



# Cambridge IGCSE™

CANDIDATE  
NAME

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NUMBER

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## INFORMATION AND COMMUNICATION TECHNOLOGY

0417/12

Paper 1 Theory

February/March 2022

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 A tablet computer consists of both hardware and software.

(a) Define the term hardware.

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

(b) One input device used on a tablet computer is a touch screen.

Name **two** other input devices built into a tablet computer.

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

(c) Write down **two** examples of system software.

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

2 Circle **two** items that contain personal data.

- |                |          |               |
|----------------|----------|---------------|
| bank card      | bar code | laser printer |
| medical record | mouse    | sensor        |

[2]

3 The internal memory of a computer consists of both ROM and RAM.

(a) Describe the terms ROM and RAM.

ROM .....

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.....

.....

RAM .....

.....

.....

.....

[4]

(b) Modern laptop computers use Solid State Drives (SSD) rather than Hard Disk Drives (HDD).

State **three** advantages of using SSDs rather than HDDs in a laptop computer.

1 .....

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2 .....

.....

3 .....

.....

[3]

- 4 Tick (✓) whether the following statements refer to control, measurement or modelling systems.

Only tick (✓) **one** answer for each statement.

	control (✓)	measurement (✓)	modelling (✓)
Maintaining the growing conditions in a glasshouse			
Aircraft flight simulation			
Monitoring the pollution in a river			
Using what-ifs			

[4]

- 5 The World Wide Web (WWW) is often mistaken for the internet.

(a) Explain the differences between the WWW and the internet.

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.....

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.....

.....

[4]

(b) The web address for Cambridge IGCSE is:

https://www.cambridgeinternational.org/IGCSE

Describe the following parts of the web address.

https:// .....

.....

cambridgeinternational .....

.....

.org .....

.....

/IGCSE .....

.....

[4]

6 Global Positioning Systems (GPS) are used for many different applications.

(a) Describe how GPS is used by a smartphone to pinpoint its location.

.....

.....

.....

.....

.....

.....

.....

.....

[4]

(b) Give **three** other examples of the use of GPS.

1 .....

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2 .....

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3 .....

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[3]

7 Tawara School is presenting a concert. For previous concerts the booking of tickets was carried out manually using pen and paper.

For this concert they are going to use an online booking system.

(a) Discuss the advantages and disadvantages of Tawara School using an online booking system rather than the manual system.

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[8]

(b) Identify the most appropriate method of implementation of the new online booking system in this scenario.

.....

[1]

(c) Explain, giving reasons, why your answer to **part (b)** is the most appropriate method of implementation for this scenario.

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[3]

8 Describe the advantages and disadvantages of using a smartphone rather than a laptop computer to access the internet.

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[6]



9 The introduction of computers into the work place has affected job patterns.

(a) Explain what is meant by part-time working.

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.....

[2]

(b) Explain what is meant by compressed hours working.

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[2]

(c) Employees working in an office use computers for prolonged periods of time.

Describe **three** items that an employee should be provided with to help reduce the health problems related to prolonged use of computers.

1 .....

.....

2 .....

.....

3 .....

.....

[3]

(d) The office must be a safe working environment.

State **two** physical safety issues that might exist from the introduction of computers.

1 .....

.....

2 .....

.....

[2]

10 A touch screen is both an input device and an output device. Touch screens are used on many devices. A tablet computer uses a touch screen.

Describe the advantages and disadvantages of using a touch screen rather than a monitor and keyboard for the tablet computer.

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[6]

- 11 When creating an ICT solution, the legal, moral, ethical and cultural implications have to be considered.

Choose the most appropriate implication that matches the descriptions given below.

- (a) Ensuring that copyright laws have been followed.

..... [1]

- (b) Not giving information about the ICT solution to another company.

..... [1]

- 12 The manager of a car garage has asked a systems analyst to create a new database system for the checking of cars making sure they are safe to drive. The checking of cars is known as a service.

Each car has a unique licence plate.

The cars can either be powered by electric or petrol.

Cars are serviced every 10000 km, for example 10000 km, 20000 km.

The minimum cost of the service is 1500 rupees and the maximum is 5000 rupees depending on the model of car.

Different models of car are serviced.

The date of the service is agreed.

- (a) Complete this table, filling in the field names and the most appropriate data types to create the database using the information given above. For any numeric field, specify the type of number.

Field name	Data type
Vehicle_licence_plate	
Powered_by	
	Numeric:integer
Cost_of_service	
	Text
Date_of_service	

[6]

(b) The systems analyst is planning to create a relational database.

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

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[6]

(c) For each of the fields shown, name and describe **one** validation check that could be used on the data. Your answers must be different in each case.

(i) Vehicle\_licence\_plate

Validation check .....

Description .....

.....

[2]

(ii) Cost\_of\_service

Validation check .....

Description .....

.....

[2]

(iii) Date\_of\_service

Validation check .....

Description .....

.....

[2]

**13** A family has a number of different devices connected to the internet.

(a) Identify **three** items of computer hardware that may need to be purchased in order to set up a computer network so the devices can use the internet.

1 .....

2 .....

3 .....

[3]

(b) Arjun is a member of the family. He uses the internet to carry out research and send work to his office.

Describe **three** other ways he could make appropriate use of the internet.

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

[3]

(c) Arjun uses the internet to carry out research for his work.

Describe **two** drawbacks of Arjun using the internet for research.

- .....
- .....
- .....
- .....

[2]

(d) Arjun can log directly into his office system from his home computer. The office system only requires users to enter their user id and a password.

(i) Explain why this is **not** very secure.

.....  
.....  
.....  
.....

[2]

(ii) Describe **two** other ways the office system could identify the user securely.

1 .....

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2 .....

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[4]

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