**Question 1: What are JavaScript events? Explain the role of event listeners.**

What are JavaScript Events?

Events are **actions or occurrences** that happen in the browser, such as:

- User interactions (clicks, key presses, mouse movements).

- Browser actions (page load, resizing).

- Network events (fetch completion).

**Role of Event Listeners**

Event listeners **wait for specific events** and execute code when they occur.

- They enable **interactive web pages** (e.g., buttons, forms).

- They follow the **observer pattern** (wait and react).

**Question 2: How does the addEventListener()method work in JavaScript? Provide an example.**

How It Works

1. **Attaches a listener** to an HTML element.

2. **Listens for a specific event** (e.g., `"click"`).

3. **Executes a callback function** when the event occurs.

**Syntax:**

Javascript:

element.addEventListener(event, callbackFunction, [options]);

**Example: Button Click Listener**

Html:

<button id="myBtn">Click Me</button>

<script>

const button = document.getElementById("myBtn");

button.addEventListener("click", function() {

alert("Button clicked!");

});

</script>

**Key Features:**

**Multiple Listeners**: Can add many listeners to one element.

**Flexible**: Works with anonymous or named functions.

**Options**: Supports event phases (bubbling/capturing).

**Removing a Listener**

Javascript:

function handleClick() {

alert("This will only work once!");

button.removeEventListener("click", handleClick);

}

button.addEventListener("click", handleClick);