Html flag

Q1. What are the differences between html4 and html5?

Ans:

→ The html4 is an older version and HTML 5 is an updated version like we use to have in react packages.

→ HTML 4 is no longer in use.

→ like in react that we have componentDidMount that is replaced by hooks.

→ now in html5 we have a header, footer, and section that are not present html4.

Q2. What are semantic tags in HTML? Give me some examples.

Ans: Semantic tag in HTML is the tag that has meaning on the web page. Examples are Header, Footer, Section, ASide, Main, Nav e.t.c

Q3. What is the purpose of Article, div, section, nav, aside?

Ans:

Article tag defines articles on the web page.

Div defines division or section on a website.

Section defines each part or categories in a website.

Nav defines Navigation menu in a website

Aside defines Sidebar on a web pages.

Q4. Why will you use Meta tag?

Ans: Saves HTML metadata. This results in the use of web pages by browsers, search engines and others. This is very important for SEO.

The Meta tag defines HTML document information which helps the web crawler on search engine

Q5. What is the difference between inline, inline-block, and block?

Ans:

Inline-block and inline means almost the same thing.

block →means it starting from left to right on the web page.

Inline →means it starting anywhere in the middle of the website

In inline the length and width is fixed you can not change it but inline-block you can set the width and height & Also say that, block you can set the width and height.

Q6. What difference between strong, b, bold, em, I?

Ans:

1. **B**→ It makes the text look bold only.
2. **Strong**→ It specifies the strong important of the content and highlight seriousness.
3. **I**→ It display the text in italice like as **<b>** tag.
4. **Em**→ It specifies the stress emphasis of its contentens.

Q7. What are properties and attributes in HTML?

Ans: We write attributes in the first tag in HTML. When the browser parses the code then DOM Node is created. And this Node is Object. And the object has properties.
Attributes are defined by HTML and properties are defined by the DOM. An attribute's value is constant and a property's value is variable.

Q8. What is a Viewport?

Ans: Viewport is the area where web pages are displayed, where web pages are displayed according to different devices. The viewport varies with the device and will be smaller on the mobile phone than on the computer screen.

It is the part on the Mobile devices or desktop devices where the content of the website can be seen on it.

Q9. Have you used Audio and Video tags? How do they work?

Ans:

Audio :

We can control the audio play,pause,volume through the controls attribute.

The `<source>` element allows you to specify alternative audio files which the browser may choose from. The browser will use the first recognized format.

Video :

The HTML `<video>` element is used to show a video on a web page. We can control the video play,pause,volume through the controls attribute

It is a good idea to always include `width` and `height` attributes. If height and width are not set, the page might flicker while the video loads.

The `<source>` element allows you to specify alternative video files which the browser may choose from. The browser will use the first recognized format.

Q10. What is a hyperlink in HTML? what tag and attribute will you use for hyperlinks?

Ans:

We only have one hyperlink which <a> tag and the attributes are href and target Which helps to link or redirect to another website.

Q11. What is the difference between HTML elements and tags?

Ans:

Elements enclose the contents in between the tags Tags are the starting and ending parts of an HTML element.

Q12. What is charset in html? why will you use it?

Charset is simply character set (full meaning)

To display an HTML page correctly, a web browser must know the character set used in the page.
<meta charset="UTF-8">

And we different charset apart from UTF-8 e.g ASCII

CSS Flag

1. What Flex layout? Difference between Flex and grid layout?

Ans:
Grid: 1. It is two-dimensional
2. The layout system with rows and columns.
3. The main container element used CSS **display: grid**
Flex: 1. It is one-dimensional
2. It is working display devices and screen sizes
3. The main container element used CSS **display: flex**

2. Explain CSS position property? What are some differences between absolute position and relative position?

Ans:

What will be the position of the HTML element, can be said with the CSS position property.

Relative: its normal position. It means other objects or elements will not fill their place.

Absolute: its position with respect to its parent. it uses the document body as a parent.

Unless no parent is present.

3. What is a box model? And what are the different elements of a box model?

The CSS box model is basically a box wrapped around each HTML element.

Content - its appear text and images

Padding - it clears an area around the content. The padding is transparent

Border - A border that goes around the padding and content

Margin - Clears an area outside the border. The margin is transparent

4. What is a Hover effect? What is the purpose of the active class?

When a user hovers over an HTML element, transition effects occur on the element It is used to identify key items on a web page and is an effective way to enhance the user experience.

or What is pseudo-class?

A CSS pseudo-element and pseudo-class is a keyword associated with a selector that allows you to style a specific part of the selected element (s).

5. What are the different types of Selectors in CSS?

CSS selectors are styled on HTML elements. There are several different types of selectors in CSS.

CSS Selector is Element, Id, Class, Universal, Group.

or Differences between Class selectors from ID selectors?

1. Id used to identify one single element in our HTML and one element on the page should have a particular style applied.
2. The class can be used to identify more than one HTML element.

6. What is CSS Specificity?

The specificity is that the selectors that are used to style an Html element, the selector will get the style first.

specificity hierarchy → Inline styles , IDs, Classes, pseudo-classes, attribute selectors, Elements, and pseudo-elements

7. What is a CSS Preprocessor? What are some benefits of Sass?

A CSS preprocessor is a scripting language that extends CSS and is compiled into regular CSS syntax.

Benefits of Sass:

→ extension of CSS

→use things like variables, nested rules, inline imports, and more

→ organised and allows you to create style sheets faster

→ Sass is compatible with all versions of CSS

8. What is a Pseudo element? Give an example of pseudo-element

A CSS pseudo-element is used to style specified parts of an element.

```
p::first-letter {

  color: #ff0000;

  font-size: xx-large;

}
```

9. How will you use media queries to make a website responsive?

We use CSS Media Queries to make a web site responsive design.

```
@media only screen and (max-width: 500px) {

  body {

    background-color: black;
  }
}
```

10. How will you make font size responsive?

I can make the font size responsive using Media Queries

```
@media screen and (min-width: 601px) {
  div.example {
            font-size: 80px;
  }
}
@media screen and (max-width: 600px) {
  div.example {
            font-size: 30px;
  }
}
```

or What are some CSS Measuring units? Which one will you use?

Cm,mm,,in,px,pt,pc there are CSS Measuring units.

I will use em Units.

11. Difference between transition and transform

Transform is a property that *allows an element to change its shape, size* and transition is controls the speed and duration, and makes it smooth and linear.

12. How will you horizontally and vertically center a div inside a div

I will be setting the display property to flex and define the align-items and justify-content property to center.

Javascript flag

1. How does JavaScript work?

or What is the JavaScript Event Loop?

Or Though JavaScript is single-threaded, how does it handle concurrent work?

Or Is JavaScript Single-threaded or multi-threaded?

Or Is JavaScript Synchronous or asynchronous?

Ans: Javascript is a single-threaded language and synchronous. For Ajax call javascript is asynchronous

2. How does JavaScript code is executed in Browser?

Ans: Javascript code executed in the browser is two-way. In the Html file use the script tag and into a script tag run, javascript and other way are write a javascript external file and connect into js file in HTML.

3. What are the differences between “==” and “===” ?

Ans: “==” check value and “===” check value and type.

4. What is a callback function?

Ans: Callback function passed into another function as an argument, then this function runs and returns a value in the main function.

5. When will you return something from a function?

Or How will you return more than one value from a function?

Ans: End of the function execution return statement will be run. The return statement is a result of a function.

6. Tell me about bind, call and apply.

Or How many arguments does call apply bind take?

Ans: The call method passes the argument individually and apply method passes the all argument in the array. Bind method same as call method but bind method will be returned.

7. What is a Closure in JavaScript? How does it work?

Ans: A different scope to call a variable or function.
For example:

```
let name = “Jami;    //global scope
function(){
        // functional scope
        console.log(name);  //this name is closure.
}
```

8. What does the “this” keyword indicate in JavaScript?

Ans: It has different values depending on where it is used:
Method, this keyword refers to the owner object.
Otherwise, this refers to the global object.
Function, this keyword refers to the global object.
The event, this keyword refers to the element that received the event.

9. What is Event bubbling in js? Or How does event delegate work in JS?

Ans: When clicking a child element it’s work child and this parent element. It’s called event bubbling in js. Event delegate is a pattern to handle events efficiently. We can add an event audience to a parent element and use it to call an event to a specific target.

10. Explain hoisting in JavaScript.

Ans: In JavaScript, Hoisting is the default behavior of removing all announcements at the top of the scope before code execution.

11. What is a recursive function function

Ans: Recursive function is a function that calls on this own function and writes it into a condition otherwise it’s called again and again.

12. Difference between undefined and null

Ans: Null is a special value it means “no value” and undefined means variable has not been declared or has not given value.

13. What are the different data types in JavaScript?

Or Primitive data type and non-primitive data type

Ans: Two different data types in Javascript.
Primitive type: Number, String, boolean, int
Non-primitive type: array, object, classes

14. What is DOM

Ans: Document Object Model.

15. Is JavaScript a static type or a dynamic type?

Or How will you know the type of a JavaScript variable?

Ans: Javascript is a dynamic language.

Javascript Es6

1. Tell me about Es6 Or what ES6 features did you use?

→ It is the sixth and major edition.

→ It defines the standard for JavaScript implementation.

→ The most important features of ES6. such as let, const keyword or Arrow function, Classes, Promises, For/of loops, Map objects, Set Objects, etc.

2. What are the differences between var, let, and const?

var

- Var is the oldest keyword
- It is global scoped or function scoped. (Its means variable defined outside the function can be accessed globally and variables defined inside a specific function can be accessed within the function)
- Update and re-declared into the scope.
- the default value is “undefined”.

Let

- It is block-scoped
- Can be Updated and can not re-declared into the scope.

Const

- It is block-scoped
- Can not be Updated and re-declared into the scope.

3. Why will you use default parameters?

Ans: If the value of the parameter is not passed in any function, then the value of the default parameter works.

4. How does the Spread operator work?

Ans: I can quickly copy all or part of an existing array or object to another array or object using JavaScript Spread Operator (...).

5. Difference between class and object

Ans: Object is an inheritance of the class and Class is a group of similar objects.

Class is used as a template for declaring and creating the objects. The object is a data type in JavaScript.

6. What is a Prototype chain? Or how does inheritance work in JavaScript?

Ans: Almost all objects in JavaScript are examples of objects. This means that all objects in JavaScript inherit features and methods from the Object prototype. This is called prototype chaining.
Prototype chaining means all the objects in JavaScript, inherit the properties and methods from the Object

7. Explain Call by value vs call by reference

Ans: Call by value method copies the value of an argument into the formal parameter of that function and call by reference method copies the address of an argument into the formal parameter.
When something is call by value you can't change it from original declare value
But when something is call by reference you can change it back

8. What is the scope of JavaScript? Or Explain JavaScript scope, Block scope, and global scope? Or Block scope and global scope, Lexical scope এর পার্থক্য

Ans: Before ES6 has to scope, Global and Functional scope. Let and const provide block scope. When we declared a variable in the javascript function it's called local scope and outside of a function is the global scope.

→JavaScript has global scope and local scope.

→Variables declared and initialized outside any function become global variables.

→Variables declared and initialized inside function becomes local variables to that function.

→Variables declared without **var** keyword inside any function becomes global variables automatically.

→ Global variables can be accessed and modified anywhere in the program.

→ Local variables cannot be accessed outside the function declaration.

→Global variable and local variable can have same name without affecting each other.

→JavaScript does not allow block level scope inside { } brackets.

9. What is a Higher-order Function?

Ans: A "hire-order function" is a function that takes functions as parameters and/or returns a function.

Function that accepts functions as parameters and returns a function that more efficient and powerful than the functions accept.

10. What is API? Difference between Get vs post?

Ans: An API (Application Programming Interface) is a set of functions that allows applications to access data.

Get method is used to request data from a specified resource and POST is used to send data to a server to create a resource.
Get is requesting for data from the model(database) and Post is sending data to the model

11. Difference between local storage and Session storage

Ans: it is not session-based, it must be deleted via javascript or manually. It’s session-based and works per window or tab. This means that data is stored only for the duration of a session, i.e., until the browser (or tab) is closed

localStorage is a storage on browser that store data and does not expire, whereas sessionStorage data is cleared when the page session ends or close the browser

12. What are cookies? And why will you use it?

Ans: Cookies are text files containing small data - such as a username and password - that are used to identify your computer when you use a computer network.
Cookie is a small text file that is stored on your computer or mobile device when you visit some websites and remembering your preferences

13. What is object-oriented programming?

Ans: Object-Oriented Programming (OOP) is a computer programming model that organizes software design around objects or data rather than functions and reasoning.
Object-oriented programming is a programming paradigm based on the concept of objects instead of function

14. Difference between Array vs LinkedList.

Ans: Array is the index base of data structure and the Linked list is ta list of data structures

15. How will you debug a JavaScript application

Ans:

- Pause the code breakpoint.
- Set line-of-code breakpoint.
- Check the variable, scope, function name.
- Console log into the code, check again and again.

React Flag

1. What is reactjs? Tell us about the advantages and disadvantages of using react js.

Ans: React is a declarative, efficient, and flexible JavaScript library for building user interfaces and specifically for single-page applications.

- Open Source
- JavaScript Library
- Developed by Facebook.
- Used for only view (User Interface).

Advantage of ReactJS:

1. **Easy to Learn**
2. **Creating Dynamic Web Applications (It makes use of the JSX(JavaScript Extension))**
3. **Reusable Components**
4. **Scope for Testing the Codes**
5. **Performance Enhancement**

Disadvantages of ReactJS:

1. **The high pace of development**
2. **Poor Documentation**
3. **View Part**
4. **JSX as a barrier**

2. Why will you select ReactJS? Or there are so many different javascript frameworks. Why will you use ReactJS for your application?

Ans:

→The main objective→ of UI(User Interfaces) that improves the speed of the apps,
→It uses virtual DOM, which improves the performance of the app.
→ The virtual DOM is faster than than the regular DOM

3. What is Virtual dom? What are the differences between virtual and real dom? Or what is the diff algorithm? How does it work

Ans: A virtual DOM object is a *representation* of a DOM object, like a lightweight copy. It has a problem. It has no power to change directly where the change is on the screen.

8. Differences between props and state?

Or How will you pass data from parent to child

Or Can you change props?

Or is Props readonly

Props:

- □ The Data is passed from one component to another.
- □ It is Immutable (cannot be modified)
- □ Props can be used with state and functional components.
- □ Props are read-only.

State:

- □ The Data is passed within the component only.
- □ It is Mutable (can be modified).
- □ State can be used only with the state components/class component (Before 16.0).
- □ State is both read and write.

৫. What is the purpose of useState? When and why will you use it? Or Manage state

Ans: The **useState()** is a Hook. It allows you to have state variables in functional components.

The useState Hook is used to keep track of strings, numbers, booleans, arrays, objects, and any combination of these.We could create multiple state Hooks to track individual values.

৬. What is a context API? How does it work?

Or What is the best way to pass data 4-5 layers down?

Or What is prop drilling?

Ans: Context provides a way to pass data through the component tree without having to pass props down manually at every level.

৭. Difference between useEffect and useState?

Or why do we need to inject dependency for useEffect

Ans:useState store data and useEffect run to change any dependency data. If we do not use dependency in useEffect it’s loads every time.

৮. What is JSX? How does it work

Ans:JSX allows us to write HTML elements in JavaScript and place them in the DOM without any createElement() and/or appendChild() methods.

JSX converts HTML tags into react elements.

JSX is an inline markup that looks like HTML and is converted to JavaScript. A JSX expression begins with an HTML-like open tag and ends with the corresponding closing tag.

৯. Tell us about React Component lifecycle

Ans: very React Component has a lifecycle of its own, lifecycle of a component can be defined as the series of methods that are invoked in different stages of the component's existence.

- **Mounting:** Mounting is the stage of rendering the JSX returned by the render method itself.
- **Updating:** Updating is the stage when the state of a component is updated and the application is repainted.
- **Unmounting:** As the name suggests Unmounting is the final step of the component lifecycle where the component is removed from the page.

১০. What is the purpose of a custom hook? How will you create a custom hook? Give us an example.

Ans: A custom hook is a JavaScript function whose name starts with "use" and it's called another hook. For example, useAuth.

১১. How would you optimize a react js application

Or How would you prevent unnecessary component re-render in reactjs?

Ans:

- Using Immutable Data Structures
- Use function Components
- Use multiple Chunk Files
- Use dependency optimization

React Component

1. How will you send data from a Child Component to the parent component?

Ans:

Pass a function as a prop to the Child component.

Call the function in the Child component and pass the data as arguments.

Access the data in the function in the Parent.

2. What is the best way to send 4 or more props to a child component?

Ans: Context API or Redux or by wrapping the child components in Higher-order components.

3. What is Redux and what is the purpose of Redux?

Ans:

Redux is used for state management. The use is to avoid prop drilling

4. What is React Native? What do you know about React Native?

Ans:

React Native is used for building cross-platform mobile applications based on JavaScript language.

Instead of JAVA for Android and Swift for IOS, react-native can build both the cross-platform.

But it has some downsides like performance, and speed when it comes to large-scale app

5. What are Higher-order components? Give us an example.

Higher-order components or HOC is the advanced method of reusing the component functionality logic. It simply takes the original component and returns the enhanced component.

Reason to use Higher-Order component:

- Easy to handle
- Get read of copying the same logic in every component
- Makes code more readable

6. Is there any reason to return something from a UseEffect hook?

Ans:

The reason to return from use effect hook is to avoid data leakage or infinite loop.

Take for example if we're setTimeout in useEffect we want to return a clear timeout to avoid an infinite loop

7. How will you optimize a react application?

Ans: Optimizing in React.:

By code-splitting, Lazy loading, Chunks of components by rendering. useMemo and Use callback , Pure Components in functional components

8. What are the different ways to manage a state in a React application?

Ans: useState ,useReducer, Context API, Redux

9. Why do we inject dependency inside a UseEfect hook?

This means calling Hook again when there is a change.

If you have multiple elements in a dependency array, the hook will trigger if *any* element of the dependency array changes

10. How will you prevent re-render in react applications?

Memoization using useMemo() and UseCallback() Hooks.

API Call Optimization with React Query

11. Tell me some disadvantages of ReactJs?

→ Lack of Documentation

→Non-Vigilant Focus on User Interface

→ JSX as a Barrier

→Incomplete Tooling Set

12. Does React perform one-way data binding or two-way data binding?

Ans: one-way data binding,one-way data binding unlike Angular which is two ways data binding

Node Js And Mongo DB Flag

1. What is Nodejs

Node Js is backend JavaScript runtime environment that runs V8 engine and execute JavaScript code outside of browser.

2. Node vs javascript? ……. Read more

Javascript	Node js
1.Javascript is a programming language that is used for writing scripts on the website.	1.NodeJS is a Javascript runtime environment.
2. It can only be run in the browsers.	2. We can run Javascript outside the browser with the help of NodeJS.

3. It is basically used on the client-side.	3. It is mostly used on the server-side.
4. Javascript is used in frontend development.	4.Nodejs is used in server-side development.
5.Javascript can run in any browser engine as like JS core in safari and Spidermonkey in Firefox.	5. V8 is the Javascript engine inside of node.js that parses and runs Javascript.
6. Javascript is capable enough to add HTML and play with the DOM.	6. Nodejs does not have capability to add HTML tags.
7.It is the upgraded version of ECMA script that uses Chrome's V8 engine written in C++.	7.Nodejs is written in C, C++ and Javascript.

3. Nodejs single threaded or multi threaded? … Read More

Single thread: Node JS Platform doesn't follow the Multi-Threaded Request/Response Stateless Model. It follows the Single-Threaded with Event Loop Model. Node JS Processing model mainly inspired by JavaScript Event-based model with JavaScript callback mechanism. Because of which Node.js can handle more concurrent client requests with ease. The event loop is the heart of the Node.js processing model.

4. NodeJs ব্লকিং না নন-ব্লকিং কাজ করে? … Read more

Node.js is based on an event-driven non-blocking I/O model

Non-Blocking: It refers to the program that does not block the execution of further operations. Non-Blocking methods are executed asynchronously. Asynchronously means that the program may not necessarily execute line by line. The program calls the function and move to the next operation and does not wait for it to return.

It is Non blocking.Node. js internally uses operating system level polling in combination with worker threads for operations that do not support polling.

5. What is Npm? ………Read more

NPM stands for Node Package Manager, responsible for managing all the packages and modules for Node.js.

Node Package Manager provides two main functionalities:

- Provides online repositories for node.js packages/modules, which are searchable on search.nodejs.org
- Provides command-line utility to install Node.js packages and also manages Node.js versions and dependencies

6. What is the purpose of a database?

Database is used for storing data which can later be query from and it is scalable.

7. sql vs nosql মধ্যে পার্থক্য কি? কোনটা বেশি ব্যবহার হয়?

SQL vs No SQL.

→SQL are **structure** query language they are rigid,Vertically scale up

→No SQL are **non structure** query Language

They are **flexible** ,**Horizontal** scale up.

8. রিয়েক্ট এর সাথ node, Mongodb কেন ইউস করা হয়ছে MySql কেন নয়?

→ MongoDB is open-source and perfect for frequently changing data.

9. Database design, database schema design বলতে কি বুজো?

Database design determines what data must be stored and how the data elements are relate.

10. সার্ভার সাইট ক্রাস করলে কি করবেন?

I sholud contact web hosting service provider.

11. API কিভাবে কাজ করে?

An API (Application Programming Interface) delivers a user response to a system and sends the system's response back to a user.

12. What is CRUD?

CRUD means **create read update delete.**

13. Get vs post

- GET: Requests data from a specified resource.
- POST: Submits data to be processed to a specified resource.

14. PUT and Patch এর মধ্যে পার্থক্য কি?.

PUT is for checking if resource exists then update, else create new resource. PATCH is always for updating a resource.

15. How will you secure an API?.... Read more

→ Prioritize security.

→Inventory and manage your APIs.

→Use a strong authentication and authorization solution

→Practice the principle of least privilege.

→Encrypt traffic using TLS.

→Remove information that’s not meant to be shared

→Don’t expose more data than necessary.

→Validate input.

→Use a web application firewall.

16. Mongoose কি? কীভাবে কাজ করে? এটা নিয়ে কাজ করেছো কিনা

→ Mongoose is a JavaScript object-oriented programming library that creates a connection between MongoDB and the Express web application framework.

17. What is webpack?

Webpack is a tool that lets you compile JavaScript modules.