

A) Notes Assignment — 10 Questions (Theory)

1. What is the difference between **HEX** and **RGB** color formats? Give one example of each.
2. Explain **RGBA**. What does the **alpha** value represent? What is the range of alpha?
3. Write the HEX code for **white** and **black**.
4. How is **% unit** calculated for width? What does it depend on?
5. Explain the difference between **em** and **rem** with a real example.
6. When should you prefer **rem** over **em** in a scalable UI?
7. What are **vh** and **vw**? Give one practical use case for each.
8. What is the difference between background-size: cover; and background-size: contain;?
9. Explain background-repeat types: repeat, no-repeat, repeat-x, repeat-y.
10. What is background shorthand? Write a shorthand example that includes image, repeat, position, and size.

B) Programs/Tasks Assignment — 10 Programs (HTML + CSS)

1) Color Format Cards

Create 3 cards showing the same color using:

- HEX
- RGB
- RGBA (with 0.6 opacity)

Output: Three boxes with text inside.

2) Opacity Overlay Banner (RGBA)

Create a hero section:

- Background image
- On top, a text box with `rgba(0,0,0,0.5)` overlay
- Text should be readable

3) Percentage Layout (2 Columns)

Make a parent container of fixed width (e.g., 800px) and inside:

- Left column width: 70%
- Right column width: 30%
Add padding and border.

4) em vs rem Typography Demo

Set `html { font-size: 16px; }`

Create:

- One box using `font-size: 2em` inside a parent with `font-size: 20px`
- One box using `font-size: 2rem`
Show visible difference.

5) Viewport Based Full Screen Section (vh)

Create a section that:

- Takes full screen height (`100vh`)
- Center text vertically and horizontally

6) Responsive Box with vw

Create a card/container:

- Width: `60vw`
- Max width: `600px`
- Min width: `280px`
Make it centered.

7) Background Repeat Pattern

Use a small image (or gradient) and demonstrate:

- `repeat`

- no-repeat
 - repeat-x
 - repeat-y
- Create 4 separate blocks.

8) Background Position Playground

Create one div with background image and show positions:

- top left
 - center
 - bottom right
- Make 3 blocks.

9) Cover vs Contain Comparison

Create two equal-size divs (same image):

- First: background-size: cover
 - Second: background-size: contain
- Add labels.

10) Background Shorthand Challenge

Create a banner using **only one line** of background shorthand:

- Image
 - no-repeat
 - center position
 - cover size
- Example format: background: url(...) no-repeat center/cover;