



Cambridge International AS & A Level

CANDIDATE
NAME

CENTRE
NUMBER

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CANDIDATE
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INFORMATION TECHNOLOGY

9626/32

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.

1 Data can be sent over computer networks and the internet using tunneling.

(a) Give **two** reasons why tunneling is used for sending data.

1

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2

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[2]

(b) Describe how tunneling transfers data over the internet.

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[3]

- 2** Data mining is used by health care organisations to analyse large amounts of patient data.

Explain why health care organisations use data mining to analyse their patient data.

[6]

- 3** Explain how an FTP server carries out its role in a computer network.

[6]

[6]

- 4 Mobile devices can use Near Field Communication (NFC) and Bluetooth to exchange data.

- (a) Describe **three** uses of NFC in mobile devices.

1

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3

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[3]

- (b) Discuss the differences between NFC and Bluetooth when used for exchanging data between mobile devices.

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[6]

- 5** A scientist requires a new computer system to help with her research into climate change. A systems analyst will use document analysis to investigate the existing computer system.

Evaluate the use of document analysis in this scenario.

[8]

- 6** A company designs and manages the construction of buildings. It has a client-server network for use by its designers and project managers so that they have access to the software resources they require.

Justify the use of the client-server model of networking in the company.

[8]

- 7 A software developer uses prototyping when creating a new app for smartphones.

(a) Describe the use of prototyping during the development of the app.

[4]

[4]

(b) Compare throw-away prototyping with evolutionary prototyping for creating the new app.

[6]

- 8 Draw the correct symbol around each of the elements shown in the DFD in Fig. 8.1. One element, Teacher, has been done for you.

Draw the correct symbols on this DFD:

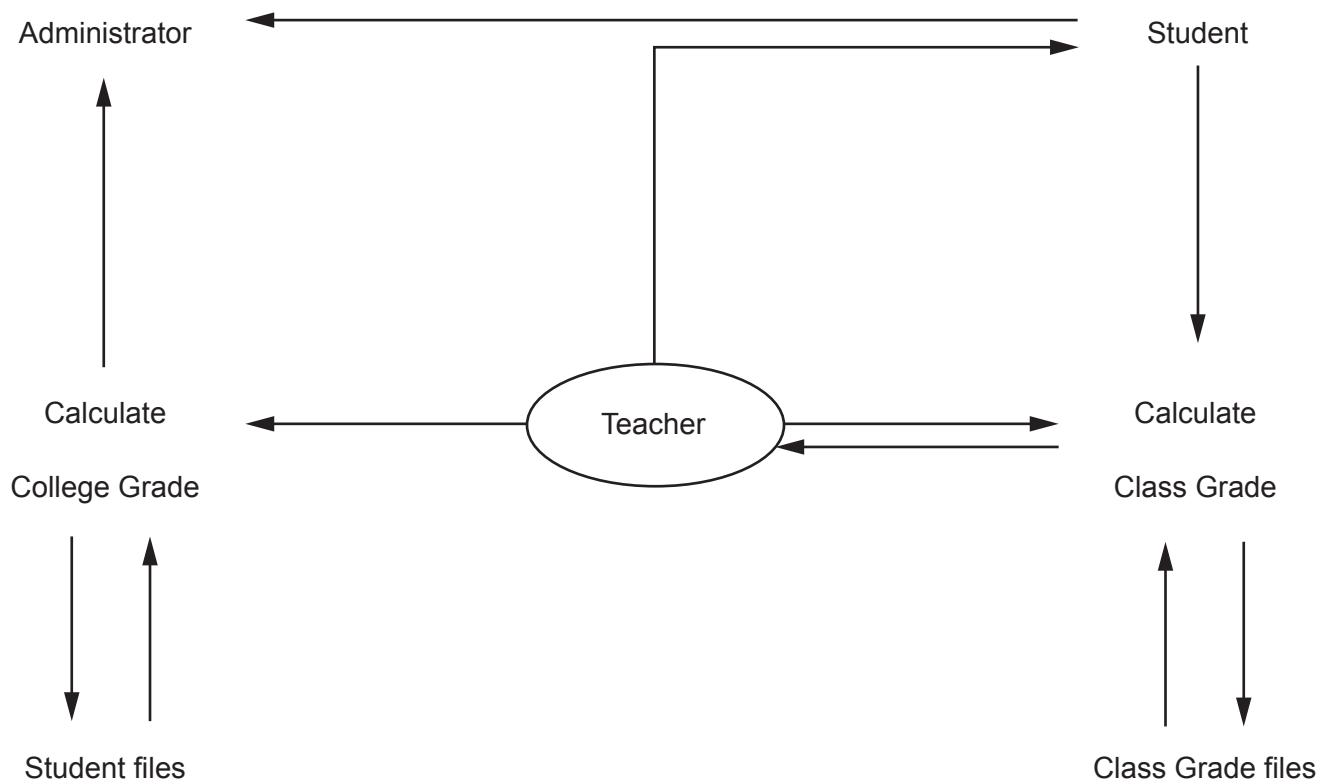


Fig. 8.1

[3]

- 9 A programmer is writing some JavaScript code to display this text on a web page:

This is "Cambridge International IT 9626 Paper 3"

The programmer uses strings in the code.

- (a) Describe the purpose of strings in JavaScript.

.....
.....
..... [1]

- (b) The programmer's first attempt at the HTML and JavaScript code is shown in Fig. 9.1. Line numbers are shown only for your use when referring to the code.

```

1  <!DOCTYPE html>
2  <html>
3  <body>
4
5  <h2>This is "Cambridge Assessment International Education"</h2>
6
7  <p id="string"></p>
8
9  <script>
10 var x = "This is "Cambridge International IT 9626 Paper 3"";;
11 document.getElementById("string").innerHTML = x;
12 </script>
13
14 </body>
15 </html>
```

Fig. 9.1

When run in a web browser the HTML code outputs the heading in line 5 on the page. The browser executes the JavaScript code shown in lines 9 to 12.

The expected output of the code on the web page is shown in Fig. 9.2 but the actual output is shown in Fig. 9.3.

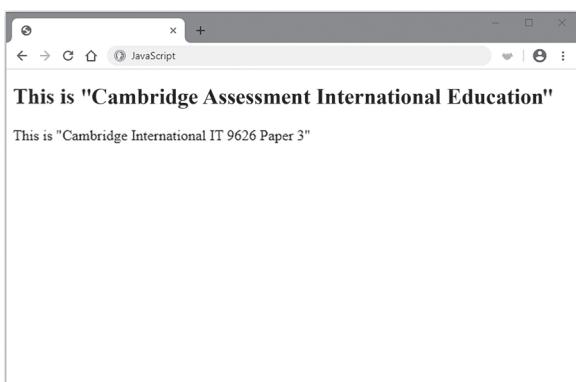


Fig. 9.2

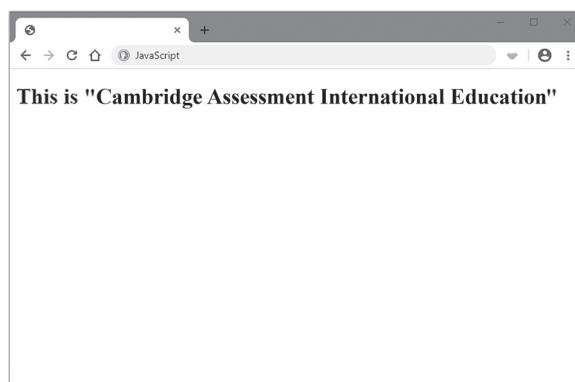


Fig. 9.3

Explain why the error in line 10 prevents the JavaScript code from outputting:

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[4]

- (c) JavaScript programmers often wish to control when sections of their code are executed.

Compare the use of `setTimeout()` and `setInterval()` for delaying the execution of JavaScript code.

[5]

Please turn over for Question 10.

- 10 Image editing software has tools for altering digital images.

Explain why a graphic designer might use each of the following tools to alter a digital image.

- (a) layer tool

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- (b) flatten tool

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..... [2]

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