



Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

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INFORMATION AND COMMUNICATION TECHNOLOGY

0417/12

Paper 1 Theory

May/June 2018

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

This document consists of **15** printed pages and **1** blank page.



CAMBRIDGE
International Examinations



2

1 A computer contains internal hardware.

Write down the most appropriate item of internal hardware to match the descriptions.

(a) This handles all the system instructions.

..... [1]

(b) A printed circuit board that contains the main components of the computer.

..... [1]

(c) This generates output to the speaker.

..... [1]

(d) A type of memory where data is lost when the computer is switched off.

..... [1]

2 Tick whether the following statements are examples of a **3D** printer, a **dot matrix** printer or a **laser** printer.

	3D (✓)	dot matrix (✓)	laser (✓)
A printer that uses toner.			
A printer that uses continuous stationery.			
A printer that can be used to make physical models.			
A printer that prints layer by layer.			

[4]

3 Tick the most appropriate type of network for each description.

	LAN (✓)	WAN (✓)	WLAN (✓)
A cabled network in a building.			
A network that can use satellites.			
A network that connects countries.			
A network that uses wireless technology.			

[4]

4 The security of software and data is very important.

Complete the following sentences using the most appropriate word(s) from the list.

anti-spyware	chip reader	coding	a dongle	encryption
iris scan	a password	a PIN	quantum cryptography	a token

- (a) An electronic device that plugs into a computer and contains the key for a piece of software is called

..... [1]

- (b) The scrambling of data is known as

..... [1]

- (c) A security process that uses photons to enable secure communication is called

..... [1]

- (d) A numeric code that is entered to enable payment to be made for a meal in a restaurant with a debit card is called

..... [1]

5 Circle **two** items which are used as external storage media.

CD RW

Hard disk

Monitor

Mouse

RAM

ROM

[2]

- 6 You are a student creating a website for your IGCSE ICT revision work. You have produced some HTML, but have not yet added the logo or merged the cells. You are aiming to produce the following page.

	IGCSE ICT		
	Theory	Practical 1	Practical 2
	2 hour Theory exam	2.5 hour Practical exam	2.5 hour Practical exam

Fig. 1

Part of the markup you have produced is:

...

```
<table>
```

```
<tr>
```

```
<td><h1>IGCSE ICT</h1></td>
```

```
</tr>
```

```
<tr>
```

```
<td><h3>Theory</h3></td>
```

```
<td><h3>Practical 1</h3></td>
```

```
<td><h3>Practical 2</h3></td>
```

```
</tr>
```

```
<tr>
```

```
<td><h3>2 hour<br>Theory exam</h3></td>
```

```
<td><h3>2.5 hour<br>Practical exam</h3></td>
```

```
<td><h3>2.5 hour<br>Practical exam</h3></td>
```

```
</tr>
```

```
</table>
```

Fig. 2

- (a) Write the HTML that would display the image called “Logo.jpg” as shown in Fig. 1. If the browser cannot find the image, then the text “Tawara School Logo” will be displayed.

.....

.....

.....

..... [5]

- (b) The third line of HTML currently shown in Fig. 2 does not produce the title as shown in Fig. 1.
- Write the HTML that would produce the title as shown in Fig. 1.

.....

..... [2]

- 7 A farmer has purchased a computerised feeding system for her goats. A goat has an RFID tag attached to its ear, which is recognised by the computer. The system uses a passive RFID tag.

- (a) Describe how the RFID tag can be activated.

.....

.....

.....

.....

.....

..... [3]

- (b)** The system recognises the goat and therefore gives the correct feed to the animal.

Describe how RFID technology will be used to give the correct feed to the animal.

.....

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.....

[3]

QUESTION 8 STARTS ON PAGE 8.

- 8 An auction company sells toys. It uses a spreadsheet to show each person's items and the amount of money the buyer and seller owe to the company.

Part of the spreadsheet is shown below.

	A	B	C	D	E	F	G	H	I	J
1	Auction: 18th July 2017									
2										
3	Name of Seller									
4										
5	Item code	Item description	Valuation	Selling price	Buyer's premium	Seller's commission			Product value	Commission
6	608a	Double Decker bus toy	€ 20.00	€ 45.00					€ 10.00	€ 1.50
7	608b	Blackpool Balloon tram	€ 25.00	€ 45.00					€ 50.00	€ 2.00
8	608c	Blackpool Steam tram	€ 25.00	€ 40.00					€ 100.00	€ 2.50
9	608d	James Bond Aston Martin	€ 250.00	€ 340.00					€ 250.00	€ 4.17
10	608e	D457A Bulldozer (rare)	€ 300.00	€ 750.00					€ 500.00	€ 6.25
11	608f	Fairground Attraction 1	€ 40.00	€ 30.00					€ 1000.00	€ 8.00
12	608g	Fairground Attraction 2	€ 40.00	€ 40.00						
13	608h	Fairground Attraction 3	€ 40.00	€ 50.00						

The Buyer's premium is 20% of the Selling price.

- (a) Write a formula to display the Buyer's premium in cell E6.

= [2]

- (b) The person selling the item pays a Seller's commission on any item sold. This is calculated using the Selling price and finding a match or the next value below in the table, in cells I6 to J11.

Write a formula to display in cell F6, the Seller's commission on the Double Decker bus toy. This formula will be replicated down to cell F13.

=
 [5]

- (c) Describe how you could replicate the formula in cell F6 for each item.

.....

.....

.....

.....

[2]

- (d) Before the auction begins, a hard copy brochure is produced showing information about the items, data from the spreadsheet and images of some of the items.

Describe how this brochure is created.

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[5]

- 9 Automatic car parking systems built into cars are becoming more common. They allow the car to park safely in a parking bay unaided. The car uses proximity sensors fitted to the front and rear of the car to help it park. There are many advantages to using these sensors.

(a) State **three** disadvantages of using proximity sensors in this way.

1

.....

2

.....

3

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[3]

(b) Modern-day drivers rely less on paper maps and more on satellite navigation systems (satnav).

Describe the inputs, outputs and processing of a satnav when used by a driver to reach a destination.

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[4]

- 10** The European Space Agency (ESA) is building a new space telescope to orbit the Earth and search for distant galaxies. The ESA is using computer controlled robots to build the lens of the telescope.

- (a) Discuss the advantages and disadvantages of using computer controlled robots rather than humans to build the lens.

[illegible]

[6]

- (b)** A new computer system will operate the space telescope; the new computer system is made up of a number of modules.

Describe how the new computer system is to be tested before it is fully operational.

[illegible]

[4]

- (c) When the new system has been developed, both user and technical documentation have to be written.

Name **three** components that are found in both technical and user documentation.

- 1
- 2
- 3

[3]

- 11 When people use the internet they run the risk of their computers being infected by viruses.

A file, containing a virus, is downloaded from the internet.

- (a) Describe the effects the virus could have on their computer's hard disk.

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[3]

- (b) Explain another way the computer could have become infected with a virus.

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[2]

- (c) An antivirus program is set to fully scan a computer for viruses once a day.

Describe how the antivirus software works during the scan.

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[3]

- 12 A company used to have video-conferences with its suppliers, but due to technical problems they are considering running an audio-conference.

Describe the advantages of using audio-conferencing rather than video-conferencing.

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[4]

13 Tick **four** health issues associated with the continual use of computers.

	Tick (✓)
Virus	
Backache	
Electrocution	
Fire	
RSI	
Tripping	
Eye strain	
Overheating	
Headache	
Heart attack	

[4]

14 Some smartphones connected to the internet can allow the user to point their phone's camera at an object or image to display information about it on the phone's screen. The object acts like an item in a search engine. This is called augmented reality.

One example of its use is in mobile games, where the user tries to catch characters from the game as the characters appear to walk in the streets.

Explain, using examples, other ways in which augmented reality could be used in everyday life.

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[4]

- 15** As banks reduce the number of branches due to the increased use of online banking system, improved security of customer data is needed. Many banks are introducing biometric systems to secure customer data.

- (a)** Explain, using examples, why biometric systems are more effective than other methods of security.

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.....

[3]

- (b)** Adam is paying his bill in a restaurant using a contactless debit card.

Describe the computer processing involved in Electronic Funds Transfer (EFT) using contactless cards.

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[4]

- 16** The owner of a gardening company is planning to create a database to store the details of all his customers. He has the choice of using a flat file database or a relational database.

Discuss the advantages and disadvantages of using a relational database rather than a flat file database.

This image shows a full page of white paper with horizontal dashed lines, typical of primary school writing paper. The lines are evenly spaced and run across the entire width of the page. There are no margins, text, or other markings present.

[8]

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