

1(a). Laser Tag is a game where teams of players move round an arena shooting each other with infrared guns. Players wear sensors that keep track of how many times they have been hit by the laser. This is known as being 'tagged'.

Below is an extract from a Laser Tag company's website:

Reasons to Choose Us

Come play *Laser Tag* with us for:

- State of the art equipment
- Friendly staff
- Match recordings available to purchase
- Buy two games get one free.

The web page is written in HTML.

Write some HTML code which could have been used to produce this extract. You can assume it is already inside <body> tags.

[4]

(b). The website also includes JavaScript.

(i) Describe what is meant by the term *JavaScript*.

[2]

(ii) Explain why it is usually the case that JavaScript is interpreted rather than compiled.

[2]

2(a). The Big Brains exam board has produced a website that allows students to access revision videos.

All pages in the site contain the following tag in the head section.

```
<link href="themes/standard.css" rel="stylesheet" type="text/css" />
```

Describe **one** advantage of storing the CSS in an external file rather than it being embedded within HTML files.

[3]

(b). The exam board wants to limit access to those students with a school email account (i.e. one ending **.sch.uk**). When students sign up JavaScript is used to check that the email address they have entered is from a school account. The address is checked again when it reaches the server before login details are sent to the address.

Explain why it is important to check the email address with JavaScript and again when it reaches the server.

[3]

3(a). A website has the following HTML code.

```
<html>
<head>
<title>My Stamp Collection - European Stamps</title>
</head>
<body>
<h1 style="font-family:Arial; color:darkGreen">United
Kingdom</h1>
<p>These are my stamps from the uk.</p>
<!-- Code A -->

<!-- Code B -->

</body>
</html>
```

the site's owner wants to add the photo UKstamps.jpg in place of the comment

```
<!-- Code A -->
```

Write the code that should go in place of the comment <!-- Code A -->:

[2]

(b). Where the comment <!-- Code B --> is, the site's owner wants to add the text:

Find out more about UK stamps as a link to the UK Stamp Collectors Guild website which has the URL:

<http://ukstampcollectorsguild.co.uk>

Write the code that should go in place of the comment <!-- Code B -->

[2]

(c). The site uses styling set out as attributes in tags rather than a linked CSS file.

(i) Give **one** disadvantage of this to the site's owner.

----- [1]

(ii) Give **one** disadvantage of this to the site's visitors.

----- [1]

(d). The site needs a light green (web colour lightGreen) background.
Explain what change needs to be made to the current page in order to do this.

----- [3]

4. Elegant Bags is a company that makes designer handbags. It has decided it wants to sell its products online.

Elegant Bags puts its website on its servers which are given a public IP address. It also purchases the domain name `elegantbagsonline.co.uk`.

The company's handbags come in a variety of materials. It would like visitors to its website to be able to select different materials in their browser and for the image shown to then instantly change to one of a handbag made of the selected material.

Explain how the website developer would implement this. You are not expected to write any code.

[4]

5. The following JavaScript has been found to crash certain web browsers.

```
Line   Code  
1       var total = "";  
2       for(var j = 0; j < 200000; j++)  
3       {  
4           total = total + j.toString();  
5           history.pushState(0,0, total);  
6       }
```

`j.toString()` converts `j` to a string. It is the JavaScript equivalent to `str(j)`.

Complete the table below.

Line	Effect of Code
1	
2	
3	
4	
5	Pushes <code>total</code> onto a stack that holds the browser's history.
6	

[2]

[1]

[1]

6(a). A website contains the following HTML:

```
<html>
<head>
  <title>Boris' Cake Shop</title>
  <link rel="stylesheet" type="text/css" href="style.css">
</head>
<body>
  <h1>Boris' Cake Shop</h1>
  <p id="intro">
    Welcome to Boris' cake shop.
    <script>
      var hour = new Date().getHours();//gets the hour value of the
current time
      if(hour>9 && hour<17)
      {
        document.write("We are currently open.");
      }
      else
      {
        document.write("We are closed, come visit us when we are
open (09:00 - 17:00).");
      }
    </script>
  </p>
  <div class="customerQuote">
    Boris makes the best cupcakes I have ever tasted.
  </div>
</body>
</html>
```

Explain the difference between a HTML id attribute and a HTML class attribute.

[2]

(b). The html file is linked to the CSS file `style.css`

Text between `h1` tags should be in the font Arial.

The customer quote should be on a background with the colour E8C3E1.

The introduction text should be dark red (using the named colour `darkRed`).

Write the code that should go in `style.css` to give this formatting.

[6]

(c). The code between the `script` tags is supposed to display a different message during the shop's opening hours of 09:00 and 17:00.

(i) State the name of the language used between the `script` tags.

----- [1]

Some users have reported that there is a bug and the site says the shop is closed when they log on between 9 and 10 in the morning.

(ii) Explain how this bug can be fixed.

----- [1]

(iii) Give **one** disadvantage of this code being run client side rather than server side.

----- [1]

END OF QUESTION PAPER

Question			Answer/Indicative content	Marks	Guidance
1	a		<ul style="list-style-type: none"> • Appropriate tags to make Reasons to Choose Us subheading (e.g. h1, h2, h3). Accept b or strong if accompanied by attribute to make increase font size (1). • Laser Tag italicised (e.g. i or em) (1). • ul used for bulleted list (1). • li to mark out elements of list (1). 	4	<p>Up to 4 marks - 1 mark for each correct step in process.</p> <p>Example:</p> <pre><h2>Reasons to Choose Us</h2> Come play Laser Tag with us for: State of the art equipment Friendly staff Match recordings available to purchase Buy two games get one free </pre> <p>Accept answers where same effect is achieved using style attribute.</p>
	b	i	<ul style="list-style-type: none"> • A programming language that runs in a web browser (1) that can be embedded into HTML (1) with <script> tag (1) to add interactivity to a page (1). 	2	Up to 2 marks for a valid description.
		ii	<ul style="list-style-type: none"> • JavaScript is likely to be run on a variety of machines (1) with different processors / architectures (1). Compiled code is machine dependent (1) whereas interpreters run on high level code (1) which is machine independent (1). 	2	Up to 2 marks for a valid explanation.
			Total	8	
2	a		<ul style="list-style-type: none"> • Content and formatting are kept separate (1). Changes can be made to the external style sheet and affect the whole site (1) saving time (1) and ensuring consistency (1). Stylesheets can be changed for different themes, or different devices (1). 	3	Up to 3 marks for a valid description.
	b		<ul style="list-style-type: none"> • The JavaScript check is carried out client-side / in browser (1) meaning address can be checked and stopped prior to reaching server (1) reducing unnecessary load on the server (1). • JavaScript can, however, be amended and circumvented (1) therefore address must be checked at the server to ensure this has not happened (1). 	3	Up to 3 marks for a valid explanation.
			Total	6	

Question		Answer/Indicative content	Marks	Guidance
3	a	<pre></pre> <ul style="list-style-type: none"> – One mark for img tag – One mark for correct src attribute (1 per –)	2	Accept self closing tag: <pre></pre>
	b	<ul style="list-style-type: none"> - <code><a></code> <code></code> tags plus Find out more about UK stamps text between them. - href attribute with value <code>http://ukstampcollectorsguild.co.uk</code> (1 per –)	2	<pre>Find out More about UK stamps</pre>
	c	i <ul style="list-style-type: none"> – Formatting code has to be rewritten for every page – Changes have to be made to every page – It is a lot of work to keep the look of the site consistent. (1 per –, max 1)	1	
		ii <p>The site is slower to access (as the formatting information is reloaded for every page)</p> <p>Unlikely to have formatting specific to their device/needs.</p>	1	
	d	<ul style="list-style-type: none"> – Change the tag body ... – So it includes the attribute style - Which should have the value <code>background-color:lightGreen</code> (1 per –)	3	Accept: <code><body bgcolor="lightGreen"></code> for full marks
		Total	9	

Question		Answer/Indicative content	Marks	Guidance
4		<ul style="list-style-type: none"> Page will include JavaScript (which allows page content to be dynamic) (AO2.2) <p>(1 per -, Max 1) Plus</p> <ul style="list-style-type: none"> When a material is selected (JavaScript) code can be executed...(AO3.1) ...the appropriate picture is shown...(AO3.1) ...and hides the original picture. (AO3.1) <p>(1 per -, Max 3)</p>	4	<p>Allow alternative solution using JQuery or other library / plug-ins.</p> <p>Accept AJAX can be used to prevent all images having to be pre-loaded.</p> <p>Credit 'replaces / changes previous picture with new picture' with BP 3 and 4 (i.e. 2 marks)</p> <p>Examiner's Comments</p> <p>Many candidates gained credit for correctly identifying that the change of image could be implemented using Javascript (or similar). However, as with the previous question many candidates then found it difficult to explain how this could be implemented. Too many candidates rewrote the content of the question.</p>
		Total	4	
5		<ol style="list-style-type: none"> Creates / declares / defines a variable (called total) (1) and assigns it an empty / blank (string). (1) A loop that iterates 200,000 times. (1) - Concatenates (the string version of) j to total. (1) 	4 AO3.3	<p>For point 1 accept 'blank value' for empty string</p> <p>For point 4 accept <i>add</i> instead of <i>concatenates</i> <u>only</u> if it is clear it is building a string and not adding a numeric value. Accept 'append'.</p> <p>Examiner's Comment</p> <p>In general, candidates did not use technical terminology when describing the effect of the code e.g. declaring a variable, assigning an empty string, concatenating strings. Centres should encourage candidates to use these and similar terms in response to questions where they are required to describe code.</p>
		Total	4	

Question		Answer/Indicative content	Marks	Guidance	
6	a	<p>Only one element can have a given id / id is unique. (1)</p> <p>Class can be used assigned to multiple elements / used multiple times. (1)</p>	<p>2</p> <p>(AO1.1)</p>	<p>Examiner's Comments Those candidates who achieved credit on this question, generally achieved both marks.</p>	
	b	<pre>h1{(1 mark for open and close) font-family:Arial(;) (1 mark) } .customerQuote{ (1 mark) background-color: #E8C3E1(;) (1 mark) } #intro{ (1 mark) (font-)color: darkRed(;) (1 mark) }</pre>	<p>6</p> <p>(AO3.1)</p>	<p>.customerQuote must have . and opening and closing { } for 3rd mark.</p> <p>#intro must have # and opening and closing { } for 4th mark</p> <p>Must match case sensitivity, except for 'Arial' and 'darkRed' and colour code Allow quotes around Arial and darkRed</p> <p>Examiner's Comments Few candidates scored more than two marks on this question. There was a general lack of attention to detail resulting in fundamental mistakes e.g. missing close bracket }; equals (=) instead of colon (:) when setting attributes.</p>	
	c	i	JavaScript	<p>1</p> <p>(AO1.1)</p>	<p>Cao do not accept Java</p> <p>Examiner's Comments Well attempted by most candidates with many scoring two out of a possible three marks. Some candidates did not gain credit in iii) because they cited '<i>...time taken to process</i>' as a disadvantage.</p>
		ii	<p>Change line if(hour>9 && hour<17) To ... if(hour>8 && hour<17) (1 Mark) or ... if(hour>=9 && hour<17) (1 Mark)</p>	<p>1</p> <p>(AO3.3)</p>	<p>Accept Change 'greater than' to 'great than or equal to' or similar</p>

Question			Answer/Indicative content	Marks	Guidance
		iii	<ul style="list-style-type: none"> – Won't work if JavaScript is disabled. (1) – Shows incorrect message if user's computer's clock is wrong / in different time zone. (1) – (Source) code is visible allowing it to be copied / modified. (1) <p>(Max 1)</p>	<p>1</p> <p>(AO2.2)</p>	
			Total	11	