



Cambridge International AS & A Level

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INFORMATION TECHNOLOGY

9626/32

Paper 3 Advanced Theory

October/November 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.

- 1 Stored value cards can be used for making transactions such as paying for travel on public transport or for buying food and drink in cafes.

(a) Explain the benefits of stored value cards.

(b) Describe **two** drawbacks of stored value cards.

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2 Different methods can be used to make objects appear to move in computer animations.

(a) Explain why key frames are used in computer animations.

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(b) Describe how property key frames are used in computer animation.

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..... [4]

- 3** Bitmap images can be compressed when stored and used on computer systems.

Analyse the effects of the **two** main methods of image compression on a bitmap image.

[6]

- 4** Cellular networks are used to provide mobile communications for users.

- (a) Describe the structure of a cellular network.

[3]

[3]

- (b) Explain how cellular networks allow large numbers of mobile (cell) phones to connect without interference from other mobile (cell) phones.

[4]

- 5** Users may connect their smartphones to a local area network (LAN).

- (a) Describe **two** reasons why a wireless connection to a local area network (LAN) may **not** be as secure as a wired connection.

[2]

[2]

- (b) Explain how a secure Wi-fi connection is established and maintained between a smartphone and a local area network (LAN).

[6]

[6]

6 Loops in JavaScript repeatedly execute blocks of code.

(a) Describe how a `for` loop works in JavaScript code.

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(b) Contrast the use of `while` and `do while` loops in JavaScript code.

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- 7 In JavaScript, an object is defined as a collection of properties which can be amended or deleted.
- (a) Describe how an object may be given a new property.

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- (b) Describe how the properties of an object in JavaScript can be displayed using a loop.

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- 8** A healthcare organisation has centres in different towns and cities. The organisation uses a networked computer system that allows healthcare professionals to access patient records and appointments from any centre.

The user interface for accessing patient records and appointments is going to be replaced. The organisation is considering using pilot implementation.

Evaluate the use of pilot implementation to replace the user interface for the computer system.

[8]

- 9** Describe the benefits to businesses of employees using instant messaging to communicate with other employees for business purposes.

[6]

- 10** A small company is considering installing a mail server to manage email for its five employees.

Discuss the advantages and disadvantages to the company of using its own mail server.

[6]

Please turn over for Question 11.

- 11 Technicians improve software by carrying out maintenance. Corrective maintenance modifies software to correct problems that have been identified in error reports from users.

Identify and describe **two** other types of software maintenance carried out by technicians.

Software maintenance 1

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Software maintenance 2

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[6]

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