



Cambridge International AS & A Level

CANDIDATE
NAME



CENTRE
NUMBER

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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]





- 2** A new software gaming app is to be developed for smartphones.

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

[6]





- 3 Five laptops are physically connected to the same local area network (LAN). The network interface card (NIC) of each laptop has a media access control (MAC) address and an internet protocol (IP) address.

(a) Describe the purpose of the MAC address.

[4]

[4]

(b) The table shows the internet protocol (IP) address of each laptop.

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

Explain why laptop C may be unable to communicate directly with the other four laptops.

[2]

[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) ++

[1]

[1]

(ii) * *

[2]

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

[4]

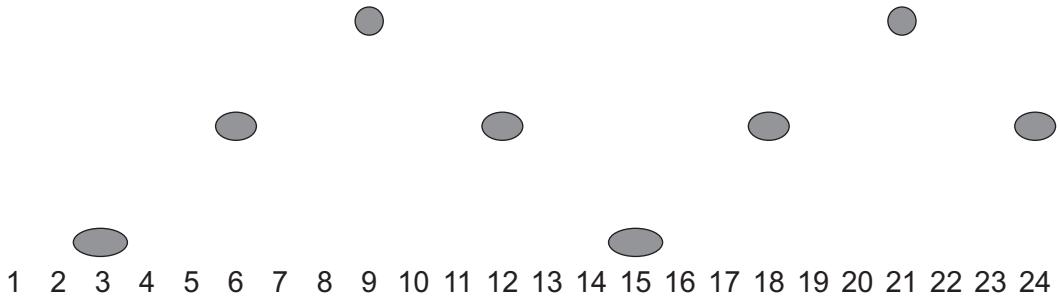
[4]





- 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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..... [3]

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

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..... [2]





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

- (a)** Describe the function of the internet layer.

[4]

[4]

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

[1]

[1]

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

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

[1]

[1]





- ## 7 Discuss the benefits and drawbacks of using data mining in businesses.

[8]





- 8** A shopper is using the internet to look at the website of an online store. A web browser is used to fetch and display web pages from the store's web servers.

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

[6]





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

[2]

[2]

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

[4]

[4]





DO NOT WRITE IN THIS MARGIN

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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[2]

- (b) Describe how a smart contract works.

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[4]





- 11** Technology-enhanced learning can be delivered using video-conferencing.

Evaluate the use of video-conferencing in education.

[8]

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