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International Education

Cambridge IGCSE™

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INFORMATION AND COMMUNICATION TECHNOLOGY

0417/12

Paper 1 Theory

October/November 2021

2 hours

You must answer on the question paper.

No additional materials are needed.

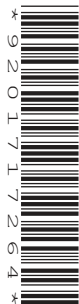
INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- You may use an HB pencil for any diagrams, graphs or rough working.

INFORMATION

- The total mark for this paper is 100.
- The number of marks for each question or part question is shown in brackets [].
- No marks will be awarded for using brand names of software packages or hardware.

This document has **16** pages. Any blank pages are indicated.



2

1 A computer consists of both hardware and software.

(a) Give **two** examples of input devices which are part of a laptop computer.

1

2 [2]

(b) There are two types of software: system and applications.

Give **two** examples of system software.

1

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2

..... [2]

2 Tick (✓) the most appropriate printer which relates to the following statements.

	3D (✓)	Dot matrix (✓)	Laser (✓)
This printer is an impact printer			
This printer uses toner			
This printer uses an inked ribbon			
This printer uses tomography			

[4]

3 (a) Describe **two** disadvantages of using a tablet computer rather than a laptop computer.

1

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2

..... [2]

3

- (b)** Modern computers often do not have an optical drive.

State **two** ways music can be transferred onto a computer that does not contain an optical drive.

1

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2

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[2]

- 4** Write down the most appropriate network device to match the following statements. Your answers should be different in each part.

- (a)** This network device checks the data packet arriving from one computer and sends the data to a specific computer.

..... [1]

- (b)** This network device sends the data packet from a computer to all devices connected to it.

..... [1]

- (c)** This network device connects a LAN to the internet.

..... [1]

- (d)** This network device connects one LAN to another with the same protocol.

..... [1]

4

- 5** The Internet of Things (IoT) is a computer network which allows users to control household devices remotely. It has many benefits, for example a user can turn on the house central heating via a smartphone. The IoT can use WiFi and Bluetooth which can cause problems regarding data security.

Describe the methods that could be taken to protect the user's data.

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..... [6]

Evaluate your use of computer keyboards in terms of health risks, and explain any strategies you use to minimise these health risks.

[8]

6

- 7 Rokit Motors recently created a new car sales website. The website uses internet shopping features. Customers can ask questions of the virtual salespeople on the website, and then purchase the car on the website.

(a) Describe **two** other features of internet shopping.

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(b) Discuss the benefits and drawbacks of using internet shopping for Rokit Motors.

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- (c) Before the website became operational it needed to be tested. The web designer created a test plan including module and whole system testing.

Explain the difference between module and whole system testing.

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..... [4]

- 8** You are creating a presentation on the World Games. You have created a spreadsheet showing the number of gold, silver and bronze medals awarded to different countries.

You are planning to create a graph in the presentation showing the country, the number of gold medals and the total number of medals.

	A	B	C	D	E	F
1		<u>World Games Medals</u>				
2						
3		Country	Gold	Silver	Bronze	Total
4	1	Italy	153	145	142	440
5	2	United States	142	131	109	382
6	3	Germany	137	111	138	386
7	4	Russia	137	110	72	319
8	5	France	101	102	105	308
9	6	China	68	55	27	150
10	7	Great Britain	61	89	210	360
11	8	Japan	55	38	53	146
12	9	Ukraine	47	36	125	208
13	10	Spain	42	42	42	126

Original data

- (a) Explain how you would create a vertical bar chart, showing the name of the country, the number of gold medals and the total number of medals awarded to each country, on a new slide in the presentation.

..... [6

- (b) The total number of medals has been calculated manually and entered as a value. This could lead to errors.

Explain how you could create a formula to calculate the total number of medals awarded for Italy, using only the mouse.

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..... [4]

- (c) Explain how the data could be sorted by the total number of medals won by each country. The country with the largest number of medals should be at the top of the list.

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..... [4]

10**9** Identify and describe the three web development layers.

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[6]

- 10** A school is planning to change the way it reports back to parents about their child's academic progress. They plan to produce a mail merged document and then email this to parents.

They have created a spreadsheet which shows the pupil's name, target, attainment and effort levels for Maths and the Science subjects.

Part of the spreadsheet is shown.

	A	B	C	D	E	F	G	H	I	J	K
1	Name		Target level	Maths		Biology		Chemistry		Physics	
2				<i>Attainment</i>	<i>Effort</i>	<i>Attainment</i>	<i>Effort</i>	<i>Attainment</i>	<i>Effort</i>	<i>Attainment</i>	<i>Effort</i>
3	Ahmal	Wulandan	6	7	2	6	2	8	1	7	2
4	Nurul	Prakoso	8	7	3	7	3	9	1	7	2

- (a)** Design a suitable document layout to display the information of one pupil. The name of the pupil must be clearly shown separated from the rest of the data. It must have appropriate spacing. Do **not** include the pupil's data.

[6]

- (b)** The attainment levels range from 1 to 9 and the effort levels range from 1 to 3. Before teachers are allowed to enter data, the spreadsheet needs to be tested.

Write down **one** example of extreme data to test the attainment field and **one** example of abnormal data to test the effort field.

Attainment – extreme data

Effort – abnormal data

[2]

(c) Describe **four** advantages of using a mail merge for this document.

- 1
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- 2
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- 3
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- 4
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- [4]

(d) When the mail merge is created, a special field containing the date needs to be added. This date will change automatically each time the merged document is sent or printed.

Explain how the date field can be added.

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- [3]

13

- 11** An air-conditioning system has been fitted in a hotel bedroom. The air-conditioning system will contain fans which operate at varying speeds.

Identify the devices used in the system from the descriptions given.

- (a)** This device captures the temperature from the room.

..... [1]

- (b)** This device changes the data from the microprocessor into a form that can change the speed of the fan.

..... [1]

- (c)** This output device operates the fan.

..... [1]

- 12** Discuss the disadvantages of policing the internet.

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..... [6]

14

- 13** The internet has both moderated and unmoderated forums.

Explain what is meant by a moderated forum.

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..... [4]

- 14** Students in Tawara College are using the internet to find information for a project. They have been told that the college has a firewall.

(a) Explain what is meant by a firewall and why it is used.

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15

The students visit different websites to get information for their project.

(b) Explain why it is **not** always easy for the students to find reliable information on the internet.

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..... [4]

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