Cambridge International AS & A Level

CANDIDATE NAME

CENTRE NUMBER [ ][ ][ ][ ][ ]

CANDIDATE NUMBER [ ][ ][ ][ ]

INFORMATION TECHNOLOGY **9626/33**

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.

[Turn over

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

(a) web server

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(b) mail server

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(c) print server

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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 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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4   Cryptocurrency can be used to make financial transactions.

Discuss the impact of the use of cryptocurrency on individuals.

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5   A software development company is using the Agile method of software development to create a new app for a client to use on mobile devices.

Discuss the use of the Agile method of software development when creating a new app for the client.

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6 Discuss the advantages and disadvantages of the use of microwave transmissions for communications.

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

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10 Data stored on a network can be subject to different types of threats.

Explain how these threats can be detected.

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