Cambridge International AS & A Level

CANDIDATE NAME
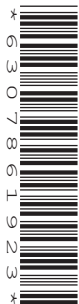
CENTRE NUMBER

CANDIDATE NUMBER

INFORMATION TECHNOLOGY **9626/13**

Paper 1 Theory **May/June 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) A researcher has to choose between using a direct data source or an indirect data source. The data collected may be confidential and may need to be encrypted when sent over the internet.

Tick the statement that best describes the use of a direct data source.

	✓
Searching the World Wide Web to find weather data	
Interviewing residents living on a street to find out how busy the traffic on the street is	
Examining the census results for previous years	
Looking at a list of names and addresses of everyone who is registered to vote	

[1]

(b) Data can exist in two states, dynamic or static.

Tick the most accurate statement referring to dynamic data.

	✓
Dynamic data is data that never changes.	
Data on a hard disk is an example of dynamic data.	
'Canada has a border with the United States' is an example of dynamic data.	
Dynamic data is never checked for accuracy before publication.	

[1]

(c) The SSL/TLS protocol is an encryption protocol frequently used when data is transmitted over the internet.

Describe how the SSL/TLS protocol is used to ensure the security of the data.

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2 Many computer users use a hard disk drive to store their data and use the cloud to back up this data.

(a) Tick the most accurate statement referring to the cloud.

	✓
It is a cheaper method than any other form of storage.	
Data is more secure than when stored using any other form of storage.	
Users have an unlimited amount of free storage.	
You can store data wherever you are, as long as there is an internet connection.	

[1]

(b) Tick the most accurate statement referring to a hard disk drive.

	✓
It is an optical method of storage.	
It can be used to store operating systems.	
It cannot store movies.	
It does not consist of moving parts.	

[1]

(c) Evaluate, by weighing up the advantages and disadvantages, the use of a magnetic tape drive compared to the use of an external solid-state drive (SSD) for making backups.

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3   Explain how the following tasks are carried out using utility software:

   (a) data compression

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   (b) disk formatting

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   (c) file deletion.

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4 Many supermarkets employ checkout operators. Their job is to sit at a terminal for a set number of hours, scanning products bought by customers and handling payments. Information Technology (IT) is used to monitor the performance of these checkout operators.

Evaluate, by weighing up the advantages and disadvantages to the employer, the use of IT for this purpose.

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5 A company has several IT rooms. The computers in each IT room are connected to the company's network. One of the physical safety issues is workers tripping over cables.

Describe, in detail, **three** other physical safety issues that can arise from the use of IT rooms. For each issue, give one method of helping to prevent it. Each method must be different.

Issue 1 ....

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Prevention method ....

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Issue 2 ....

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Prevention method ....

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Issue 3 ....

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Prevention method ....

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6 A company has to decide between using a peer-to-peer or a client-server computer network.

(a) Describe the differences between client-server and peer-to-peer computer networks.

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The company will use its network to access the internet.

(b) Describe **three** benefits to companies of using the internet to conduct business.

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(c) Describe **four** drawbacks to companies of using the internet to conduct business.

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7 Explain what is meant by the following technologies when used in video conferencing:

(a) ISDN

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(b) SDSL

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8   The spreadsheet shows the values of used cars and the deposits required to buy them.

D2		⋮	✗	✔	*fx*	=ROUND(C2*10%,0)

	A	B	C	D	
1	Car make	Car model	Car value	Deposit required	
2	Diap	D5	$4,752.00	$475.00	
3	Diap	D1	$6,732.00	$673.00	
4	Sentel	M810	$6,655.00	$666.00	
5	Sentel	R500	$5,445.00	$545.00	
6	Panther	ZE	$8,470.00	$847.00	
7	WRM	WB	$10,285.00	$1,029.00	
8	WRM	WA	$12,100.00	$1,210.00	
9	Diap	D4	$4,235.00	$424.00	
10	Panther	ZK	$9,438.00	$944.00	
11	WRM	WB	$7,502.00	$750.00	
12	Diap	D3	$5,082.00	$508.00	
13	Panther	ZJ	$10,890.00	$1,089.00	
14	Sentel	G47	$11,374.00	$1,137.00	
15	WRM	WB	$10,527.00	$1,053.00	

(a) Explain what is meant by the term 'formula'. Refer to the contents of cell D2 in your answer.

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(b) Explain what is meant by the term 'function'. Refer to the contents of cell D2 in your answer.

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The spreadsheet has now been sorted.

	A	B	C	D
1	**Car make**	**Car model**	**Car value**	**Deposit required**
2	Diap	D5	$4,752.00	$475.00
3	Diap	D4	$4,235.00	$424.00
4	Diap	D3	$5,082.00	$508.00
5	Diap	D1	$6,732.00	$673.00
6	Panther	ZK	$9,438.00	$944.00
7	Panther	ZJ	$10,890.00	$1,089.00
8	Panther	ZE	$8,470.00	$847.00
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12	WRM	WB	$7,502.00	$750.00
13	WRM	WB	$10,285.00	$1,029.00
14	WRM	WB	$10,527.00	$1,053.00
15	WRM	WA	$12,100.00	$1,210.00
16				

(c) Identify the steps that have been taken by a user to produce this sorted spreadsheet.

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9 Johan has produced a spreadsheet.

Describe **five** advantages of Johan saving the spreadsheet as a csv file compared to saving it as a spreadsheet file.

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10 A company employs over one thousand workers in a multi-storey office block. Sometimes fire drills are carried out and workers have to leave the building. The company wishes to know if the use of a computer simulation would be a better method of discovering how easy it would be to empty the building.

Evaluate, by weighing up the advantages and disadvantages, the use of a computer simulation for this scenario.

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11 Explain what is meant by normalisation. Include in your answer a description of the characteristics of second normal form (2NF) and third normal form (3NF).

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12 A management information system (MIS) can be used to produce reports.

Describe other features of a management information system (MIS).

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