**Question 1: What are functions in JavaScript? Explain the syntax for declaring and calling a function**

A function in JavaScript is a reusable block of code that performs a specific task. Functions help in:

* Avoiding code repetition (DRY principle – Don’t Repeat Yourself).
* Organizing code into logical blocks.
* Improving readability and maintainability.

Syntax for Declaring a Function

There are three common ways to declare a function:

**1. Function Declaration (Traditional)**

Example :   
function greet(name) {

return "Hello, " + name + "!";

}

**2. Function Expression (Stored in a Variable)**

**Javascript**

Example:

const greet = function(name) {

return "Hello, " + name + "!";

};

**3. Arrow Function (ES6 Modern Syntax)**

Example:

const greet = (name) => {

return "Hello, " + name + "!";

};

**Calling (Invoking) a Function**

**To execute a function, use its name followed by parentheses ():**

Example:

// Function declaration

function greet(name) {

return "Hello, " + name + "!";

}

// Calling the function

console.log(greet("Alice")); // Output: "Hello, Soheb!"

**Question 2: What is the difference between a function declaration and a function expression?**

| **Feature** | **Function Declaration** | **Function Expression** |
| --- | --- | --- |
| Syntax | **function name() { ... }** | **const name = function() { ... }** |
| Hoisting | **✅ Can be called before declaration** | **❌ Must be defined before calling** |
| Use Case | **General-purpose functions** | **Storing functions in variables, callbacks** |
| Anonymous Version | **❌ Always has a name** | **✅ Can be anonymous (const x = function() { ... })** |
| Arrow Function | **❌ Not applicable** | **✅ Can be written as const x = () => { ... }** |

**Question 3: Discuss the concept of parameters and return values in functions**

**1. Parameters**

Definition: Variables listed in the function’s parentheses.

Purpose: Allow functions to accept input values.

Example:

function multiply(a, b) { // `a` and `b` are parameters

return a \* b;}

**2. Return Values**

Definition: The output of a function (specified by return).

If no return: Function returns undefined.

Example:

javascript

function checkEven(num) {

if (num % 2 === 0) {

return true; // Explicit return

}

return false; // Default return

}

console.log(checkEven(4)); // Output: true