



## Cambridge IGCSE™

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CENTRE  
NUMBER

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**INFORMATION AND COMMUNICATION TECHNOLOGY****0417/11**

Paper 1 Theory

**May/June 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.

- 1 Tick (✓) whether the following are examples of personal data.

|                               | Yes<br>(✓) | No<br>(✓) |
|-------------------------------|------------|-----------|
| Full name                     |            |           |
| Capital of England            |            |           |
| Gender                        |            |           |
| Number of flowers in a garden |            |           |

[2]

- 2 Circle **two** input devices that could be used in a smartphone.

HDD                      magnetic stripe reader                      microphone                      mouse

remote control                      speaker                      touchpad                      touch screen

[2]

- 3 Describe **four** characteristics of a tablet computer.

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4 .....

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[4]

- 4 Many banks have reduced the number of staff in their branches and replaced them with automatic teller machines (ATMs). These ATMs, which can be located within the bank, can be used by customers to deposit and withdraw money from their bank accounts.

(a) ATMs can be used to deposit cheques.

Describe the computer processing involved in depositing a cheque at an ATM.

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[6]

- (b)** Customers can visit these banks or use internet banking.

Discuss the advantages and disadvantages to a customer of visiting the bank rather than using internet banking.

[illegible]

- 5** Tawara school has a shop that sells items needed by pupils in school. Part of a spreadsheet with details of the items is shown.

|   | A             | B | C                  | D             | E      | F   | G           | H                     | I                  |
|---|---------------|---|--------------------|---------------|--------|-----|-------------|-----------------------|--------------------|
| 1 |               |   | Tawara School Shop |               |        |     |             | Tax rate              | 20%                |
| 2 | Item          |   | Cost Price         | Selling Price | Profit | Tax | Amount sold | Total profit per item | Total tax per item |
| 3 |               |   |                    |               |        |     |             |                       |                    |
| 4 | School tie    |   | \$7.00             | \$9.99        | \$2.99 | Y   | 139         | £415.61               | \$277.72           |
| 5 | School scarf  |   | \$10.00            | \$15.00       | \$5.00 | Y   | 50          | \$250.00              | \$150.00           |
| 6 | School blazer |   | \$20.00            | \$25.00       | \$5.00 | Y   | 180         | \$900.00              | \$900.00           |
| 7 | Pen set       |   | \$10.00            | \$12.50       | \$2.50 | N   | 100         | \$250.00              |                    |

- (a)** Write down the number of rows that are shown in the spreadsheet that contain text.

..... [1]

- (b)** Write down the number of columns that are shown in the spreadsheet that contain text.

..... [1]

- (c) Tax is paid on certain items sold in the shop. The tax rate that has to be paid is 20% of the selling price. If tax is to be paid on an item, then 'Y' is placed underneath the Tax heading.

The formula in I4 is: `IF(F4="Y",($I$1*D4*G4),"")`

Explain, in detail, what the formula does.

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[5]

- (d) Explain the steps that need to be taken to display cell H4 as US dollars.

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[2]

- 6** You have been asked by the secretary of a soccer club to create a website to publicise its results, fixtures and other events.

When the website has been created it has to be published on the internet. You plan to upload it onto the internet using FTP.

- (a)** Explain what is meant by FTP.

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[2]

- (b)** Explain how to upload and publish the content of a website using FTP.

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[4]

(c) Before the website is published it needs to be tested.

Write down **three** different features of the web pages that could be tested. For each feature, describe the method you would use to carry out the test.

Feature 1.....

Method.....

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Feature 2.....

Method.....

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Feature 3.....

Method.....

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[6]

- 7** A systems analyst has created a new computer system to keep records in a medical centre. She has created a relational database to store the medical records of patients.

The database uses primary and foreign keys.

- (a)** Describe what is meant by a relational database.

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[3]

- (b)** Explain the difference between a primary key and a foreign key.

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[4]

- (c) A dentist works at the medical centre. The dentist stores the medical records of his patients.

Describe **four** other uses of the database software that the dentist can use to help him in his work.

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[4]

- (d) The data stored on the computer system needs to be protected from unauthorised access.

Discuss the effectiveness of different methods of increasing security of this data.

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[8]



**10** Tick (✓) the most appropriate method of implementation to match the statements below.

|                                                                           | <b>Direct<br/>(✓)</b> | <b>Parallel<br/>(✓)</b> | <b>Pilot<br/>(✓)</b> |
|---------------------------------------------------------------------------|-----------------------|-------------------------|----------------------|
| All of the benefits are immediate.                                        |                       |                         |                      |
| If the new system fails the whole of the old system is still operational. |                       |                         |                      |
| This is the cheapest implementation method.                               |                       |                         |                      |
| The system is implemented in one branch of the company.                   |                       |                         |                      |

[4]

**11** Data stored on a computer system is at risk of being hacked.

**(a)** Explain what is meant by the term hacking. Include in your answer **two** examples of the effects this can have on the computer system.

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[3]

**(b)** Describe **three** measures that could be taken to protect the data from being hacked.

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[3]

- 12** An image has been changed in a number of different ways.

Original image



For each of the following images describe the software editing technique used in order to produce the edited images shown from the original image.

Edited images



**A**



**B**



**C**



**D**

**A** .....

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**B** .....

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**C** .....

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**D** .....

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[4]

- 13** RockIT Airlines representatives use a computer booking system to book flights for customers.

A representative from the airline types in the customer reference number, the number of passengers, departure time, departure date, departure airport and the destination airport.

A customer is planning to take a flight from London Heathrow Airport. The representative types in a code LHR for London Heathrow Airport. One of the reasons for using a code for the airport is to improve data accuracy.

- (a)** Describe **two** other advantages of using a code rather than typing out the full name.

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[2]

- (b)** Describe the importance of data accuracy when making a booking.

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[2]

(c) Describe the processing and outputs involved in making the booking.

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[6]

**Question 14 starts on page 16.**

- 14** A road through a village has a speed limit of 45 kilometres per hour. The police are checking and recording the speed of vehicles passing through the village using measuring hardware and software, so they can produce a report of their findings.

**(a)** Explain the difference between measurement and control when using microprocessors.

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[2]

**(b)** Describe the role of the microprocessor in this scenario.

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