



# Cambridge International AS & A Level

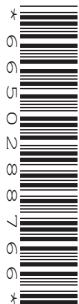
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## INFORMATION TECHNOLOGY

9626/32

Paper 3 Advanced Theory

February/March 2020

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 **16** pages. Blank pages are indicated.



2 A railway company wants to allow customers to book tickets for journeys using its website. A new booking screen will use form controls to collect data about the customer and about the requested journeys. The screen is intended to make it easier for customers to enter the details.

(a) Describe, in detail, **three** checks that could be carried out on the data as it is collected on the booking screen.

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- (c) Describe the characteristics, other than form controls, of a well-designed data collection screen that make it easier for customers to enter data.

Dotted lines for writing the answer to question (c).

[6]

- (d) When the booking screen is created it will need to be tested.

Explain the importance of having a test plan.

Dotted lines for writing the answer to question (d).

[4]

3 (a) Describe the characteristics of incremental prototyping.

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4 Describe how 3D printing would be used when creating objects for use in space exploration.

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5 Computer graphics software can create shapes as vector graphics or as bitmap images.

(a) Identify **one** use of vector graphics in computing.

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(b) Explain, in detail, why vector graphics can be resized without losing image quality but bitmap images usually cannot.

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7 Describe how peer-to-peer file sharing can be carried out using the BitTorrent protocol.

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- 9 In JavaScript, conditional statements can be used to carry out specific actions based upon different conditions. The value of the variable 'age' is entered into a web page and collected by the HTML code of the page. The function in Fig. 9.1 uses the 'if else' and 'else if' conditional statements to test the value of the variable 'age'. Line numbers are shown only for your convenience when referring to the code.

```
1  function myFunction() {  
2      var statement;  
3      var age = document.getElementById("age").value;  
4      if (age < 10) {  
5          statement = "You are not old enough to go to this school";  
6      } else if (age < 18) {  
7          statement = "You can go to this school";  
8      } else {  
9          statement = "You are too old to go to this school";  
10     }
```

**Fig. 9.1**

- (a) Explain, with reference to the code in the function, how the 'if else' and 'else if' statements operate to provide the appropriate statement when an age is entered into the web page and collected by the HTML code.

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