50	14:50	0	GVA	Geneva	OT
17	14:50	14:59	9	BXW	Bawean	L

- (a) Write a formula that would be entered in cell F11 to display the letter L if the value in C11 is greater than 0 or the letters OT if it is not.

=

..... [3]

- (b) Write a formula, without using named ranges, that would be entered in cell E11. The formula must be easy to replicate. It should display the name of the airport, using the Airport code from cell D11 and the list of Airport names.

=

..... [6]

- (c) The airport manager is producing a report of his findings to present to the director. The data will change from day to day.

Before he can produce the findings he needs to enter a formula in cell F19 to count the number of late departures from the airport.

	A	B	C	D	E	F
10	Scheduled departure time	Actual time of departure	Minutes late	Airport code	Destination	Late /on time
11	14:00	15:13	73	CPH	Copenhagen	L
12	14:15	17:40	205	ALG	Algiers	L
13	14:45	14:58	13	DOH	Doha	L
14	14:45	14:48	3	DOH	Doha	L
15	14:50	15:05	15	BKK	Bangkok	L
16	14:50	14:50	0	GVA	Geneva	OT
17	14:50	14:59	9	BXW	Bawean	L
18						
19					Late	6
20					On Time	1
21						

Write the formula, without using a named range, to be entered in cell F19.

=

..... [3]

- (d) Name the most appropriate type of chart/graph he could produce to show the proportion of late departures and those that leave on time.

..... [1]

12 A sports club is planning a new computerised record keeping system to replace their manual system.

(a) A systems analyst recommends that new software is required. The analyst could either write the software or purchase it off the shelf.

Give **two** advantages to the sports club of the analyst writing the software.

1

.....

2

.....

[2]

(b) Explain why it is better to use a computer to store the records rather than the manual system.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [6]

- (c) The systems analyst recommends that the system is implemented using direct changeover, but the sports club feel that parallel running should be used.

Describe direct changeover and parallel running, giving a different benefit and drawback of using each method of implementation.

Direct changeover

Benefit

Drawback

Parallel running

Benefit

Drawback

[6]

13 Many companies that make microprocessors use robots to carry out the task rather than using humans.

(a) Give **three** advantages of using robots to carry out the task.

- 1
-
- 2
-
- 3
-

[3]

(b) Give **three** disadvantages of using robots to carry out the task.

- 1
-
- 2
-
- 3
-

[3]

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