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Cambridge International AS & A Level

Cambridge Assessment International Education
Cambridge International Advanced Subsidiary and Advanced Level

CANDIDATE NAME	

CENTRE NUMBER						CANDIDATE NUMBER				

4349060336

INFORMATION TECHNOLOGY **9626/31**

Paper 3 Advanced Theory **May/June 2019**

1 hour 45 minutes

Candidates answer on the Question Paper.

No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

Write your centre number, candidate number and name in the spaces at the top of this page.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.

Calculators must not be used on this paper.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

Any businesses described in this paper are entirely fictitious.

This document consists of **15** printed pages and **1** blank page.

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1 Explain, with suitable examples, why computer graphics image editing software allows users to save bitmap images in different file formats.

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2 In JavaScript code, the sort() function is used to sort lists into ascending order.

(a) Explain, in detail, why, when using the sort() function, the list in Fig. 2.1 is sorted correctly, but the list in Fig. 2.2 is not.

Before sorting	After sorting
fly	ant
cockroach	beetle
ant	butterfly
butterfly	cockroach
moth	fly
beetle	moth

Fig. 2.1

Before sorting	After sorting
1345	1111
3666	12
1111	1345
23	23
37	3666
12	37

Fig. 2.2

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(b) Write a line of JavaScript code that could be used to sort the list of insects in Fig. 2.1 into descending order.

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3 An online retailer uses a simple form on its website to enable customers to contact its After Sales department by email. The form looks like this:

Send an email to aftersales@mycompany.com:

Your Name:

Your email address:

Comment:

Send Reset

Some of the code that created the form is shown.
Note that the lines have been numbered only for your convenience and reference.

```
1   <html>
2   <body>
3
4   <h2>Send an email to aftersales@mycompany.com:</h2>
5
6   <form action="mailto: aftersales@mycompany.com" method="post"
    enctype="text/plain">
7
8   Your Name:<br>
9
10  Your email address:<br>
11
12  Comment:<br>
13
14
15
16  </form>
17  </body>
18  </html>
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(a) Explain what the different parts of the code in line 6 do.

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(b) Create some additional lines of code that could be inserted into the script at appropriate locations to collect the name and email address of the customer. Indicate, with reference to the line numbers, where your additional code should be inserted.

Line number	Code

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(c) Write down the code that would allow:

- the comment to be entered
- the form to be submitted
- the form to be reset.

Indicate which line numbers the codes would appear on.

Line number	Code

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4 **(a)** Describe the drawbacks of storing company data in the 'cloud'.

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(b) Describe **two** benefits to a company of storing data in the 'cloud'.

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5 Describe how data is transmitted using fibre optic technology.

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6 Discuss the impact of photo editing in politics.

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7 The manager of a company has decided to contact existing customers to gather detailed feedback about a product. She needs responses from a large number of customers as quickly as possible.

Use the information given in Fig. 7.1 to select, with reasons, the most appropriate method of asking the customers for their feedback.

Criteria	Administered by:			
	Post	Telephone	Email	In person
High response rate		✓		✓
High speed of return of results		✓	✓	
Highly detailed questions possible		✓		✓
Low cost	✓		✓	
Rapport between manager and respondents		✓		✓
Short time of manager involvement	✓		✓	

Fig. 7.1

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8 An online store sells goods through its website. The website has an 'automated online assistant' to help the customer through the purchasing process. An 'automated online assistant' on a website is a computer program that uses artificial intelligence to provide a customer with service and assistance.

(a) Describe how the components of an 'automated online assistant' provide help to the customer.

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(b) Explain **two** benefits of the use of an 'automated online assistant'.

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9 Evaluate the use of physical security in combatting IT crime.

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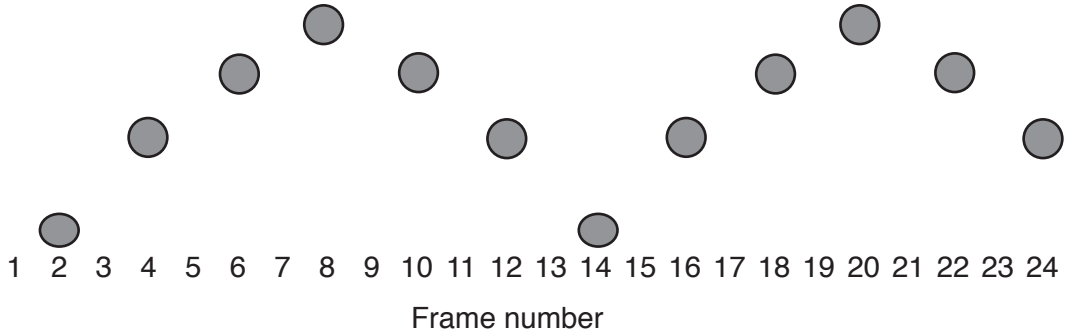
10 A typical animation has 24 frames for every second of running time (24 fps).

A bouncing ball drawn on 'twos' is shown on this timeline:



(a) Explain why the ball is drawn on 'twos'.

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(b) Suggest **one** reason why the animator might choose to draw the animation on 'ones' instead of 'twos'.

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(c) Describe the effect of drawing the ball in this animation on 'fours' instead of 'twos'.

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11 Discuss the impact of wearable computers in manufacturing.

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12 Analyse the use of virtual reality in healthcare.

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