



## **Cambridge International AS & A Level**

CANDIDATE  
NAME

CENTRE  
NUMBER

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### **INFORMATION TECHNOLOGY**

**9626/32**

Paper 3 Advanced 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 JavaScript can be used in a web-based form to test whether a number entered by a user matches a certain condition and to select and output an appropriate message.

(a) Explain how `if...else` statements are used to do this.

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(b) The ternary operator could be used instead of `if...else`.

Explain why the ternary operator could be used to do this.

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- 2** IP networks can be connected by switches and routers so that data can be exchanged between devices.

Compare the operations of switches and routers in networks. You must include similarities and differences.

[8]

- 3 When data is transmitted across networks it needs to be protected from interception and eavesdropping.

(a) Explain how each of these network security protocols operates.

(i) Secure Shell (SSH)

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..... [2]

(ii) Internet Protocol Security (IPsec)

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(b) Explain why the use of Telnet for remote login may put data at risk.

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- 4** Bluetooth and Wi-fi are wireless technologies used to exchange data between devices.

**(a)** Contrast Bluetooth with Wi-fi as methods of wireless communication.

[4]

**(b)** Describe how a Bluetooth connection is established between two devices.

[5]

[5]

- 5** Discuss the impact of the use of social media on the health of individuals.

[8]

6 The OSI and the TCP/IP reference models are used to describe communications in networks.

(a) Describe **three** similarities between these models.

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(b) Describe **three** differences between these models.

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- 7 A government is concerned that the use of digital currencies may affect its economy.

Analyse the risks to an economy of an increase in the use of digital currencies.

[6]

8 Describe each of these project management terms.

(a) dependencies

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..... [2]

(b) deliverables

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..... [2]

(c) tasks

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- 9** Explain how the stages of the system life cycle are related to each other.

[6]

[6]

- 10** Scientific research includes reading documents published in different languages by scientists all over the world.

Discuss the impact of computer-assisted translation on scientific research.

[8]

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