Cambridge International AS & A Level

Cambridge International Examinations
Cambridge International Advanced Subsidiary and Advanced Level

CANDIDATE NAME	

CENTRE NUMBER						CANDIDATE NUMBER				

7179498866

INFORMATION TECHNOLOGY **9626/32**

Paper 3 Advanced Theory **October/November 2018**

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 are not allowed to 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 **16** printed pages.

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1 Credit card accounts are often required for payment when buying goods online.

(a) Describe how the use of a credit card for online purchases may subject credit card account holders to fraud.

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(b) Explain how a merchant selling goods online can attempt to combat credit card fraud.

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2 Some text is being written for use as a title in a slideshow presentation. The text is to be zoomed in and out as the titles are displayed in different sizes on the slides.

The sample letter in Fig. 1 has been created as a bitmap graphic while the sample letter in Fig. 2 has been created as a vector graphic.

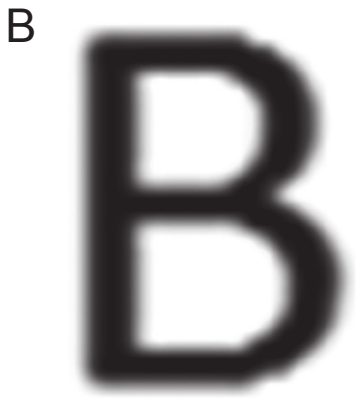

Fig. 1

Fig. 2

Explain, in detail, why letters created as in Fig. 2 are more suitable for use in the slideshow than those created as in Fig. 1.

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3 Evaluate the impact on the environment of the use of robotics in industry.

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4 Fig. 3 shows a diagram of interconnected computer networks that use internet protocol (IP) and packet switching to communicate. A large file is sent from network A to network H. Nodes B to G are routers used to connect the networks. During the sending of the file from network A, network I also starts to send a much larger video file to network H.

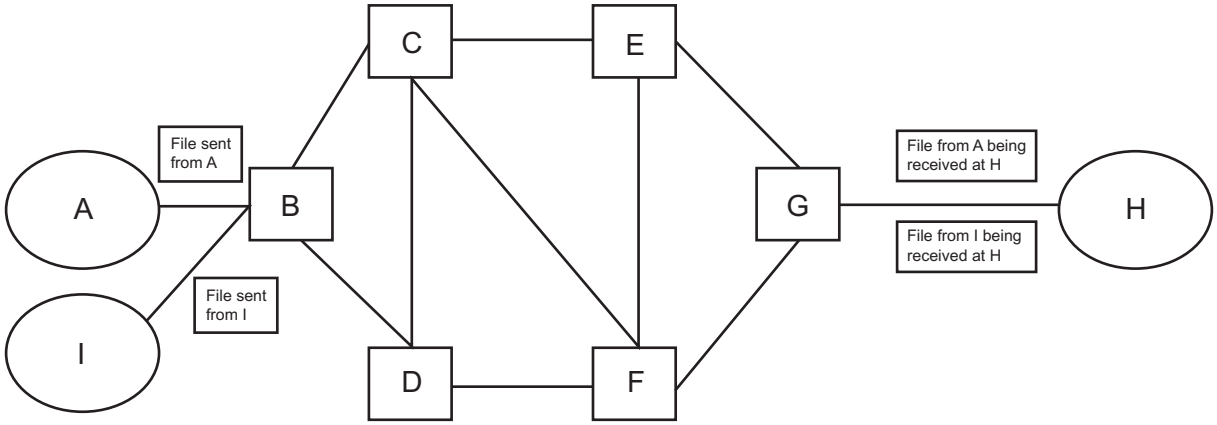

Fig. 3

(a) Explain, in detail with reference to the diagram, how the file from network A and the file from network I travel through the network from router to router and start to arrive at network H at the same time.

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(b) Explain why router C does not always send the packets to router D.

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5 Quintin is a programmer who writes code in HTML and JavaScript for use in online forms. The code is developed and 'white-box' tested before being used.

Quintin is developing the code below. He has added comments to the code. The code asks a user to input two numbers and adds the numbers together. It also displays the total and whether or not it is greater than 10.

```
<html>
<body>

<!-- the next six lines collect the two numbers to be added-->

<br/>Enter first number:
<input type="number" id="nm1" name="num1">
<br/><br/>Enter second number:
<input type="number" id="nm2" name="num2">
<p id="add"></p>

<script>
  function myaddfunction() {
//the next line assigns the first number input to the variable y
               var y = document.getElementById("nm1").value;
//the next line assigns the second number input to the variable z
              var z = document.getElementById("nm2").value;
//the next line adds the two numbers and assigns the result to the variable x
               var x = +y + +z;
//the next line checks if x is greater or not greater than 10 and reports
accordingly
              var A = (x >10) ? x+ " is greater than 10":x+ " is not greater
than 10";
//the next line prints the results onto the page
document.getElementById("add").innerHTML = A ;
   }
</script>
<!-- the next two lines asks the user to click the button and then the script
is executed
<p>Click the button to calculate the total.</p>
<button onclick="myaddfunction()">Add the numbers</button>
<br/>
  </body>
</html>
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(a) Explain how Quintin could use ‘white box’ testing to ensure that the JavaScript code produces the correct result every time.

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(b) Explain why it is good practice that Quintin places his JavaScript code in external files rather than embeds the code in the actual page code.

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6 Describe how quantum cryptography can help to ensure that data is kept secure when being transferred electronically between users.

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7 The table shows part of a database used to control the level of stock items in a clothing store. Reordering is done when the number left in stock reaches or falls below the minimum level allowed by the store management.

Item_Code	Description_of_Item	Item_Price	Current_Stock_ Level	Minimum_Stock_ Level_Allowed	Quantity_to-be_ Reordered
XYP234	Walking boots (pair)	$128.50	16	15	10
ABG765	Jackets	$99.56	15	10	15
SCC653	Gloves (pair)	$36.99	23	20	25
SOX785	Socks (pair)	$25.99	33	30	50
XYT981	Scarf	$34.45	16	10	20

A customer purchases two pairs of walking boots, three pairs of socks and a scarf. The items each have a barcode and are scanned at the checkout when purchased.

Describe, in detail, the processes that would occur when the purchases have been made to ensure that the appropriate new orders are placed to maintain the stock levels.

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8 Evaluate the use of the infra-red method of data transmission in wireless communications.

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9 A software development company uses throw away prototyping to develop parts of a new system.

(a) Give **one** reason why the company would use throw away prototyping.

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(b) Describe **two** drawbacks to the company of using throw away prototyping.

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10 Analyse the suitability of using pilot implementation to install and use WiFi internet access for guests in a chain of hotels.

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Please turn over for Question 11.

11 Analyse the effectiveness of observation as a research technique.

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