



Cambridge International AS & A Level

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INFORMATION TECHNOLOGY

9626/31

Paper 3 Advanced Theory

May/June 2025

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.



- 1 A new database has been developed to manage the stock in a warehouse. The new database is to be tested.

(a) Explain the purpose of a test plan for this database.

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..... [2]

(b) Describe the types of test data that could be used to test the database.

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..... [4]





Analyse the use of the waterfall method to develop the new app.

[6]

- (a)** Describe the purpose of the MAC address.

[4]

- | Laptop | Internet protocol (IP) address |
|--------|--------------------------------|
| A | 192.168.1.102 |
| B | 192.168.1.124 |
| C | 192.168.2.102 |
| D | 192.168.1.133 |
| E | 192.168.1.123 |

[2]



- 4 Arithmetic on numbers in JavaScript is carried out by using operators. Addition and subtraction are carried out by the + and – operators.

(a) Describe the use of each of these arithmetic operators.

(i) ++

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..... [1]

(ii) **

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..... [2]

(b) Describe the use of **two** other arithmetic operators in JavaScript.

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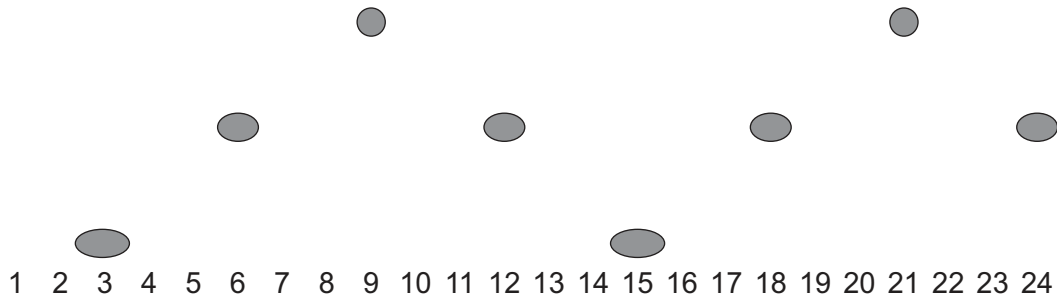
..... [4]





- 5 Every second of a typical computer animation has 24 frames. The diagram shows one second of an animation in which the animator has drawn the movement of a bouncing ball.

The animator has drawn the ball ‘on threes’.



- (a) Explain why the animator has drawn ‘on threes’.

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- (b) Explain why most animations are drawn ‘on twos’.

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6 The internet and transport layers are included in the TCP/IP suite of network protocols.

(a) Describe the function of the internet layer.

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(b) Identify **one** network protocol that works at the internet layer.

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(c) The internet layer passes packets to the transport layer.

Identify **one** network protocol that works at the transport layer.

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..... [1]



[8]

[8]



Explain how the web server provides the web browser with the content of the store's web pages.

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9 (a) Describe what is meant by the Internet of Things (IoT).

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(b) Describe how the IoT can be used in healthcare.

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10 Blockchain technology is used in financial transactions and for smart contracts.

(a) Blockchain technology requires a great deal of computing power and is expensive.

Describe **one** other drawback of blockchain technology.

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(b) Describe how a smart contract works.

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