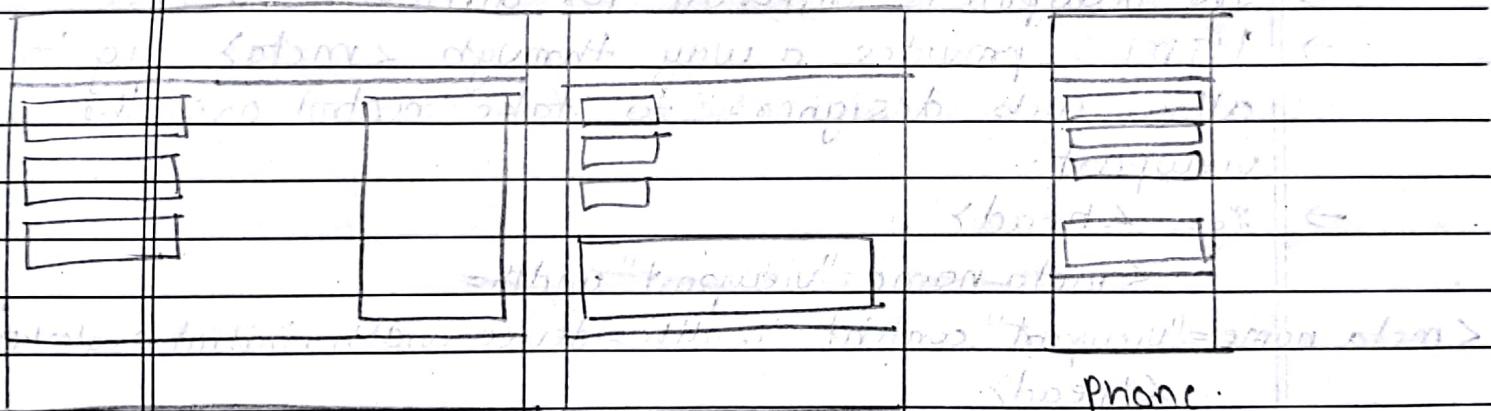


CSS3 and Responsive Web Design Media queries -

Q1) What is responsive web design? Explain with example.

- Responsive Web design is an approach for creating websites that give different viewing experience on different types of devices such as desktop computer, a tablet or a mobile. It is practice of creating a website which is suitable to work on each and every device and screen size, regardless of how large or small, mobile or desktop. Web pages should not skip any information so as to fit smaller devices; instead adapt the content to fit any device.



Desktop

Tablet

Smartphone

Phone

Q2) Define media query. Explain media query with example.

What is media query? How media query can be used?

- A media query is a combination of a media type and an expression that tells how a Web page would appear on a particular device. The expression is basically a condition that checks the style sheet scope by using various features such as width, height and color.

The concept of media queries is added in CSS3 for presenting the content on the basis of specific range of output devices without changing the content itself.

Eg - Syntax of media query:-

```
<style>
@media (max-width: 500px) {
    background-color: blue;
}
```

Viewport :-

- Viewport is the space in which the Web page is displayed.
- The viewport is different for different devices.
- HTML provides a way through `<meta>` tag to allow web designers to take control over the viewport.

→ Eg. `<head>`

```
<meta name="viewport" content="width=device-width, initial-scale=1.0">
```

- Here the `width=device-width` part is used to set the width of the page to follow the screen-width of the device.
- The `initial-scale=1.0` part sets the initial zoom level at the first loading of the page by the browser.

Eg ①

```
<html>
<head>
<meta name="viewport" content="width=device-width", initial-
    scale=1.0">
```



```
<style>
body
{
background-color: pink;
}
```

@ media only screen and (max-width: 600px)

```
{background-color: blue;
}
y
```

<style>

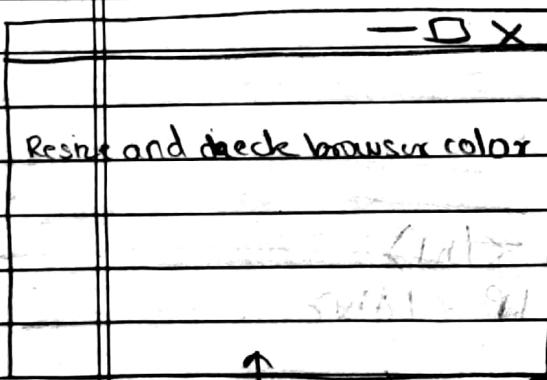
</head>

<body>

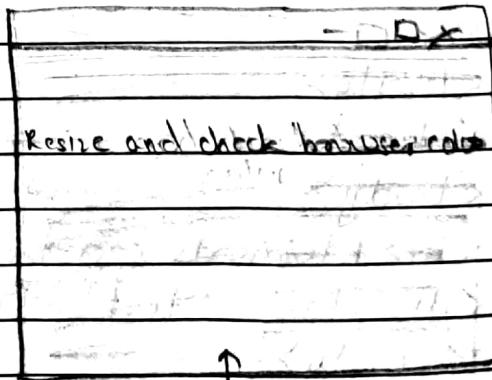
<h1> Resize and check the browser color </h1>

</body>

</html>



Initially in full device-width
background-color is pink.



When resized to max-width of 600px
or less background color changes
to blue.



Eg-②

Hiding Elements with media queries:

Media queries are also used to hide elements on different screen sizes.

```
<html>
```

```
<head>
```

```
<meta name="viewport" content="width=device-width", initial-scale=1.0">
```

```
<style>
```

```
div.test
```

```
{
```

```
background-color: skyblue;
```

```
padding: 15px;
```

```
}
```

```
@media only screen and (max-width: 600px)
```

```
{
```

```
div.test
```

```
{
```

```
display: none;
```

```
}
```

```
}
```

```
</style>
```

```
</head>
```

```
<body>
```

```
<h1> Elements can be hidden </h1>
```

```
<div class="test"> This is IP </div>
```

```
</body>
```

```
</html>
```

Elements can be hidden.

This is IP

← Initial output when screen size is equal to device width.

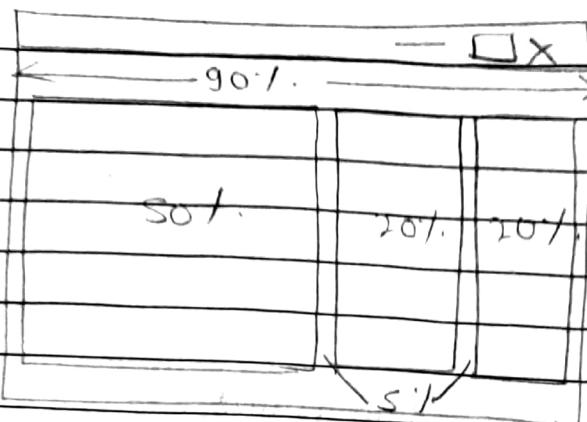
-DX

Elements can be hidden.

← When screen resized to width 60px or less than it then the div tag content gets hidden.

(Q.3) Write a short note on Fluid Layouts -

- A fluid layout is a type of webpage design in which layout of the page resizes as the window size is changed.
- This is accomplished by defining areas of the page using percentages instead of fixed pixel widths.
- In early days, a fixed layout was used where a layout include a main content area that is 960px wide with three columns that have widths of 180px, 600px and 180px.
- While this layouts might look great on 1024x768 screen, it might look small on a 1920x1080 screen and would not fit on a 800x600 screen.
- Fluid layouts solve this problem by using percentage to define each area of the layout.
- For eg, instead of creating a content area of 960px a web developer can create a layout that fills 80% of the screen and the three columns could take up 18%, 64% and 18% respectively.
- By using these percentages, the content can expand or shrink to fit the window of the user's computer.



Advantages of fluid layouts -

- Fluid web page design can be more user-friendly, because it adjusts to the user's set up.
- If designed well, a fluid layout can eliminate horizontal scroll bars in smaller screen resolutions.

Disadvantages of fluid layouts -

- The designer has less control over what the user sees and may overlook problems because the layout looks fine on their specific screen resolution.
- With incredibly large screen resolutions, a lack of content may create excess white space that can diminish visual appeal.

Q.4) Explain different types of CSS3 selectors with an example.

- A selector is a pattern that is used to select an element to apply the CSS style rules. The different types of selectors are as follows -

(1) Universal selector - The universal selector selects all the elements present in an HTML document. We can use the universal selector to implement the identical rules to all the elements of an HTML document. The (+) symbol is used to represent the universal selector.

Eg = `* { margin: 0; padding: 0; }`

`margin: 0;`

`padding: 0; }`

(2) Type selector - The type selector matches all the elements specified in a list with the given values to determine the elements to which the CSS rules are to be applied.

Eg = `h1, h2, h3, p { font-family: sans-serif }`

(3) Class Selector - The class selector allows you to apply CSS rules to the elements that carry a class attribute whose value matches with the class attribute specified in the class selector.

Eg - `<h1 class="intro">Header</h1>`

Applying the CSS rule to all the elements that have the class attribute of the same value.

`.intro { font-family: sans-serif }`

Applying the CSS rule to the H1 elements whose class attribute contains intro as its value.

`h1.intro { font-family: sans-serif }`

(4) ID Selector - The value of the id attribute is unique within a document therefore the selector is applied only to the content of one element.

<h1 id="myheader">Hello World</h1>

#myheader { font-family: sans-serif; }

⑤ Attribute Selection - The CSS attribute selector selects elements on the basis of some specific attributes or attribute values.

[attribute=value] → matches if the element has an attribute with a value followed by a hyphen.

[attribute] → matches if the element has a specific attribute.

[attribute=value] → matches if the element has an attribute with a specific value.

a[href=www.google.com] { font-weight: bold; }

(5) Discuss structural Pseudo Classes in CSS3 with example.

→ CSS pseudo-classes are basically used to apply additional special effects to specific selectors without the help of scripting language.

Syntax of pseudo classes is as follows —

selector:pseudo-class { property:value }

CSS pseudo-classes target elements which are difficult to target with basic element selectors like: id or class.

#

The :link pseudo class



This class is used to add special style effect to an unvisited link.

<html>

<head>

<style>

a:link {color: red;}

</style>

</head>

<body>

 Red Link

</body>

</html>

Selectors

Examples

Description

:active

a:active Used to select the active link

:first-child

p:first-child Used to select each <p> elements which is the first child of its parents.

:focus

input:focus Used to select the <input> element which has focus.

:hover

a:hover Used to select links on mouse over.

:last-child

p:last-child Used to select <p> elements which is the last child of its parent.

:link

a:link Used to select all unvisited links.

:only-child

p:only-child Used to select each <p> element which is the only child of its parent.



Selector	Example	Description
:root	:root	Used to select the document's root element
:visited	a:visited	Used to select all visited links.
:empty	p:empty	Used to select each <p> elements which has no children.

(Q.6) Write a short note on Typography.

→ The term typography means an art of giving style and appearance to the printed matter of a website. Web typography refers to the use of fonts on the World Wide Web.

- Exploring font properties in CSS -

① The font-family property - It is used to specify the name of a font-family for applying the specified font style on a text.

body

{

font-family: sans-serif;

}

② The font-size property - It is used to change the size of text.

font-size: 10px;

}

font-size: 20px;
}



(3)

The font-stretch property - It is used to change the width of a font.

p {

 font-stretch: condensed;

}

p

}

}

Example: `font-stretch: condensed;`

font-stretch: normal; `font-stretch: normal;`

}

(4)

The font-style property - It is used to specify the style of the font : bold and italic.

p {

 font-style: italic;

}

(5)

The font-variant property - It is used to display a font as normal or in small-caps.

p {

 font-variant: small-caps;

}

(6)

The font-weight property - It is used to specify the weight of a font, such as font boldness or thickness.

p {

 font-weight: bold;

}

(7)

The font Property - Instead of specifying all the other properties, you can specify the values of all these properties in the font property.



p {

font: bold italic 30px verdana;
}

Q.7) Write a short note on Color modes of CSS3.

→ CSS enables you to use colors in your Web page. It has two color modes: -RGB and HSL.

(1) RGB color -

RGB (Red, Green and Blue) is a coloring scheme which works by defining values for red, green and blue components of a color. To define red color in CSS has hex value # fcc020:
or rgb(254, 2, 8);

(2) HSL color -

HSL scheme declares color values as HSL (Hue, Saturation and Lightness).

color: hsl (359, 99%, 50%);

Q.8) Explain in detail CSS3 transitions with example.

→ Transition is a process of passing an act from one state to another. To apply transition effect we have to specify two things -

- # The CSS property to which we want to add effect
- # Time duration for the effect.

- The default value duration is 0, hence it is not mentioned then there will be no effect of transition.

The transition properties are listed as follows -

- transition-property: Specifies the property to which you apply the transition.

- transition-duration: specifies the time duration or the length of a transition.

- transition-delay: delays the transition.

- transition-timing-function: changes the speed during the transition

```
div  
{
```

transition-property: opacity;

transition-duration: 2s;

transition-timing-function: ease-in-out;

```
}
```

Example - It illustrates 50px * 50px gray <div> element. Transition effect is specified for the width property of the <div> element. The transition duration will be 3s.

```
<html>
```

```
<head>
```

```
<style>
```

```
div
```

```
{
```

width: 50px;

height: 50px;

background: gray;

-webkit-transition: width 3s, height 6s;

Page No.

and Technology

transition: width 3s, height 6s;

div:hover

{
width: 200px;
height: 200px;

<style>

<thead>

<body>

<p> Hover over the div element to see the transition effect </p>

<div> </div>

<body>

</html>

Hover over the div element to see the transition effect

