



# Cambridge International AS & A Level

CANDIDATE  
NAME

CENTRE  
NUMBER

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## INFORMATION TECHNOLOGY

9626/31

Paper 3 Advanced Theory

October/November 2022

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 Explain how each of the following is used in a network.

(a) web server

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..... [2]

(b) mail server

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..... [2]

(c) print server

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..... [2]

2 Packet switching is one way of transmitting data between computers in networks. The User Datagram Protocol (UDP) is a protocol used when creating data packets to send to other computers on the network.

(a) Explain how the contents of the header are used when sending a data packet using UDP.

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(b) Describe the drawbacks of using UDP to send data over a network.

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..... [3]

**3** The process of data mining is divided into phases.

Describe the tasks that occur in each of the following phases.

**(a)** business understanding

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**(b)** data modelling

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7 Bitcoin is a decentralised banking system which can be used to buy goods and services.

(a) Explain why Bitcoin is classified as a decentralised system.

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(b) Describe how Bitcoin can be used to buy goods from another Bitcoin holder.

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**8** Technology enhanced learning (E-learning) can be delivered using a Massive Open Online Course (MOOC).

**(a)** Describe the features of a MOOC.

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**(b)** Explain the drawbacks to students of using a MOOC.

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9 Bit rate is a measure of how fast data can be sent from one device to another on a network.

(a) Describe how the bit rate of a video stream is measured on a network.

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..... [2]

(b) Identify **two** factors that can affect the bit rate in data communication.

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