HTML Questions and Answer:

Question 1: **What are the differences between html4 and html5**?

Answer:

Features:

-In html5 is Simplified and clearer syntax than html4. Doctype declaration in html4 is so long.

-In html5 contains built in support for multimedia content into web pages via video and audio tags. But in HTML4, the multimedia content was integrated in web pages via third party plugins such as flash.

-In html4 uses cache memory as temporary storage. But cache memory is limited where In html5 has storage options like application cache, sql cache and web storage.

-In html4 vector graphics are possible via adobe flash or other tools where In html5 are by default supported in vector graphics.

-In html4 uses cookies to store data where In html5 uses local storage instead of cookies.

-In html4, the browser interface and javascript running in the same thread where In html5 has the javascript web worker api, which allows the browser interface to run multiple threads.

-In html4 is old, so it is supported on all browsers but In html5 is the latest and it supports the latest browser.

-In html 4, can't draw shapes like circles, rectangles, triangles but In html5, it can.

Tag name change in html4 to html5:

<Applet> removed <Object> Added in html5
<Acronym> removed <Abbr> Added in html5

New Tag in html5:

 <canvas>
<audio>
<embed>
<source>
<track>
<video>
<article>

<main>
<mark>
Question 2: **What are semantic tags in html? Give me some examples**.

Answer:

Semantic tags easily describe the purpose of using these tags for developers,browsers and viewers.

-It is easier to read. Developers can easily understand that.
-It has greater accessibility.Search engines are able to better understand the context and content of your website, for better experience to the users.

some examples:

<article>
<aside>
<details>
<figcaption>
<figure>
<footer>
<header>
<main>
<mark>
<nav>
<section>
<summary>
<time>

Question 3: **What is the purpose of Article, div, section, nav, aside?**

Answer:

Article: article tag is used to represent an article. The content within the article tag is independent of the other content of the site.

Div: div tags define a division in an HTML. div is a block level element. div tag has no special meaning.

Section: In section tag, the content inside is grouped. section element represents a generic section of a document or application.

Nav: nav tag is used to represent a section which contains navigation links, either within the current document or another document.

Aside: aside tag is used to describe the main object of the web page in a shorter way like a highlighter.

Question 4: **Why will you use Meta tag**?

Answer:

Meta tag provides additional information for the search engines. Meta tag is an empty element. It has no closing tag. But it takes out information within its attributes.

You can add one or more meta tags in your document. but, meta tags do not impact the physical appearance of the document.

Some meta tags:

Title tags
Meta description
Viewport tag
Robots
hreflang tags
Canonical tags
Content type

Question 5: **What is the difference between inline, inline-block, and block?**

Answer:

Inline: The element doesn’t start on a new line and only holds just the width it requires. You can’t set the width or height of the element.

Inline-block: It’s just similar to the inline element, where it doesn’t start on a new line. But, you can set width and height values of the element.

Block: The element will start on a new line and hold the full width available. And you can set width and height values of the element.

Question 6: **Difference between strong, b, bold, em, i?**

Answer:

-strong tag used for understanding text is important.
-b tag used for draw the reader's attention to the element's contents
-bold tag used for making text bold.
-em tag used for understanding emphasised text.
-i tag used for text italic style.

Question 7: **What are properties and attributes in HTML?**

Answer:

Attributes: In html, Attributes provide additional information about elements. Each HTML element can have attributes. Attributes are always specified in the start tag.

Properties: During writing a html document, you can define attributes on your HTML elements. Then, once the browser parses your code, a corresponding DOM node will be generated. This node is an object, and therefore it has properties.

Question 8: **What is a Viewport?**

Answer:

The viewport is the visual area of a webpage on a browser. By using the viewport you can set how the content of your site is rendered on different devices.

Question 9: **What are void elements in HTML?**

Answer: In HTML elements, which tags have no closing tags are called void elements.

For Example
, <img />, <hr /> etc.

Question 10: **What are HTML Entities?**

Answer: In HTML, There are some reserved characters like '<', '>', '/', etc. To use these characters in our webpage we need to use the character entities called HTML Entities.

< for <
> for >
& for &

Question 11: **How is Cell Padding different from Cell Spacing?**

Answer:

-Cell Spacing is the space or gap between two consecutive cells.
-Cell Padding is the space or gap between the content of the cell and the edge of the cell.

Question 12: **In how many ways can we specify the CSS styles for the HTML element?**

Answer:

In 3 ways.
-Inline
-Internal
-External

Question 13: **What is the difference between <figure> tag and <img> tag?**

Answer:

The figure tag is generally used to semantically organise the content of images, videos, audios or even charts or tables, block of codes in the web document. And where an image tag is used to add an image to an HTML page. The img tag can only insert images. Figure is a container tag and img is a void tag.

Question 14: **Define Image Map?**

Answer:

An image map consists of images with clickable areas, where you can click on the image, and it will open to new or the provided destination.

Question 15: **Explain the concept of web storage in HTML5?**

.**Answer**:

Web storage helps to store static data in the local storage of the browser so that we do not need to fetch the data from the server every time. It makes the performance faster. But there is a shortage of space on browsers.
So there are two types of web storage in HTML5:

Local Storage: It helps to store data that will be found even though the user opens the browser again. It is stored for each webapp on different browsers.

Session Storage: It is used for one session only. After the user closes the browser ,the data will be deleted.

CSS Questions and Answer:

Question 1: What Flex layout? Difference Flex and grid layout?
Answer: The flex layout allows to make responsive elements within a container that will be automatically arranged depending upon screen size.

-Flex box is one dimensional and grid is two dimensional.
-Flex box is content First where grid is layout first.
-Flexbox works better in one dimension only (either rows or columns) where grids work with both rows and columns.

Question 2: Write css position property?What are some differences between absolute position and relative position?
Answer: The css position property is used to specify how the element will be displayed on the web page.
Some css positioning type:
-Static Positioning
-Relative Positioning
-Fixed Positioning
-Absolute Positioning
-Sticky Positioning

Some differences between absolute position and relative position:
In relative position, property will adjust from its normal or own position but in absolute position, property will adjust its position with respect to its parent. If no parent is present there, then it will use the document body as parent.

Question 3: What is a box model? And what are the different elements of a box model?
Answer: A box model is wrapped around every HTML element.A box model consists of margins, borders, padding, and the actual content.

Content: where the text or image is kept in the box.
Padding: Gap between the border and the content.
Border: All the area surrounding the padding of the element.
Margin: All the area surrounding the border of the element.

Question 4: What is a Hover effect? What is the purpose of the active class ?
Answer: When the user points to the html element, it gives an effect that user before written in css. It makes the web page more interactive and dynamic.

For selecting and style the active link, you can use active class. When you click the link , it works.

Question 5: What are the different types of css selectors?
Answer: CSS selectors are used to give style in the html element.
Some css selectors:

-Element Selector
-Id Selector
-Class Selector
-Universal Selector
-Group Selector

Question 6: What is CSS Specificity?
Answer: When two or more different CSS rules apply to the same element, the browser follows higher priority rules, that's called CSS Specificity.
Priority order:
Inline style > Identifiers(ID) > Classes, pseudo classes and attributes > Elements and pseudo-elements

Question 7: What is a CSS Preprocessor? What are some benefits of Sass?
Answer: CSS Preprocessor is a css compiler where it converts the code into the raw css.
SASS full form: syntactically awesome style sheets.
Sass benefits:
-write clean code
-easy to understand
-less CSS
-less repetition

Question 8: What is a Pseudo element? What is pseudo-class?
Answer:
Pseudo element: A pseudo element is used to make style specific parts of an html element.
Pseudo class: A pseudo class is used to define a special state of an html element.
For example of pseudo class: you will give an hover effect in paragraph tag, so when it's hover(hover is a special state).

Question 9: How will you use media queries to make a website responsive?
Answer: We just break our screen at different breakpoints.
Some keyword:
@media
only screen
max-width

For media: ready for media query
For only screen: for screen apply
For max-width: which breakpoint i choose to my screen

Question 10: How will you make font size responsive?
Answer: If I make my font size of the website responsive, I will automatically reduce/increase the font size according to the width of the screen in my website.

Question 11: Write css style components?
Answer: Some css style components are-

-Selector
-Property
-Value

Question 12: Who maintains the CSS specifications?
Answer: The css specification is maintained by world wide web consortium.

Question 13: Differentiate Class selector from ID selector?
Answer: ID is unique. But classes are not unique.One id is used only for one element. But one class is used in different elements. We can use both class and ID in an element.

Question 14: What do you understand about the universal sector?
Answer: A universal selector is a selector that provides the same property to all the elements.
For example: If I use a universal selector and give color: red, then all the element colors will be red.

Question 15: How do you define z-index?
Answer: When more elements that overlap each other, then set z-index.Highest z-index values element will be focused.

Question 16: What are gradients in CSS?
Answer: Gradients is a property of CSS that allows display of a smooth transformation between two or more specified colors.

Gradient types:
-Linear Gradient
-Radial Gradient

Question 17: Write all the properties of the flexbox.
Answer: Given below:
-flex-direction
-flex-wrap
-flex-flow
-justify-content
-align-items
-align-content

Question 18: What do you understand about CSS opacity?
Answer: CSS opacity is the property that is used to define the transparency of an element.

Question 19: Which property is used to change the face of a font?
Answer: For changing the face of a font, we use The font-family property.

Question 20: Which property is used to capitalise text or convert text to uppercase or lowercase letters?
Answer: Text-transform property is used to capitalise text or convert text to uppercase or lowercase letters.

Question 21: What is the use of css ruleset?
Answer: CSS has some rules that describe the formatting of each element on a web page. The rule have two parts:
-selector (tag name or class name is selector)
-declaration block (inside the second bracket)

JAVASCRIPT Questions and Answer PART-1:

Question1: JavaScript Synchronous or asynchronous? Single-threaded or multi-threaded? handle concurrently?
Answer: JavaScript is an asynchronous and single threaded,non-blocking,concurrent programming language.

Question2: How does JavaScript code is executed in Browser?
Answer:
JavaScript not only executes in the browser but also on the server because javascript has a special program called the JavaScript engine.
The browser embedded an engine called JavaScript virtual machine.
Different engines have different names.
example:
V8 engine–Chrome
SpiderMonkey–Firefox

Question3: What are the differences between “==” and “===” ?
Answer: Double(==) means it is a comparison operator. Tripple(===) means it is a strict equality comparison operator.
-Double(==) checks only the value.
-Tripple(===) checks the value as well as the data type.

Question4: What is a callback function?
Answer: When we pass a function in another function's parameter that calls callback function.
Before one function is executed, another function will not be executed.

Question5: When will you return something from a function?
Answer: When you use the function value, then you have to keep the function value in a variable, that time you will return something in a function.
Javascript functions do not always need to return a value. If you do not mention return , it implicitly returns undefined.

Question6: Tell me about bind, call and apply.
Answer: When a function explicitly adds an object, it calls bind.
Call method is similar but the difference is , bind return function , so that that bind function needs to call again. But the call method does not need to re-call.
Call and apply method is similar but the apply function takes the parameter as an array.

Question7: What is a Closure in JavaScript? How does it work?
Answer: If we return the parent function, we can still access the variable, function, or object of the parent function from the child function. Because these remain in the memory even after returning. And this is called closure.
Every time closures are created when the function is created.

Question8: What does the “this” keyword indicate in JavaScript?
Answer: This keyword in javascript indicates that this refers to an object where this keyword belongs to it.
Suppose,
Person is an object.
And the first name is a property.
And population is a method.
When we use this.firstname in method , that means it indicates the person object and uses first name property.

Question9: What is Event bubbling in js? Or How does event delegate work in JS?
Answer:
Event bubbling: If one event is in child , it will be effected its immediate parent.

Event delegate: Existing element will be added or removed but new created element is not effected , so event delegent will come to solve this problem.
New element will be added or removed by parent element.

Question10: Explain hoisting in JavaScript?
Answer: Javascript is dynamically typed. So we can use it before initializing.
Hoisting in javascript is normal behaviour. By hoisting, all the declared variables are moved at the top of the current position.

Question11: What is a recursive function?
Answer: Recursive function means the function calls itself. It gives an efficient code writing facility.
using recursion in javascript:
-reduce time complexity
-reduces writing and debugging code time

Question12: Difference between undefined and null?
Answer:
-undefined : declared a variable but no value is assigned.
-null : that means intentionally missing an object.

Question13: What are the different data types in JavaScript?
Answer: There are two data types in javascript.
-Primitive(String,Number,Boolean,Undefined,Null)
-Non primitive(Object,Array,RegExp)

Question14: What is DOM
Answer: Dom stands for document object model.Dom is the programming interface of the web page. In the web page, what we see, all of in dom. In dom, all the html elements consider it as an object. So that we can manipulate all the objects in this document.
An object has property and method.

Some methods name:
-getElementById
-getElementsByTagName
-innerHTML
-Node
-createElement
-appendChild
-removeChild
-getAttribute
-setAttribute
Some property name:
-isId
-name
-value
-specified

Question15: Is JavaScript a static type or a dynamic type?
Answer: Javascript is a dynamic type. Because it doesn't need to declare variables before use by using a javascript engine. And also you can use the same variable in different data types.

Example:
Var x;
x=5;
x=”faisal ahmed”;

Question16: What isNaN function?
Answer: If the argument is not a number, isNan function returns true in javascript. Otherwise, it's false.

Question17: Difference between undefined and undeclared variables?
Answer:
-Undefined variable: declared but not set the value
-Undeclared variable: doesn't exit in program

Question18: What is the global variable?
Answer: Global variables are declared outer side of a function and can be access in all the program

Question19: Convert from any base to an integer in JavaScript?
Answer: For convert , write parseInt ("value", Base);
example: parseInt ("4F", 16);

Question20: What is the output of 5+2+”7″?
Answer: 5 and 2 is integer. So 5 and 2 will be added but 7 is a string.
so (5+2)=7 and after that string "7" will sit there.
output= 77

Question21: What is the function of the delete operator in an object?
Answer: Using Delete keyword
var student= {id:01, class:"one"};
Delete student.id;

Question22: Define pop method in JavaScript?
Answer: pop() method removes the last element from an array.

Question23: How many ways a javaScript code can be included in an html file?
Answer: 3 ways.
-inline
-external
-internal

Question24: Give a difference between window and document in JavaScript?
Answer:
-window: In javascript, window is a global object. And it holds variables, functions, history, location.
-document: In javascript, a document can be considered as the property of the window.

Question25: How is javascript different from Java?
Answer: Javascript is object based scripting language where Java is object oriented programming language.

JAVASCRIPT Questions and Answer PART-2:

Question1: Tell me about Es6/What ES6 features did you use?
Answer: I use some es6 features that mentioned:
-arrow function
-class
-template literals
-let and const
-multi line string
-destructure
-spread operator

Question2: What are the differences between var, let, and const?
Answer:
-var: re-assign, function scope
-let: re-assign, block scope
-const: no re-assign, block scope

Question3: Why will you use default parameters?
Answer: By default, default parameter is undefined in a function. If you can not set a parameter in a function, the program output shows NaN. So you should set the default parameter.
Example:
Function myFunction(x,y=2){
}
myFunction(5);
y=2 is a default parameter.

Question4: How does the Spread operator work?
Answer: Spread operator (...) copy the previous data from an array and keep all the data in an array.
In the spread operator, after completing the present data, it stores the present data with previous data.

Question5: Difference between class and object?
Answer:
Class: Class is a blueprint or template for declaring and creating an object. No memory is allocated for creating a class.

Object: Object is an instance of a class. Memory is allocated for creating objects.

Question6: What is a Prototype chain/how does inheritance work in JavaScript?
Answer: Prototypical Inheritance is a feature that is used to add methods and properties in an object. It is a javascript feature that an object can inherit the properties and methods of another object.

Question7: Explain Call by value/pass by value vs call by reference/pass by reference?
Answer: In javascript,
call/pass by value: In javascript, when we call a function(pass the value in primitive data like integer, string..) , it can't change the main value, because cloned primitive data will pass the function and main data is immutable.
call by reference/pass by reference: In javascript, when we call a function(pass the value in non primitive data like object,array..) , it changes the main value, because reference non primitive data will pass the function and main data will mutable.

Question8: What is scope in JavaScript?
Answer: How much block is accessible by declared variable is called scope.
Three types of scope is available in Javascript:
-Block scope
-Function scope
-Global scope
ES6 introduced block scope(let,const).

Question9: What is a Higher-order Function?
Answer: A function that returns a function is called a higher order function.

```
function add() {
  return function() {
    console.log(“addition”);
  }
}
```

Question10: What is an API? Difference between Get vs post?
Answer: API stands for Application Programming Interface.API is a medium to get or post data between interfaces.
Get-Get is used to fetch data from specific resources.
Post-Post is used to send data to a specific server for creating or updating a resource.

Question11: Difference between local storage and Session storage
Answer:
-local storage: the data in local storage is not deleted after the session ends.
-session storage: the data in session storage is deleted after the session ends.

Question12: What are cookies? And why will you use it?
Answer: Cookies is some text that holds this information about you like username or password.
To recognize an old user, the browser needs to add the cookie.

Question13: What is object-oriented programming?
Answer: Object Oriented programming (OOP) is a programming language based on the concept of classes and objects. It is used to build a simple, reusable program.

Question14: Difference between Array vs LinkedList
Answer:
-Array: Array is a collection of data(ex.similar types).
-LinkedList: LinkedList is a collection of nodes(ex.data and address).

Question15: How will you debug a JavaScript application?
Answer: You can debug a JavaScript application by all modern browsers because they have a built-in JavaScript debugger.
With a built-in JavaScript debugger, you can use breakpoints where you set a code execution and end point.

Question16: Why typeof(null) is an object?
Answer: Javascript developed in a short time. So when they developed,it was declared an object. But after many years, developers try to make it null. But that time, they realise, that version of javascript runs millions of browsers. So if they change it, it could hamper all of the browsers in the world.

Question17: Define advantages of arrow function?
Answer:
-reduces code size.
-for a single line function, return statement is optional.

Question18: Define template literals?
Answer: In javascript, template literals come from ES6. For using template literals, we can use multiline strings.

Question19: Define for.....in loop.
Answer: It is similar to the others for loop that iterates through the properties of an object.

Question20: Explain IIFE?
Answer: IIFE is a JavaScript function that starts or calls the function when it is defined.

Question21: Define Babel in Javascript?
Answer: Babel in javascript, is a javascript transpiler that interprets the code from ES6 into ES5, that's why old browsers support ES6 codes.

Question22: Define first order function?
Answer: First order function in javascript, is a function that never accepts another function as an argument. And it also never returns a function because of its return value.

Question23: Describe the benefits of using modules
Answer: The benefit of using modules in javascript:
-Maintainable
-Reusable
-Namespacing

Question24: Define memoization?
Answer: Memoization is a programming technique that increases a function's performance by caching its previously calculated output.

Question25: Make a difference between cookie and local storage?
Answer:
-cookie: It accessed both server-side & client-side and data deleted by expired option.
-local storage: It is accessed client-side only and data is not deleted until you delete.

REACT Questions and Answer:

Question1: What is react js/ advantages of using react js?
Answer: React is javaScript library which is used for building dynamic single page applications.
Advantages:
-components are reusable
-high performance
-seo friendly
-using virtual dom

Question2: What is JSX? How does it work?
Answer: Javascript xml(JSX).Javascript xml makes it easy to write html in React.
Javascript xml gives facilities to add html tags or elements in JavaScript and take them in the DOM without any methods like createElement() or appendChild().
JSX is translated in javascript on run time compilation.

Question3: What is Virtual dom? What are the differences between virtual and real dom?
Answer: A virtual DOM is a lightweight JavaScript representation of the actual DOM.
The update system of virtual DOM is faster than the update system of actual DOM. Because

the virtual dom uses a diff algorithm. Diff algo finds out the update part, and pushes it to the dom, so it makes it faster.

Question4: Differences between props and state?
Answer: Props are external, immutable and controlled by whatever renders the component. State is internal, mutable and controlled by the component itself.

Question5: What is the purpose of useState? When and why will you use it?
Answer: The useState function is a built-in react hook that is imported from the react package and uses this useState hook inside a functional component.
When you need to store data data, you can use useState and also change the data and put it here again.

Question6: What is prop drilling?
Answer: When you pass data from one part to another part by the help of some additional part, that additional part is called props drilling.

Question7: Difference between useEffect and useState?
Answer: If you want to fetch something , you have to use useEffect but if you want to store data, you have to use useState.

Question8: What other hooks have you used other than useState and useEffect
Answer: I used:
-useContext()
-useReducer()
-useMemo()
-useCallback()
-useRef()

Question9: Tell us about React Component lifecycle
Answer: given below:
-initialization
-mountain
-updation
-unmoung

Question10: What is the purpose of a custom hook? How will you create a custom hook? Give us an example.
Answer: Hook is mainly used for reusability facilities.
When you need the same component that is used by multiple components, you can build a custom Hook.
We can easily make custom hooks.
There is a naming convention that starts with useSomething.

Suppose, we need to store some data from different urls in different components, we just make a hook for storing data from different urls and use it in different components.

Question11: What is the most challenging task you have accomplished using react?
Answer: The most challenging task I have accomplished using react is managing state and adding third party components for most of the functionalities. And when I use ParticleJs which is too painful. Another thing is using a custom hook. But finally I made a full stack project.

Question12: What is Redux and uses?
Answer: Redux is a javaScript library that is used to manage application states and build the user interface.
The three main concepts of redux are reducers, actions and stores.
Redux is maintainable, easy to debug and test.

Question13: Do you know about React native?
Answer: React Native is the most favorite technology for developers in the world of mobile applications. Its popularity is growing day by day! Because it allows you to build cross-platform apps, which allows you to reuse code. It is rendered on both iOS and Android. React Native application costs less, is lighter and faster. Again it can create great UI / UX. Which makes the application very interesting to look at.

Question14: What is a Higher order component? Give us an example.
Answer: Higher order components are used for reusing the component functionality.

Question15: How would you optimize a react js application?
Answer: We can optimize different ways for react js applications.
Some of is given below:
-Use React.memo for component memoization
-Use React.Lazy for lazy loading components
-Use React.Fragment to avoid extra nodes that adding to the dom.

NODE AND MONGODB Questions and Answer:

Question1 : What is Nodejs/Difference between Nodejs and javaScript/Node js blocking or non-blocking?
Answer: Node js is a server side javascript runtime that runs outside of a browser using google chrome's v8 engine.

Javascript: Javascript is a programming language and it runs only the browser.
Node js: Node js is a javascript runtime and it runs outside of the browser.

Node js non-blocking.

Question2 : Why did you use Node and MongoDb with your React project?
Answer: In my react project, I used node js because react js written by javascript and node js is a javascript runtime. Web developers can execute the react js code directly in the node js environment, so it reduces the lines of code and makes best performance.

I also used mongoDb because it is a non relational database and dynamic schema. Easy to use and manage.

Question3 : What are the differences between sql and no sql database?
Answer: Given below:
SQL: relational database, structured data used, predefined schema(mentioned all the tables attribute name), not suitable for hierarchical data storage, but can be used for complex queries.

No SQL: Non relational database, unstructured data used, dynamic schema(not mentioned all the tables attribute name), suitable for hierarchical data storage, but can't be used for complex queries.

Question4 : What have you done with mongodb?
Answer: I have made 3 projects using mongodb. In all my projects, I made crud operations. CRUD means create,read, update and delete.
I insert the data from my UI, then I read it, I can also update the data and when needed I can delete it.

Question5 : Have you worked on website hosting?
Answer: Yes I have. Till now, I host my website in different websites like netlify, heroku, firebase and github.