1. What is JavaScript?

Answer: JavaScript is a high-level, interpreted programming language used to create dynamic content on websites, such as interactive elements and animations.

2. What is the difference between null and undefined in JavaScript?

Answer:

null is an intentional assignment of "no value" to a variable.

undefined means a variable has been declared but not assigned any value.

3. What are JavaScript data types?

Answer: JavaScript has primitive data types: String, Number, BigInt, Boolean, undefined, Symbol, and null. Objects are also a type of data in JavaScript.

4. What is the difference between == and === in JavaScript?

Answer:

== checks for equality of value with type coercion.

=== checks for equality of both value and type, without type coercion.

5. What are closures in JavaScript?

Answer: A closure is a function that retains access to its lexical scope (variables from its outer function) even after the outer function has returned.

6. What is hoisting in JavaScript?

Answer: Hoisting is JavaScript's behavior of moving declarations (variables and functions) to the top of their scope during the compile phase.

7. What is the event delegation in JavaScript?

Answer: Event delegation is a technique of handling events at a higher level in the DOM rather than attaching event listeners to individual elements. This improves performance and simplifies code.

8. What are promises in JavaScript?

Answer: A promise is an object representing the eventual completion (or failure) of an asynchronous operation. Promises are used to handle asynchronous operations and can be in one of three states: pending, resolved, or rejected.

9. What is the difference between setTimeout and setInterval?

Answer:

setTimeout executes a function after a specified delay.

setInterval repeatedly executes a function with a fixed time delay between each call.

10. What are map() and filter() in JavaScript?

Answer:

map() creates a new array by applying a function to each element in the original array.

filter() creates a new array containing elements from the original array that satisfy a given condition.

11. What is the this keyword in JavaScript?

Answer: The this keyword refers to the object that is executing the current function. Its value depends on the context in which it is used (global, object method, constructor function, etc.).

12. What is an arrow function in JavaScript?

Answer: Arrow functions are a more concise syntax for writing functions. They do not have their own this, so they inherit this from the enclosing context.

13. What are higher-order functions in JavaScript?

Answer: A higher-order function is a function that takes one or more functions as arguments or returns a function as its result.

14. What is the DOM in JavaScript?

Answer: The DOM (Document Object Model) represents the structure of an HTML document as a tree of objects, allowing JavaScript to interact with and manipulate the content and structure of a webpage.

15. What are the different ways to create objects in JavaScript?

Answer: Objects can be created using:

Object literals: {}.

Constructor functions: new Object().

Object.create().

16. What is the difference between call(), apply(), and bind() in JavaScript?

Answer:

call() invokes a function with a specific this value and arguments.

apply() is similar but takes arguments as an array.

bind() returns a new function with a specified this value and optional arguments.

18. What is the event loop in JavaScript?

Answer: The event loop is the mechanism that allows JavaScript to handle asynchronous operations. It processes events and executes the callback functions when the call stack is empty.

19. What is the typeof operator in JavaScript?

Answer: The typeof operator is used to check the type of a variable. It returns a string indicating the type, such as "number", "string", "boolean", etc.

20. What is the debugger statement in JavaScript?

Answer: The debugger statement pauses the execution of JavaScript code at the point where it is written, allowing developers to inspect the state of the program and debug it.

21. What are modules in JavaScript?

Answer: Modules in JavaScript allow you to break your code into smaller, reusable pieces. You can import and export functions, objects, and variables between files using import and export.

22. What is destructuring in JavaScript?

Answer: Destructuring is a shorthand syntax that allows you to unpack values from arrays or objects and assign them to variables.

23. What is the difference between let, const, and var?

Answer:

let is block-scoped and allows reassignment.

const is block-scoped and does not allow reassignment.

var is function-scoped and can lead to unexpected behavior.

24. What is a try-catch block in JavaScript?

Answer: The try-catch block is used for error handling in JavaScript. Code inside the try block is executed, and if an error occurs, the catch block is executed to handle the error.

25. What is localStorage and sessionStorage in JavaScript?

Answer:

localStorage stores data persistently with no expiration time.

sessionStorage stores data for the duration of the page session and is cleared when the page is closed.

26. What is a callback function in JavaScript?

Answer: A callback function is a function passed as an argument to another function, which is executed at a later time, often after an asynchronous operation.

27. What are JavaScript generators?

Answer: Generators are functions that can be paused and resumed using the yield keyword. They allow you to generate values on the fly.

28. What is the difference between Object.freeze() and Object.seal()?

Answer:

Object.freeze() makes an object immutable, preventing any changes to its properties.

Object.seal() prevents the addition or removal of properties, but existing properties can still be modified.

29. What are set and map in JavaScript?

Answer:

Set is a collection of unique values.

Map is a collection of key-value pairs where keys can be any data type.

30. What is the spread operator in JavaScript?

Answer: The spread operator (...) is used to unpack elements from an array or object, or to merge objects or arrays.

31. What is the async and await keywords in JavaScript?

Answer:

async defines an asynchronous function that returns a promise.

await pauses the execution of an async function until the promise resolves.

32. What is the new keyword in JavaScript?

Answer: The new keyword is used to create an instance of an object defined by a constructor function.

** Basic Concepts of OOP in JavaScript:

Class: A blueprint for creating objects with shared properties and methods.

Object: An instance of a class containing properties and methods.

Encapsulation: Hiding the internal details of an object and exposing only the necessary parts.

Inheritance: The ability of one class to inherit properties and methods from another.

Polymorphism: The ability of different classes to provide a method implementation with the same name but different behaviors.

Abstraction: The concept of hiding complex implementation details and showing only the necessary interface to the user.