1/Java script primary Role?

JavaScript is a scripting language used to develop web pages. Developed in Netscape, JS allows developers to create a dynamic and interactive web page to interact with visitors and execute complex actions. It also enables users to load content into a document without reloading the entire page. Most websites use JavaScript for validation and to support external applications, including PDF documents, widgets, flash applications. Some of the world's largest tech companies use JavaScript to better the user experience.

2. Non browser Enviorment which use java script

JavaScript code may be executed in one of two runtime environments:

1. a browser's runtime environment
2. the Node runtime environment

In each of these environments, different data values and functions are available, and these differences help distinguish front-end applications from back-end applications.

- Front-end JavaScript applications are executed in a browser's runtime environment and have access to the `window` object.
- Back-end JavaScript applications are executed in the Node runtime environment and have access to the file system, databases, and networks attached to the server

3. Java Script as a prototype based language?

- Prototypes: JavaScript is a prototype-based language, which means that it uses prototypes to inherit properties and methods from one object to another. In JavaScript, objects can be linked to other objects, forming a prototype chain. When a property or method is accessed on an object, the JavaScript engine first checks if that property or method exists on the object itself. If it does not, it will check the object's prototype, and so on, until it reaches the end of the prototype chain. If the property or method is not found, it will return undefined.

4.In what sense is javascript considered a mulita-paradigm language?

JavaScript is a multi-paradigm scripting language, which means that it is very dynamic in nature and supports various types of programming styles, such as object-oriented, imperative, and functional programming. In this book, we will discuss the three main programming paradigms that are popular among developers.

5.Explain term of Dynamic language in the context of Java script?

By definition, a Dynamic programming language is a high-level programming language that at runtime executes many common programming behaviors that static programming languages perform

during compilation and these behaviors could be adding a new code, modifying the type system, or extending objects.

Some of the JavaScript features which make it dynamic are as below:

- JavaScript is a **dynamically typed** language
- JavaScript is a **loosely typed** language

Dynamically typed language

A language is called Dynamically typed if the ‘type’ of a variable is checked only during the runtime unlike at compile time in a statically typed language. With this support, the developers need not specify the data type of any variable while writing the code.

6.What is the role of ECMA script inn defining Javascript standards?

ECMAScript is a scripting-language specification that was developed by ECMA International in order to create a standardized JavaScript implementation across all web browsers.

It is widely used for client-side scripting in web browsers, and it is also used for server-side scripting with node.js. ECMAScript is the successor to JavaScript, and it is backward-compatible with most JavaScript code.

7.Why is it mentioned that Jvascript is single threded language?

Javascript is a **single-threaded language**, meaning that just one line of code may be run at once. Javascript is single-threaded because, originally, it was only a web browser scripting language created to serve the needs of a single user on a single window of the browser, eliminating the need for multithreading. Additionally, the **asynchronous programming** capabilities provided by Javascript through the event loop were a perfect method to get around the blocking behaviour and operate as smoothly as a multi-threaded application.

8.Differentiate between imperative and declarative programing style in javascript?

For starters, **imperative programming** refers to a programming paradigm where we provide the computer with step-by-step instructions on **how** to perform a particular task.

By contrast, **declarative programming** involves specifying **what** result we're expecting from our code. This is mainly achieved through special functions and tools that are provided by different frameworks and libraries of a programming language.