

The company would like to start selling their products on their website. They will use both client side and server side processing to do this.

Task	Client Side	Server Side
Loading the website HTML code		
Applying CSS styles to a website		
Running JavaScript code to check that the customer surname has been entered on the order form		
Running queries on the database to check if an item is available in stock		

[4]

- what search engine indexing means and what information is collected
- what PageRank means and possible factors that can affect a PageRank score of a website
- possible ways for the company to improve the PageRank score of pages on its website.

[illegible]

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

- checks the length of the password is between 8 and 12 characters (including 8 and 12)
- displays the message "Password Length Error" in the HTML `label` tag identified by the id `errorText` if the length is not between 8 and 12 characters.

[illegible]

3(a). A team of programmers create a robot that will be used in a factory. The robot will be able to do the work of multiple humans.

The programmers discuss whether to write the instructions for the robot in assembly language or a high-level language.

The robot provides a web-based interface for users. The home screen webpage for this interface is shown in **Fig.**

4.

Fig. 4

- i. Complete this HTML code that will display the webpage shown in **Fig. 4**.

```
<html>
  <head>
    <title>Robot User Interface</title>
  </head>
  <body>
    <h1>Robot prime directives</h1>
    .....
    <li>Serve the company trust</li>
    <li>Protect data</li>
    <li>Uphold standards</li>
    .....
    <a ..... = "updates.html">Updates</a>
    <p>.....</p>
    <form action="dologin.php">
      Password
      <input type = "....." name="pw">
      <input type = ".....">
    </form>
  </body>
</html>
```

[5]

- ii. Write CSS code that could be used in an external stylesheet to format all text using the <h1> tag as white with a red background.

[3]

(b). The robot's web interface uses images that show the robot in action. These photographs have been taken using a digital camera.

The programmers do not want other people to download and use these images.

- i. State the name of **one** relevant piece of legislation and describe how this would protect these images.

Legislation _____

Description _____

----- [3]

- ii. For other areas of the web interface, the programmers need to use images that they have not created themselves.

Give **two** ways that they could make sure these images are used legally.

1 _____

2 _____

----- [2]

4(a). One page in the website contains a hyperlink on an image. When the image stored as "ticket.png" is clicked, the user is hyperlinked to the page stored as "booking.htm".

Write the HTML code to implement this hyperlink.

----- [3]

(b). A website charges a booking fee of £2.99 on each ticket sold. In addition, if the tickets are purchased from outside of the UK, £4.99 is added to the booking fee. The booking fee is calculated using a JavaScript function named `bookingfee()`.

Complete the definition of the `bookingfee()` function below.

```
function bookingfee(numtickets, country) {  
    var nonUKprice = 4.99;  
    var perTicketPrice = .....;  
    var total = 0;  
    if (country!="UK") {  
        total = total + .....;  
    }  
    total = total + (..... * perTicketPrice);  
    ..... total;  
}
```

[4]

(c). The JavaScript function above is used to show users the booking fee. When users click to buy the tickets, the booking fee is calculated again on the server.

- i. Explain why server side processing is used to recalculate the booking fee.

[3]

- ii. Explain **one** advantage of client side processing to either the customer buying the tickets, or to company who own the website.

[2]

(d). Users are able to search for and find the ticket website using a search engine. Search engines can use indexing and ranking.

- i. Describe how a website is indexed by a search engine.

[4]

- ii. A search engine can use the PageRank algorithm to determine a website's ranking. The PageRank algorithm utilises a damping factor.

State what is meant by the term 'damping factor'.

[1]

- iii. Give **two** other factors that affect the output value given by the PageRank algorithm for a website.

1

2

[2]

(e). A website sells tickets for sporting events. The website uses HTML, CSS and JavaScript.

Describe the purpose of HTML and CSS within the code of the website.

HTML

CSS

[4]

5. Shreya is a web developer who creates webpages for a variety of different companies.

Shreya has received a webpage written in HTML shown in **Fig. 2.1**.

```
<html>
  <head>
    <title>BBC Computer</title>
    <link rel="stylesheet" type="text/css" href="BBC.css">
  </head>
  <body>
    <h1 id="Beeb">History of the BBC Micro Computer</h1>

    <h2>BBC Micro Models</h2>
    <ul>
      <li class="model">Model A</li>
      <li class="model">Model B</li>
    </ul>
  </body>
</html>
```

Fig. 2.1

Some of the formatting requirements for this webpage are shown in **Fig. 2.2**.

Class/ID	Text	Formatting Requirements	
		font-family	colour
Beeb	History of the BBC Micro Computer	times	green
model	Model A Model B	arial	red

Fig. 2.2

Write the CSS Shreya needs to display the webpage so that it meets the formatting requirements stated in **Fig 2.2**.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.

[6]

END OF QUESTION PAPER