Cambridge International AS & A Level

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

INFORMATION TECHNOLOGY **9626/12**

Paper 1 Theory **October/November 2021**

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 90.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **20** pages. Any blank pages are indicated.

[Turn over

1   A printer driver is a type of device driver.

(a) Tick the most accurate statement regarding printer drivers.

	✓
They are used to control the hard disk drive.	
They handle the translation of requests between the computer and the printer.	
One printer driver can control any printer.	
They ensure that there are no paper jams.	

[1]

(b) Tick the most accurate statement regarding device drivers in general.

	✓
One device driver works with every operating system.	
Device drivers are extra hardware inside the device.	
Upon installation, a device driver detects and identifies the peripheral device.	
A device driver is needed to control the central processing unit of a computer.	

[1]

(c) Explain the purpose of an operating system.

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2 A user interface is the method by which a user and a computer exchange information and instructions.

(a) Tick the most accurate statement referring to the use of colour in a user interface for users who suffer from colour blindness (colour vision deficiency).

	✓
It is good practice to use complementary colours such as red text on a green background.	
It is good practice to use text in small sizes and weights to emphasise it against a different-coloured background.	
It is good practice to always use as many colours as possible when designing an interface.	
It is good practice to use a soft-coloured background such as grey or cream to allow text of a different colour to be read more easily.	

[1]

(b) Tick the most accurate statement referring to elements of a user interface.

	✓
Radio buttons only allow you to select one option from a list.	
A text box does not allow you to type numbers into it.	
Text should use the same font size whether the information is important or less important.	
It is a good idea to have a different font size for each word in a title.	

[1]

(c) A developer has been asked to produce software. The software will allow a company's employees to enter data. The user interface will be a graphical user interface (GUI) and must be easy to use.

Describe **four** features of the layout of such a user interface.

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3 (a) A company secretary has been given a piece of paper which has the following data written on it.

Johansen, Ingrid, 4578, 05/12/2020, 02493465782

Explain why these are regarded as just items of data. In your explanation give a possible context for the data and describe how this data then becomes information.

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(b) Companies rely on the quality of the information that they use to make decisions.

Describe how each of the following can affect the quality of the information. In your answers, give detail about the possible effects on companies.

(i) The age of the information.

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(ii) The level of detail in the information.

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4   Describe the differences between symmetric and asymmetric encryption, explaining which is more secure.

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5 A company is investigating converting its paper files into computer data files. The company must choose between its existing staff entering the data manually or using an Optical Character Reader (OCR).

Evaluate, by weighing up the advantages and disadvantages, the use of an OCR compared to manual data entry.

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6 Personal data should always be kept confidential and secure. Data can be kept secure by using encryption and by restricting access using methods such as passwords and biometrics.

Describe other methods of keeping data confidential and secure.

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7 There are many types of storage device.

Explain the purpose of storage devices. You should refer to hard disk drives (HDDs), solid-state drives (SSDs) and pen drives in your answer.

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8 The computer configuration in many schools is based on client-server networks.

Discuss the benefits and drawbacks of using a client-server network.

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9 Video-conferencing is one service provided by the internet.

(a) Describe, in detail, **five** other services provided by the internet. Each service must be distinctly different.

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(b) Describe how data is transmitted in a video-conference.

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10 In a medical expert system, the inference engine receives symptoms from the user interface.

Explain how the inference engine uses these inputs to produce possible diagnoses.

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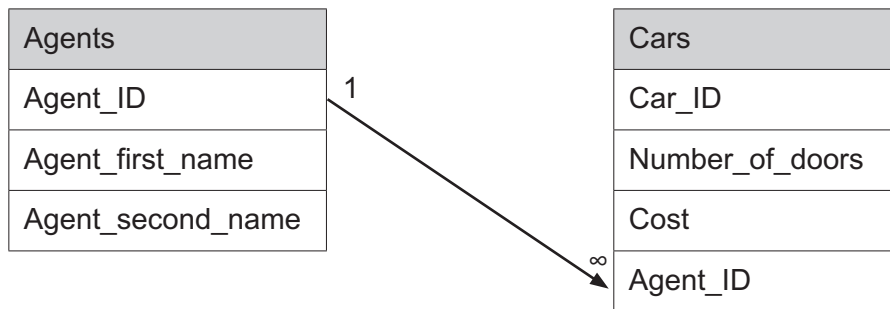
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Please turn over for Question 11.

[Turn over

11 The sales director of a large company buys cars from an agent before issuing them to managers for use as company cars. She needs to keep records of all the agents she deals with and the details of each car. The records are stored as a relational database consisting of two tables.

Agents
Agent_ID
Agent_first_name
Agent_second_name

1 ∞

Cars
Car_ID
Number_of_doors
Cost
Agent_ID

A typical record from the Cars table would be: S8562T, 5, $39500, B345

(a) Using the information given above, complete this part of the data dictionary for the **Cars** table.

Attribute	Data type	Format	Type of key
Car_ID			

[5]

(b) Evaluate, by weighing up the advantages and disadvantages, the use of a relational database rather than a flat file database in this situation.

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(c) The sales director wishes to find the details of the agent who sold her the car with an ID of R4962Z. She has used a static parameter query to find these details.

Explain why she should have used a dynamic parameter query.

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12 Sound editing software is used to input or record sounds, save them and output the results to various speaker devices.

Describe the use of other features found in sound editing software. Each use must be different.

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