web technology cba -4

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1. What is XML and why is it used for

XML (Extensible Markup Language) is a markup language used to store and transport data. It allows users to create their own tags to describe data in a structured way.

Why XML is used:

- To store structured information
- To share data between different systems
- To make data self-descriptive
- Used in web services, configuration files, and data exchange between applications

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2. What are the features of XML

Features of XML include:

- Extensible (users create their own tags)
- Self-descriptive data
- Platform independent
- Human-readable and machine-readable
- Hierarchical structure (tree format)
- Supports data sharing across different applications

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3. Difference between HTML and XML

HTML	XML
Used to display data	Used to store and transport data
Has predefined tags	Tags are user-defined
Focuses on presentation	Focuses on data structure
Not case-sensitive	Case-sensitive
Can work even with errors	Must be strictly structured

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4. what is JS? Why is it used for. explain the types.

JavaScript (JS) is a scripting language used to make web pages interactive and dynamic.

Why it is used:

- Form validation
- Creating animations

- Updating content without reloading the page
- Building web and mobile applications
- Game development

Types of JavaScript:

1. **Client-side JavaScript** – Runs in the browser
2. **Server-side JavaScript** – Runs on the server (Node.js)
3. **Core JavaScript** – Basic language features like variables, loops, and functions

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5. Difference between type conversion and type coercion in JS.

Type Conversion	Type Coercion
Manual conversion of data type	Automatic conversion by JavaScript
Done using functions like Number(), String()	Happens during operations
Example: `Number("10")`	Example: `"10" * 2`

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6. What are the operators in JS explain each operator.

Arithmetic Operators: `+ - * / % **`
Used for mathematical calculations.

Assignment Operators: `= += -= *= /=`
Used to assign values to variables.

Comparison Operators: `== === != !== > < >= <=`
Used to compare values.

Logical Operators: `&& (AND), || (OR), ! (NOT)`
Used for logical conditions.

Increment/Decrement: `++ --`
Increase or decrease value by 1.

Ternary Operator:
`condition ? value1 : value2`
Short form of if-else.

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7. Types of functions explain all 3.

1. **Function Declaration**

```
function greet() {
  console.log("Hello");
}
```

1. **Function Expression**

```
const greet = function() {
  console.log("Hello");
};
```

1. **Arrow Function**

```
const greet = () => {
  console.log("Hello");
};
```

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8. How to declare a variable in JS? difference between LET, VAR and CONST.

Variable Declaration:

```
var a = 10;
let b = 20;
const c = 30;
```

Feature	var	let	const
Scope	Function scope	Block scope	Block scope
Reassignment	Allowed	Allowed	Not allowed
Redeclaration	Allowed	Not allowed	Not allowed

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9. How to declare an array. write down at least 5 array methods?

Declaring an array:

```
let arr = [1, 2, 3, 4];
```

Array Methods:

- `push()` – Adds element at the end
- `pop()` – Removes last element
- `shift()` – Removes first element
- `unshift()` – Adds element at the beginning
- `map()` – Creates new array by transforming elements
- `filter()` – Filters elements based on condition
- `forEach()` – Loops through array

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10. What is the control and jumping statements in JS

Control Statements:

- `if`, `else if`, `else`
- `switch`
- `for`, `while`, `do while`

Jumping Statements:

- `break` – Stops loop or switch
- `continue` – Skips current iteration
- `return` – Exits a function

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11. What are the advantages In JS which is not there in any other language?

- Runs directly in web browsers without installation
- Makes web pages interactive
- Supports both client-side and server-side development
- Large ecosystem (React, Node.js, etc.)
- Fast for web-based applications
- Massive community and support

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12. Difference between == and ===

`==`	`===`
Compares only values	Compares value and data type
Performs type coercion	No type conversion

Example:

```
"5" == 5   // true
"5" === 5  // false
```

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13. Difference between null and Undefined

null	undefined
Intentional absence of value	Variable declared but not assigned
Set by programmer	Set automatically by JavaScript

```
let a;        // undefined
```

```
let b = null; // null
```
