CSS & CSS3 – Class Notes (WTMA)

Embedding CSS + CSS3 Keyframes & Animations

A) Embedding CSS in an HTML File

1. What is CSS?
CSS (Cascading Style Sheets) is used to control the presentation of HTML elements such as colors, fonts, layout, and spacing.
HTML defines structure, CSS defines style.

2. Why Do We Embed CSS?

• Improves appearance of web pages
• Maintains design consistency
• Separates content and design
• Allows reusability of styles

3. Ways to Embed CSS in HTML

A.1 Inline CSS

Definition: CSS is written directly inside HTML tags using the **style** attribute.

Example:

```
<h1 style="color: blue;">Hello</h1>

<h3 style="color: purple; font-family: Arial; text-decoration: underline;">
Multiple styles applied
</h3>
```

Advantages: • Quick styling • Useful for testing

Disadvantages: • Not reusable • Hard to maintain

A.2 Internal (Embedded) CSS

Definition: CSS is written inside the **<style>** tag in the **<head>** section.

Example:

```
<style>
h1 { color: green; }
</style>
```

Advantages: • Cleaner than inline CSS • Suitable for single-page sites

Disadvantages: • Not reusable across pages

A.3 External CSS

Definition: CSS is written in a separate **.css** file and linked using the **<link>** tag.

Example:

```
<link rel="stylesheet" href="style.css">
```

Advantages: • Best practice • Easy maintenance • Reusable

A.4 CSS Priority Order

1. Inline CSS
2. Internal CSS
3. External CSS

A.5 Best Practice

Use **external CSS** for real-world projects.

1) Introduction to CSS3

CSS3 (Cascading Style Sheets Level 3) is the advanced version of CSS used to design modern, interactive and responsive web pages.

Why CSS3? CSS3 introduced many powerful features without needing extra images or JavaScript.

2) Advantages / Features of CSS3

Major improvements in CSS3:

1. **Modular Structure** – CSS3 is divided into modules (easy updates). Example modules: Selectors, Backgrounds & Borders, Animations, Fonts.

2. **Better UI Styling** – Rounded corners, shadows, gradients.

3. **Animations and Transitions** – Smooth effects without JavaScript.

4. **Responsive Web Design** – Using **@media** queries.

5. **Advanced Selectors** – **:nth-child()**, **:not()**, **[attr=value]**.

3) CSS3 Backgrounds, Borders and Effects

Rounded Corners

```
.box{
border-radius: 15px;
}
```

Shadow Effects

```
.box{
box-shadow: 2px 2px 10px gray;
}

h1{
text-shadow: 2px 2px 4px black;
}
```

Gradient Background

```
.box{
background: linear-gradient(to right, red, yellow);
}
```

4) CSS3 Transitions

Meaning: A transition creates smooth change when property values change (on hover, click, etc.).

Syntax: `transition: property duration timing-function delay;`

Example:

```
.btn{
background: blue;
color: white;
padding: 10px 20px;
transition: background 0.5s;
}

.btn:hover{
background: green;
}
```

Here, color changes smoothly in 0.5 seconds.

5) CSS3 Animations (Keyframes) – Detailed Notes

5.1 What is Animation? Animation means moving or changing the appearance of an element continuously over time.

In CSS3, animation is done using: @**keyframes** + **animation** property.

5.2 Keyframes in CSS3: Keyframes define different stages of animation. It controls how an element looks at different times.

Example: 0% → Start, 50% → Middle, 100% → End

5.3 Keyframe Syntax:

```
@keyframes animationName {
0% { property: value; }
50% { property: value; }
100% { property: value; }
}
```

5.4 Basic Keyframes Example (Move):

```
<div class="box"></div>

.box{
width: 100px;
height: 100px;
background: red;
position: relative;
animation: moveBox 3s infinite;
}

@keyframes moveBox {
0% { left: 0px; }
100% { left: 300px; }
}
```

Box moves left to right continuously.

5.5 Animation Properties (Important)

Property	Meaning
animation-name	Name of keyframes
animation-duration	Total time of animation
animation-delay	Wait time before start
animation-iteration-count	No. of repetitions
animation-direction	Normal / reverse / alternate
animation-timing-function	Speed pattern
animation-fill-mode	Style before/after animation
animation-play-state	Running / paused

6) Media Queries (Responsive Design)

Purpose: To make website compatible with mobile, tablet and desktop screens.

```
@media (max-width: 768px){
body{
background: lightgray;
}
}
```

Short Viva Questions

1. What is CSS? 2. What are the three ways to embed CSS? 3. What is CSS3?

4. What is @keyframes? 5. Differentiate transition and animation.

6. Explain CSS priority order. 7. What is media query?