



# Cambridge IGCSE™

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## INFORMATION AND COMMUNICATION TECHNOLOGY

0417/12

Paper 1 Theory

May/June 2021

2 hours

You must answer on the question paper.

No additional materials are needed.

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### INSTRUCTIONS

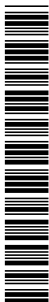
- Answer **all** questions.
- Use a black or dark blue pen.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.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

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



1 Tick (✓) whether the following are examples of **control**, **measurement** or **modelling** applications.

	<b>control</b> (✓)	<b>measurement</b> (✓)	<b>modelling</b> (✓)
Personal finance			
Weather forecasting			
Burglar alarms			
Weather stations			

[4]

2 (a) Circle **two** items that could be used to output data directly from a smartphone.

- |              |            |         |        |
|--------------|------------|---------|--------|
| Blu-ray disc | microphone | mouse   | screen |
| SD card      | sensor     | speaker | webcam |

[2]

(b) One of the uses of a smartphone is the sending and receiving of emails.

Describe **four** other uses of a smartphone.

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

[4]

3 Tick (✓) the most appropriate storage medium that should be used in each scenario.

Scenario	Magnetic tape (✓)	RAM (✓)	ROM (✓)
To store the current instructions in use by a computer			
To back up data from a school network server			
To store data temporarily			
To store the start-up instructions of a computer			

[4]

4 Complete the sentences below using the most appropriate word from the list.

- |          |         |          |          |
|----------|---------|----------|----------|
| cookies  | hacking | pharming | phishing |
| smishing | spam    | spyware  | virus    |

(a) The act of gaining unauthorised access to a computer system is called

..... [1]

(b) The software that gathers data by monitoring key presses on a user’s keyboard is called

..... [1]

(c) A fake text message, that could contain a link, sent to a mobile phone is called

..... [1]

- 5 Petr has set up a database for a science project on planets in the solar system. Part of the database is shown.

ID	Name_of_planet	Number_of_moons	Orbital_period	Rings	Gravity	Type_of_planet	First_observed
4	Mars	2	1.88	N	0.38	Regular	1610
5	Ceres	0	4.61	N	0.27	Dwarf	1801
7	Saturn	62	29	Y	1.16	Gas Giant	1610
9	Neptune	14	165	Y	1.21	Gas Giant	1846
10	Pluto	5	248	N	0.62	Dwarf	1930
11	Haumea	1	309	N	0.401	Dwarf	2004

- (a) When Petr was designing his database, he had to set the data types for each field. Complete the design table below by filling in the data types for each named field. Use the **most** appropriate data type. Each data type must be different. For any numeric field, specify the type of number.

Field name	Data type
Number_of_moons	
Orbital_period	
Rings	
Name_of_planet	

[4]

- (b) Operators such as AND, OR, NOT, LIKE, >, >=, <, <=, =, <> can be used to search Petr’s planet database. The search criteria for all the gas giant planets with more than 20 moons would look like this:

**Type\_of\_planet = "Gas Giant" AND Number\_of\_moons > 20**

Write down the search criteria that will produce a list of planets that are not gas giants but have at least one moon and were first observed after 1800.

.....  
.....  
.....  
..... [7]

- (c) Write down the names of the planets that are not gas giants but have at least one moon and were first observed after 1800.

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

- (d) Petr has copied the data from the Orbital\_period field into a spreadsheet. The data for the orbital period for Mars, 1.88, is stored in cell A2. In cell B2 he has entered a function of:

ROUND(A2,0)

Explain in detail the function used in cell B2.

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





- (c) Before the new booking system is installed, the systems analyst has to decide on a method of implementation. One method of implementation is pilot running.

Name **two** other methods of implementation and describe **two** benefits of each.

Name.....

Benefit 1.....

.....

Benefit 2.....

.....

Name.....

Benefit 1.....

.....

Benefit 2.....

.....

[6]



8 Students often use IT equipment; therefore it is important to have a good physical safety strategy.

Evaluate your own use of IT equipment, in terms of physical safety, and describe the strategies you will need to minimise the potential physical safety risks.

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[6]

9 (a) Describe **two** uses of a company intranet.

1.....  
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2.....  
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[2]

(b) Social networking is used to communicate with friends; this is one use of the internet.

Describe **four** other uses of the internet.

1.....

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2.....

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4.....

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[4]





12 A search engine can be used to find information on the internet.

(a) Describe the disadvantages of using a search engine to find information rather than typing in a web address.

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[4]

(b) A student is writing a project on rare animals. He uses a search engine to find information about the animals from the internet. He is concerned about the reliability of some of the information he has found.

Explain how he would evaluate the reliability of this information.

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[6]

The student plans to create a table, using word processing software, to display the information he has found out about the animal.

The completed table will look like this:

Name of animal	Tiger quoll
Scientific name	Dasyurus maculatus
Pouched	No
Habitat	Australia
Conservation status	Threatened

(c) Explain how the student can create a table to enter this data.

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[2]

(d) The student has saved a picture from the internet of a tiger quoll.

Explain how he could create a new row above the Pouched row and place the picture into the right-hand cell of this new row.

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[4]

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