1) What is *plagiarism*? What kind of steps should be taken to avoid it?

Copying the work of the other and submitting as it is your own is called plagiarism. To avoid it, one should always create , develop and submit his own work.

2) What is Intellectual Property Right (IPR)? Why should we know it?

Intellectual Property Right (IPR) is a right given to every person for their own creations of intellec. We should know it so that we can protect our content or creation from getting copied by others. And also we can prevent from using the others' work that is protected by IPR.

3) What is the difference between URI and URL?

URL is used to link different web pages , web components or web resources. While URI is used to uniquely identify one web resource from other.

4) What is the maximum length of URL string?

The maximum length of URL string is 2083 bytes.

5) What are the different protocols understood by browsers?

Https,http, ftp , smtp are different protocols understood by browsers.

6) Differentiate between HTTP and HTTPS protocols.

Https is secured as compare to http protocol. Https sends data over port 80, while http sends data over port 443.Https operates at transport layer , while http operates at application layer.

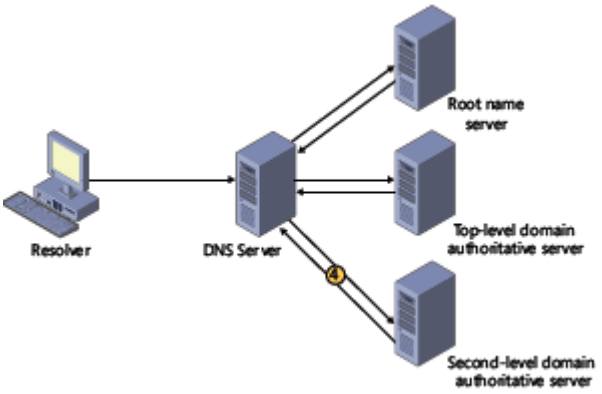
7) What is port number? What is the significance of it? What do you mean by reserved and unreserved port numbers? List some reserved port numbers of some popular applications.

Port number is a way to identify a process over internet or other network. Reserved port numbers are one that are reserved for specific assignment by ICANN, while other port numbers are unreserved.2021 is unreserved port used for FTP. IP/TCP ports are from 0-1023.

8) What is DNS? Draw the architecture of DNS. List out types of DNS. Briefly explain the working of DNS.

DNS stands for Domain Name System. It translates domain names to IP addresses.There are 3 types of DNS servers : DNS Resolver, DNS Root Server and Authoritative Name Server.

Architecture of DNS :-



9) What is URL encoding? What is the use of it?

Conversion of character to a format that can be transmitted over network us is called URL encoding. It is useful to convert data passed through html forms as they can contain special characters.

10) What are MIME types? Give examples.

It is standard through which we can know nature or type of file. Ex: plain text,html,pdf etc.

11) Differentiate between *block* elements and *inline* elements in HTML. Give examples of each.

Block elements use all available space of their parent element, while inline elements can exist within block elements. <p> is block element while is inline element.

12) List and explain *semantic tags* of HTML5.

Some semantic elements of HTML5:

- <header> - is used to create header.
- <footer> - defines footer for a document or section.
- <section> - defines section in html page.
- <article> - specifies independent, self-contained content.

13) What is web-form-url encoding? What is multi-part form data? In which situation we have to use it?

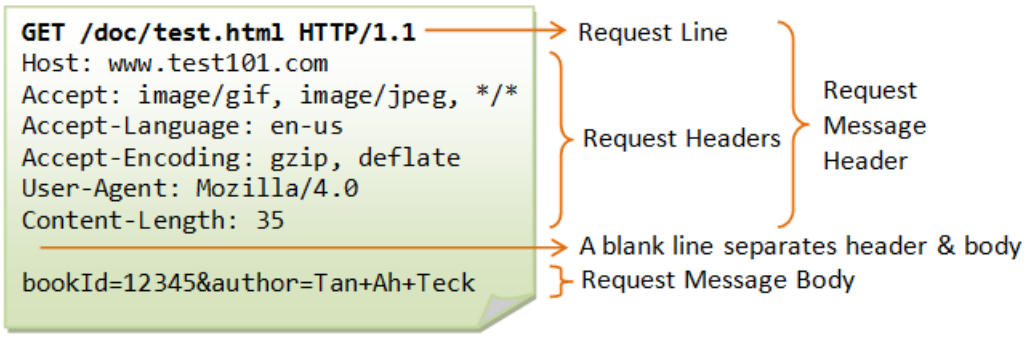
Data which is submitted through html forms is url-encoded. Multi-part form data is used when user needd to upload file on server.

14) Compare and contrast HTML with XML.

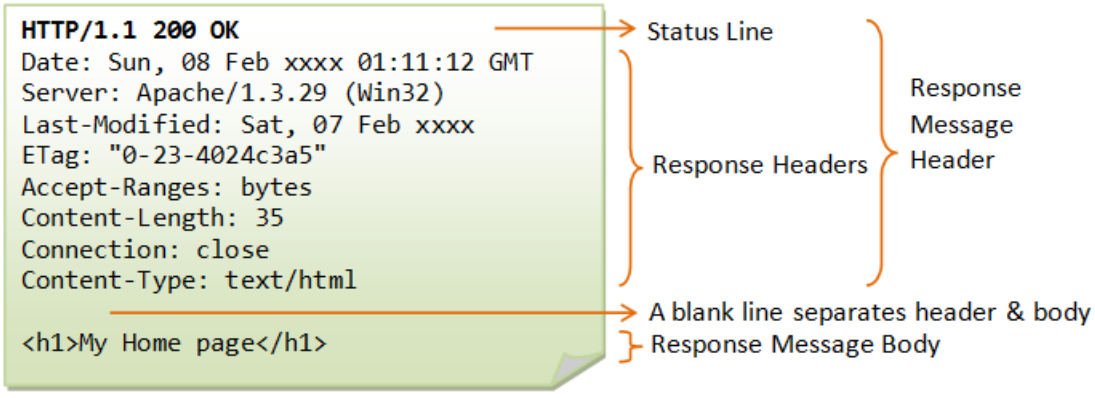
XML is framework to specify markup language while HTML is itself markup language. XML is case sensitive while HTML is case insensitive.Coding errors are not allowed in XML while they are allowed in HTML.

15) Draw the structure of HTTP request and response message and also show the typical content of it.

Structure of http request message :



Structure of http response message :



16) List out the status code and its description of HTTP response message.

Status Code	Description
100-199	Informational Response
200- 299	Successful Response
300-399	Redirection
400-499	Client Error
500-599	Server error

17) List out the HTTP request method/verbs and purpose of each one.

Request Method	**Purpose**
GET	To retrive information from server.
POST	To send data to server.
HEAD	Similar to GET but it transforms status line & headers.
PUT	Replace representations of target resources with uploaded content.
DELETE	Remove representations of target resources

18) List and explain various HTTP request/response message header content.

Header	**Content**
Accept	Specifies the MIME type that clients can handle
Accept-Charset	Specifies the character sets that browser can use to display information
Content-Length	Gives size of POST data in bytes.
Host	Specifies host and port given in URL.
Content-Encoding	Specifies way in which page was encoded during transmission.

19) Give the difference between http GET request and POST request.

GET	**POST**
data is visible in URL.	data is not visible in URL.
only ASCII characters are allowed.	No restrictions, binary data is also supported.
We can send only limited data.	There is no restrictions.
can be bookmarked,	cannot be bookmarked,

20) What are 'push' and 'pull' protocols? Give examples applications which uses these protocols.

Pull Protocol:- The block will notify the receiving block that there's an agent ready to exit. If the receiving block is able to receive that agent, then the agent is sent. If not, then the agent stays where it is and the receiving block will try to get it again in the future when it's able to receive something.

Push Protocol :- The block will be pushed to the receiving block without any request.

Example :- Most of the mail clients use PULL protocol to check for new mail.Messaging and chatting functionality use PUSH protocol to push messages and notifications to user.

21) Download and install "wget" and "curl" utilities (On Linux it might be already available). Use them and write example commands and its output. (10 different commands for each one).

Example of wget commands :-

1. To download a single file :

   wget https://wordpress.org/latest.zip

2. To download a file and save it under different name :-

   wget -O wordpress.zip https://wordpress.org/latest.zip

3. To download a file and save it under specific directory :-

   wget -P /opt/wordpress https://wordpress.org/latest.zip

4. To set the download speed :-

   wget --limit-rate=300k https://wordpress.org/latest.zip

5. To continue interrupted download :-

   wget -c https://wordpress.org/latest.zip

6. To download in background :-

   wget -b http://example.com/big-file.zip

7. To increase retry attempts :-

   wget -tries=100 https://example.com/file.zip

8. To download through FTP :-

   wget --ftp-user=username --ftp-password=password ftp://url-to-ftp-file

9. To download entire website :-

   wget --mirror --convert-links --page-requisites ----no-parent -P /path/to/download https://example-domain.com

10. To get version of wget :-

wget --version

Example of curl commands :-

1. To download a single file :-

curl http://www.centos.org

2. To fetch multiple files at a time :-

curl -O URL1 -O URL2

3. To follow HTTP location :-

curl –L http://www.google.com

4. To resume previous download :-

curl -C - -O http://www.gnu.org/software/gettext/manual/gettext.html

5. To limit the rate of data transfer :-

curl --limit-rate 1000B -O http://www.gnu.org/software/gettext/manual/gettext.html

6. To pass HTTP authentication in URL :

curl –u username:password URL

7. To download files from FTP server :-

curl -u ftpuser:ftppass -O ftp://ftp_server/public_html/xss.php

8. To upload files to FTP server :-

curl -u ftpuser:ftppass -T myfile.txt ftp://ftp.testserver.com

9. To use proxy to download a file :-

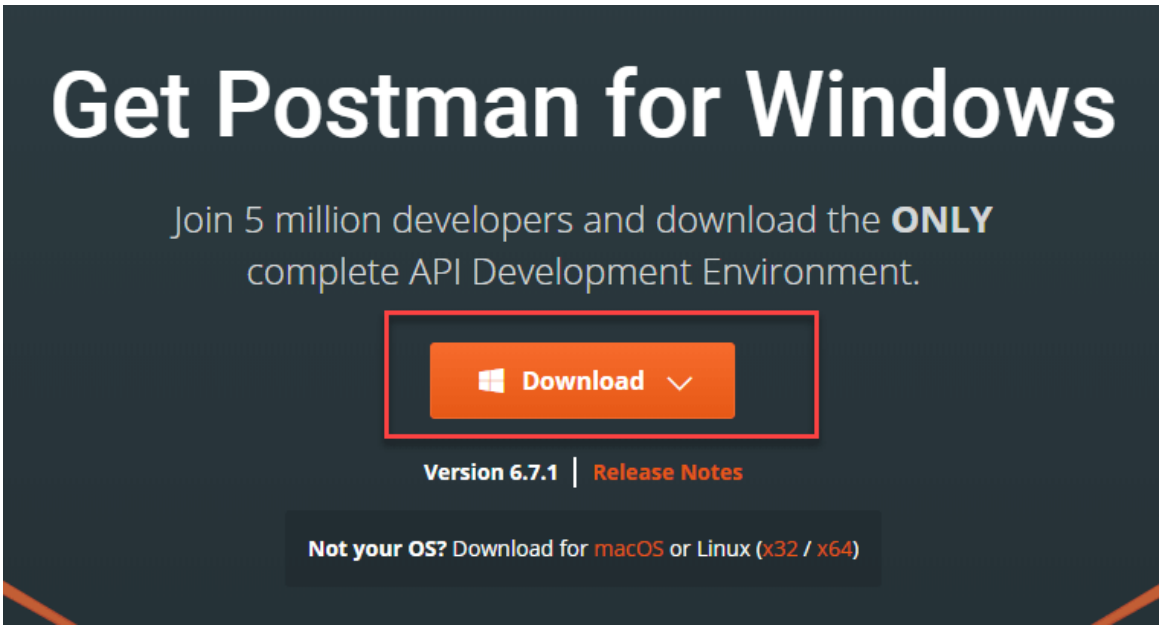
curl -x proxysever.test.com:3128 http://google.co.in

10. To change request method to POST:-

curl -X POST https://httpbin.org/post

22) Download and install “Postman”. Learn how to use it and write description, how you have used it. (You can include screenshots (crop it, if required) if you wish)

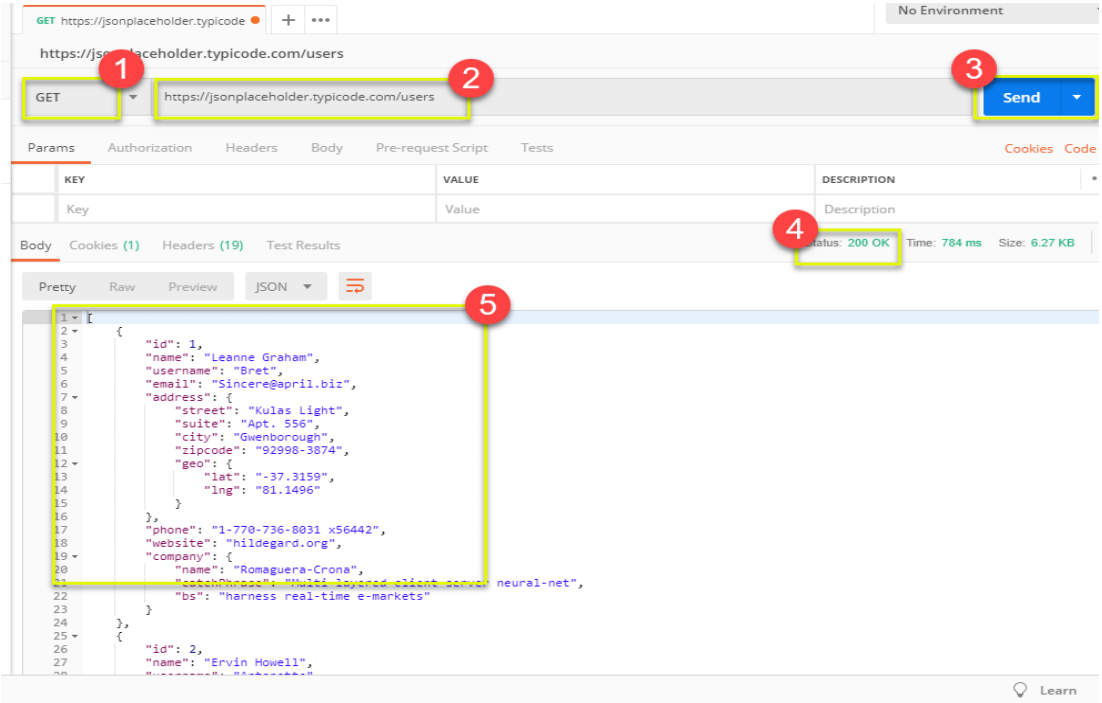
Postman is used to make request to APIs, to send or to retrive data.



After downloading the Postman, I lerned to use it by following one tutorial available onilne and I tested one API provided by them to know how to use Postman

- **Working with GET requests:-**

1. Set your HTTP request to GET.
2. In the request URL field, input link
3. Click Send
4. You will see 200 OK Message
5. There should be 10 user results in the body which indicates that your test has run successfully



- **Working with POST request :-**

1. Set your HTTP request to POST.

2. Input the same link in request url: https://jsonplaceholder.typicode.com/users

3. switch to the Body tab

4. Click raw

5. Select JSON

6. Copy and paste just one user result from the previous get request like below. Ensure that the code has been copied correctly with paired curly braces and brackets. Change id to 11 and name to any desired name. You can also change other details like the address.

7. Click Send.

8. Status: 201 Created should be displayed

9. Posted data are showing up in the body

23) What is “search engine optimization”? How to design our website to take benefit of it?

It is the process of getting traffic from the “free,” “organic,” “editorial” or “natural” search results on search engines.We can design our website to take benefit of it by taking a complete assessment which involves looking for major issues like page loading, navigation setup.

24) What are assistive technologies? Give examples and explain any two.

Assistive technology is any device, software, or equipment that helps people work around their challenges.Examples :-

- Electronic Worksheets : Students with learning disabilities like dyslexia can use electronic worksheets to complete their assignments. These worksheets help students to line up words, equations and numbers on their assignments. On some of the worksheets, text-to-speech or speech synthesizing technology is even available.

- Talking Calculators : Students who have dyscalculia can benefit greatly from a talking calculator. The gadget makes it easier to check assignments, read numbers and perform calculations. While the talking calculator is a fairly simple tool, it offers an exceptional benefit for students who would otherwise struggle in math classes. Other than talking calculators, students can also check out text-to-voice devices. They function on the same concept of converting written words into an audible track. Students can use these devices to check their spelling or to improve their reading comprehension skills.

25) What is responsive web site? How to make our website responsive?

Responsive web site is webpage or web site that automatically adjust for different screen size and viewports.

To make website responsive, we can :-

1.Add responsive meta tags in your HTML document..

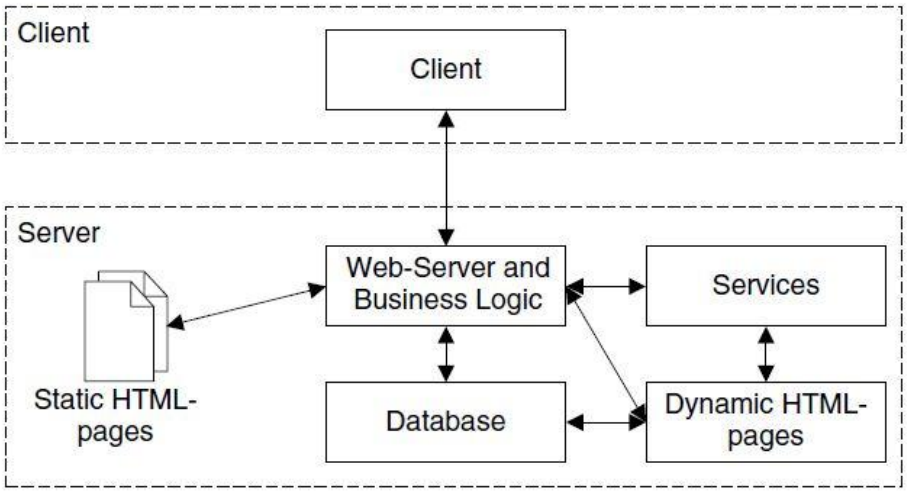
2.Apply media queries to your layout.

3.Make images and embedded videos responsive.

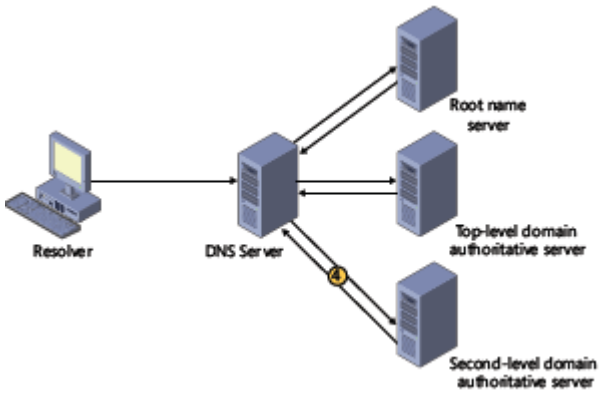
4.Ensure your typography will be easily readable on mobile devices.

26) What is web server? What is application server? Draw the architecture of both. Compare and contrast web server with application server. Give real world examples of each server.

- A web server is a computer that stores web server software and a website's component files (e.g. HTML documents, images, CSS stylesheets, and JavaScript files). It is connected to the Internet and supports physical data interchange with other devices connected to the web.
    - Examples: Apache,google server etc.



- An application server is a server that hosts applications.
  - Examples : Glassfish, Jboos



- **Comparison of web and application servers :-**

Web Server	Application Server
• Deliver static content. • Content is delivered using the HTTP protocol only. • Serves only web-based applications. • No support for multi-threading. • Facilitates web traffic that is not very resource intensive.	• Delivers dynamic content. • Provides business logic to application programs using several protocols (including HTTP). • Can serve web and enterprise-based applications. • Uses multi-threading to support multiple requests in parallel. • Facilitates longer running processes that are very resource-intensive.

27) What is Cross-Origin-Resource-Sharing (CORS) request? What is the significance of it?

Cross-Origin Resource Sharing (CORS) is a mechanism that uses additional HTTP headers to tell browsers to give a web application running at one origin, access to selected resources from a different origin. A web application executes a cross-origin HTTP request when it requests a resource that has a different origin (domain, protocol, or port) from its own.

28) What is polyfill (browser fallback)?

A polyfill is a browser fallback, made in JavaScript, that allows functionality you expect to work in modern browsers to work in older browsers, e.g., to support canvas (an HTML5 feature) in older browsers.

29) What is web accessibility?

Web accessibility means that websites, tools, and technologies are designed and developed so that people with disabilities can use them. ... perceive, understand, navigate, and interact with the Web.

30) How to validate your web page? Can we validate third-party web page?

We can validate our web page by using available online validator tools. Yes, we can validate third-party web page.

31) What is UX and UI design? Differentiate between UX and UI.

UX Design	UI Design
User experience (UX) is the interaction and experience users have with a company's products and services.	User interface (UI) is the specific asset users interact with.
UX design is all about the overall feel of the experience	UI design is all about how the product's interfaces look and function.
UX can apply to any kind of product, service, or experience	UI is specific to digital products and experiences.

32) What is the difference between scalability and elasticity?

Scalability	Elasticity
Scalability is the ability of the system to accommodate larger loads just by adding resources either making hardware stronger (scale up) or adding additional nodes (scale out).	Elasticity is the ability to fit the resources needed to cope with loads dynamically usually in relation to scale out.
It responds to longer business cycles.	It handles the up-and-down nature of website hits, sales demand.
Scalability is a long term design choice.	Elasticity is a short term ability to handle load.
It enables stable system growth.	It solves variable resource demands.