HTML CSS, WEB QUESTION BANK

1) Explain briefly what happens when you hit a URL? explain DNS lookup
    a) a user enters a URL into a web browser
    b) The browser looks up the IP address for the domain name via DNS
    c) The browser sends an HTTP *request* to the server
    d) The server sends back an HTTP *response*
    e) The browser begins rendering the HTML
    f) The browser sends requests for additional objects embedded in HTML (images, CSS, JavaScript) and repeats steps 3-5.
    g) Once the page is loaded, the browser sends further async requests as needed.

    A DNS lookup is the process by which a DNS record is returned from a DNS server. This is like looking up a phone number in a phone book

2) What is a URLs full form? Explain what is a url and the four parts it consists of The protocol in use, The hostname of the server, The location of the file & The arguments to the file?

    URL - Uniform Resource Locator.

    A URL is a unique identifier used to locate a resource on the Internet. It is also referred to as a web address.

    The four main components of URLs are the protocol, domain, path, and query.

3) What is HTTP protocol?

HTTP is a protocol designed to communicate between client and server when the user sends an HTTP request to the server from the browser (i.e. the client) then the server will return a response containing Hypertext data which the user will be able to see on the web page.

- Connectionless.
- Media Independent.
- Stateless.

4) What is TCP Protocol?

TCP stands for Transmission Control Protocol. It is a transport layer protocol that facilitates the transmission of packets from source to destination. It is a connection-oriented protocol which means it establishes the connection prior to the communication that occurs between the computing devices in a network. This protocol is used with an IP protocol, so together, they are referred to as a TCP/IP.

Whenever data transfer happens TCP breaks the data into small parts called packets, assembles those packets, resembles them in proper order and it also detects errors & lost data.

5) Explain all the different HTTP methods?

GET:

The GET method requests a representation of the specified resource. Requests using GET should only retrieve data.

POST:

The POST method submits an entity to the specified resource, often causing a change in state or side effects on the server.

PUT:

The PUT method replaces all current representations of the target resource with the request payload.

PATCH:

The PATCH method applies partial modifications to a resource.

DELETE:

The DELETE method deletes the specified resource.

OPTIONS:

The OPTIONS method describes the communication options for the target resource.

HEAD:

The HEAD method asks for a response identical to a GET request, but without the response body.

CONNECT:

The CONNECT method establishes a tunnel to the server identified by the target

TRACE:

The TRACE method performs a message loop-back test along the path to the target resource.

6) What are HTTP headers?

7) What are some HTTP response codes? what does it mean? 2xx, 3xx, 4xx, 5xx?

   Status codes are issued by a server in response to a client's request made to the server, basically, it is certified and standard codes used by everybody.

   1xx Informational codes

   2xx Success codes, example: 200 ok successful request

   3xx Redirection codes, example: redirecting a particular URL redirect to another URL

   4xx Client error,

   5xx Server error, server not responding or there is something wrong with the server

   https://www.restapitutorial.com/httpstatuscodes.html

8) What does cache control on HTTP response mean?

9) What is polling?

   Polling is the process like when the client is continuously making calls to resource (server) on a specified interval and the server is responding everytime even if the respond is empty, this repeats on very short cycles.

10) What is long polling?

In long polling, the client initiates a request to the server and if the server doesn't have data, it keeps that connection open to respond later but if it does have data it responds right away

11) What are web sockets?

WebSocket is bidirectional, a full-duplex protocol that is used in the same scenario of client-server communication, unlike HTTP it starts from ws:// or wss://. It is a stateful protocol, which means the connection between client and server will keep alive until it is terminated by either party (client or server). After closing the connection by either of the client and server, the connection is terminated from both ends.

12) How are web sockets different from HTTP?

13) What is HTTPS?

HTTPS stands for Secure Hypertext Transfer Protocol and this is HTTP with a security feature. Secure HTTP encrypts the data that being retrieved by HTTP. It ensures that all the data that's being transferred on the internet between computer and server is secure by making the data impossible to read. And it does this by using encryption algorithms.

This protocol is mostly used when the data to transfer is sensitive like passwords, credit card numbers, etc

14) What is Cross-Origin Resource Sharing? (CORS) Why do we need it?

Cross-Origin Resource Sharing (CORS) is an HTTP-header-based mechanism that allows a server to indicate any origins (domain, scheme, or port) other than its own from which a browser should permit loading resources.

CORS also relies on a mechanism by which browsers make a "preflight" request to the server hosting the cross-origin resource, in order to check that the server will permit the actual request.

In that preflight, the browser sends headers that indicate the HTTP method and headers that will be used in the actual request.

15) What does the Access-Control-Allow-Origin header do?

The Access-Control-Allow-Origin header is included in the response from one website to a request originating from another website and identifies the permitted origin of the request. A web browser compares the Access-Control-Allow-Origin with the requesting website's origin and permits access to the response if they match.

16) What is clickjacking? How do you fix it?

17) What are some performance metrics for your website?

18) What does the following term mean?
    a) Time to first byte,
    b) Page load time

Page load time - The page is visible on the browser and the user can start interacting with it.

Time to first byte - When the browser makes a request to the server and the first response arrives at a network request made.

19) What do CDN or Content Delivery Networks do? When do you need a CDN?

20) What is the difference between Client-Side Rendering and Server Side Rendering?

21) What is Progressive Rendering

22) What is the difference between Preloading and Prefetching resources?

23) What are service workers?

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- ❖ Once the page is loaded, the browser sends further async requests as needed.
- ❖ A DNS lookup is the process by which a DNS record is returned from a DNS server. This is like looking up a phone number in a phone book

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- ❖ The PATCH method applies partial modifications to a resource.

6) What are HTTP headers?

- ❖ The HTTP headers are used to pass additional information between the clients and the server through the request and response header.

7) What are some HTTP response codes? what does it mean? 2xx, 3xx, 4xx, 5xx?

- ➢ All HTTP response status codes are separated into five classes or categories. The first digit of the status-code defines the class of response, while the last two digits do not have any classifying or categorization role. There are five classes defined by the standard:

- ❖ 1xx informational response – the request was received, continuing process
- ❖ 2xx successful – the request was successfully received, understood, and accepted

- ❖ 3xx redirection – further action needs to be taken in order to complete the request
- ❖ 4xx client error – the request contains bad syntax or cannot be fulfilled
- ❖ 5xx server error – the server failed to fulfill an apparently valid request

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12) How is web sockets different from HTTP?

13) What is HTTPS?

- Hypertext transfer protocol secure (HTTPS) is the secure version of HTTP, which is the primary protocol used to send data between a web browser and a website. HTTPS is encrypted in order to increase security of data transfer. This is particularly important when users transmit sensitive data, such as by logging into a bank account, email service, or health insurance provider.

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- The Access-Control-Allow-Origin header is included in the response from one website to a request originating from another website, and identifies the permitted origin of the request.

16) What is clickjacking? How do you fix it?

- Clickjacking is an attack that fools users into thinking they are clicking on one thing when they are actually clicking on another. Its other name, user interface (UI) redressing, better describes what is going on. Users think they are using a web page's normal UI, but in fact there is a hidden UI in control; in other words, the UI

has been redressed. When users click something they think is safe, the hidden UI performs a different action.

- ❖ This can be fix by configuring server on the following two response headers: X-Frame-Options, Content-Security-Policy

17) What are some performance metrics for your website?

- ❖ Performance metrics are used to measure the behavior, activities, and performance of a business. This should be in the form of data that measures required data within a range, allowing a basis to be formed supporting the achievement of overall business goals.

18) What does the following term mean?

a) Time to first byte

- ❖ Time to First Byte (TTFB) refers to the time between the browser requesting a page and when it receives the first byte of information from the server. This time includes DNS lookup and establishing the connection using a TCP handshake and SSL handshake if the request is made over https.

b) Page load time

- ❖ page load time is the average amount of time it takes for a page to show up on your screen. It's calculated from initiation (when you click on a page link or type in a Web address) to completion (when the page is fully loaded in the browser).

19) What do CDN or Content Delivery Networks do? When do you need a CDN?

- ❖ Content delivery networks (CDN) are the transparent backbone of the Internet in charge of content delivery. Whether we know it or not, every one of us interacts with CDNs on a daily basis; when

reading articles on news sites, shopping online, watching YouTube videos or perusing social media feeds.

20) What is the difference between Client Side Renderring and Server Side Renderring?

❖ Client-side rendering manages the routing dynamically without refreshing the page every time a user requests a different route. But server-side rendering is able to display a fully populated page on the first load for any route of the website, whereas client-side rendering displays a blank page first.

21) What is Progressive Renderring

❖ Progressive rendering is the name given to techniques used to render content for display as quickly as possible.

22) What is the difference between Preloading and Prefetching resources?

- Preload and prefetch are both used to request resources in advance so that later resource loading can be quick

23) What are service workers?

- A service worker is a type of web worker. It's essentially a JavaScript file that runs separately from the main browser thread.

What is UDP?