Cambridge Assessment International Education

Cambridge International AS & A Level

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

0435469317

INFORMATION TECHNOLOGY **9626/12**

Paper 1 Theory **May/June 2023**

1 hour 45 minutes

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.
- Calculators must **not** be used in this paper.

INFORMATION

- The total mark for this paper is 70.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **12** pages. Any blank pages are indicated.

1 A student has been asked by her sociology teacher to produce a study of the average number of family members in the local area.

(a) Give reasons why using an Electoral Register as an indirect data source would not produce the data required by the study.

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(b) Apart from the Electoral Register, give an example of another indirect data source.

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2 Explain what is meant by symmetric encryption.

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3 Many credit card purchases use online processing, whereas customer bills tend to be produced using batch processing.

Describe the differences between online processing and batch processing systems.

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4 Some individuals post personal data on social media or in emails.

Discuss why personal data needs to be kept confidential.

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5 A printer driver is a type of device driver.

Explain, using a printer driver as an example, what is meant by a device driver and why it is needed.

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6 Sensors are used in monitoring and control to measure physical variables.

(a) Describe these sensors. For each sensor, explain how it could be used in a control system. Each system must be different.

Infrared .....

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Ultrasonic.....

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(b) Control technologies are replacing human-controlled car park barriers and timer-controlled traffic lights.

Discuss the advantages and disadvantages of the use of control technologies in these scenarios.

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7 Explain why there can be a digital divide between different socioeconomic groups.

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8 Peter wants to create a database containing the details of all the books he owns and the shops he bought them from. Mary suggests that he should create a relational database. Peter will need to use normalisation.

(a) Describe what is meant by normalisation.

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(b) Describe the benefits of creating a relational database rather than a flat file database.

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9 A doctor uses an expert system to help the doctor diagnose the illnesses of her patients.

Explain how an expert system is used to help the doctor produce the diagnosis of an illness. You may assume only forward chaining is involved.

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10 Gustav has started to write an algorithm using pseudocode. It will input 6 numbers, all less than 1000, and output the smallest value.

Complete the algorithm using pseudocode.

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count ←0
smallest←1000
WHILE count < 6
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