Unit -1
Part – A

1. **Define Internet.**

   The Internet is a vast network of computers, and server's, which communicate with each other. Used for information sharing.

2. **Define switching.**

   Switching is process to forward data packets coming in from one port to a port leading towards the destination.

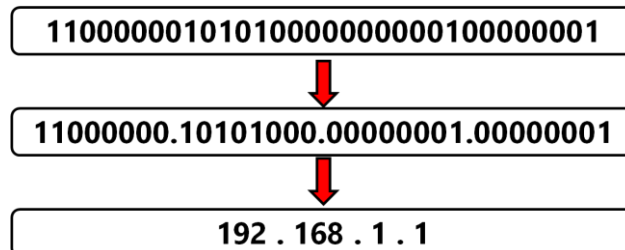3. **Write any three types of connections.**

   Dial-Up, ISDN and DSL

4. **What is a web Server?**

   A Web server is a computer system that hosts websites. It runs Web server software, which provides access to hosted web pages over the Internet.

5. **What is an IP Address?**

   It is an unique address that identifies a device on the Internet or on a local network. It is a 32 bit address. It can be written as dotted decimal or binary notation

   ```
   11000000101010000000000100000001
   ```
   ⬇
   ```
   11000000.10101000.00000001.00000001
   ```
   ⬇
   ```
   192 . 168 . 1 . 1
   ```

6. **What is HTML?**

   HTML stands for Hyper Text Markup Language. It was created by Tim Berners-Lee in 1991. It was officially released in 1995 for public use. It is a markup language that uses tags to display content on a browser.

Part – B

1. **Explain about Circuit Switching.**

   Circuit switching uses a dedicated communication path for sending data packets between two systems. It has three phases

   - Establish circuit: A dedicated circuit is established from source to destination through a number of intermediate switching centers.
   - Transfer the data: Once circuit is established data is transferred from source to destination
   - Disconnect the circuit: Once the data transfer is completed the connection is closed.

2. **What is a modem? Define Cable Modem.**

Modem is the short form for "Modulator-Demodulator". It is a hardware device that helps a computer to connect to the internet. It converts analog signal to digital signal called as "modulates". Similarly it converts digital signal to analog signal called as "demodulates".

Cable modem is a hardware device that is used to connect the computer with the Internet Service Provider (ISP) through the local cable TV line.

3. Explain about HTTP.

HTTP is an application-level protocol which is used to transfer data over the internet. HTTP uses a request-response model for communication. It is used for communications between the user and the website. It uses the port number "80"
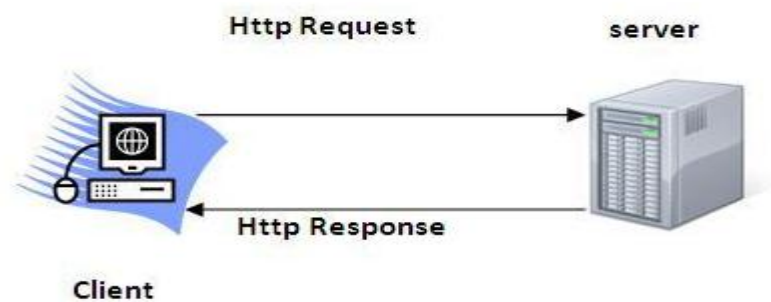
Features of HTTP
- It is a connectionless protocol.
- It is independent of media. It can send and receive any type of media
- It is a stateless protocol. Server does not track the status of the connection.

4. What are the types of IP address?

There are three types of address types available, they are network address, broadcast address and host address.
- Network address: It is used to identify a specific network on the internet.
  - Network ID + Zeros
- Broadcast address: It is used to transmit data to all the systems on a network.
  - Network ID + Ones
- Host address: It is used to identify a specific device on the network.
  - Network ID + Host-ID

5. Write about 3G.

It was commercially introduced in 2001. It uses UMTS (Universal Mobile Telecommunications System) technology introduced by 3GPP for communication. This increase data transmission rate at lower cost. The standards for non moving device speed is 2Mbps and moving devices speed is 384 kbps. This network introduced applications such as Video conferencing, streaming and location based services.

<u>Advantages</u>
- Provides portable high speed internet access
- Gives us improved telecommunication
- Real-time GPS navigation is possible

<u>Disadvantages</u>
- Cost of upgrading the device is high
- This need high power for working

6. Write about any three formatting tags.

Bold: This tag is used to display text in bold format. It uses the tag.

Italics: This tag is used to display text in italics format. It uses the <i></i> tag.

Underline: This tag is used to show the text with an underline. It uses <u></u> tag.

Part – C

1. Explain about
  a. Leased Line
  b. Satellite Connections

<u>Leased Line</u>

In this type of connection a permanent telephone connection between two points set up by a telecommunications common carrier. Typically, leased lines are used by businesses to connect geographically distant offices.
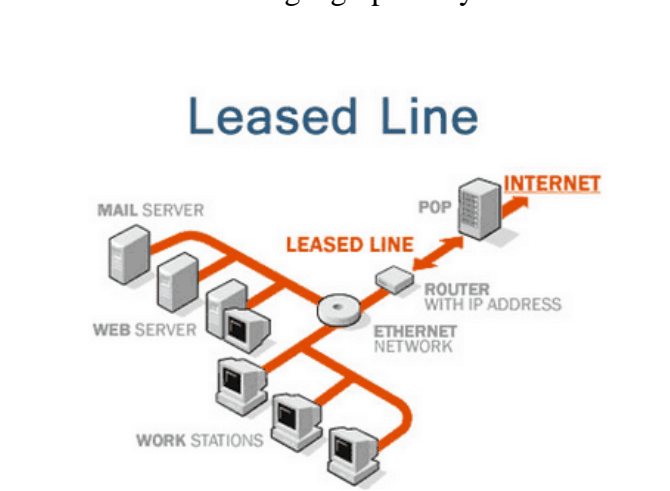
<u>Advantages</u>
- Bandwidth is Symmetric
- Bandwidth is not interrupted
- Have Speeds up to 10mbps
- Service is available all the time

<u>Disadvantages</u>

- The cost of maintenance is high
- Time taken for installation is high

Satellite Connections

In this type of connection satellite is used to provide internet. This gives internet connection in high speed. This provides an average speed of up to 512kbps. There are two types of connection available

Types of connections
- One way: Data is sent from satellite to the receiver(One way), eg DTH.
- Two way: Data is sent from the satellite to the receiver and back from the receiver to the satellite.
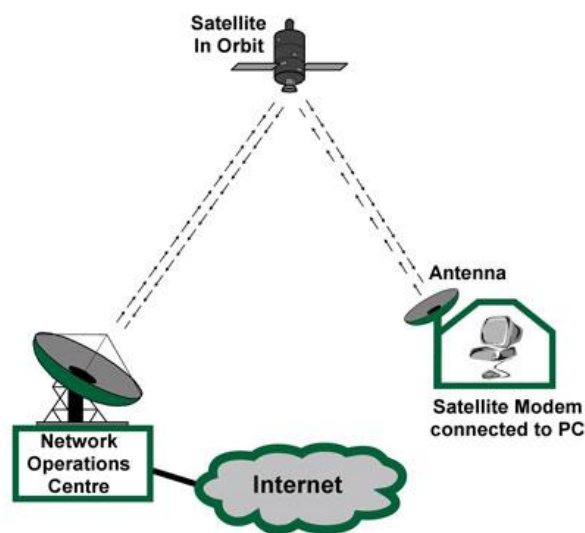
Advantages
- Used to provide access to remote areas
- The data connection is always on.

Disadvantages
- The data speed is relatively slow
- Connection quality is affected by weather disturbance.
- Cost of usage is high

2. **What is Electronic Mail?**

Electronic Mail (e-mail) is a computer-based system for exchange of messages and other information. It uses internet connection to send and receive information. Some examples of email programs are PINE, ELM, VMS mail.

An email id consists of username and domain name separated by "@" symbol.

Example: dnstnpt@gmail.com

Basic functions of email

Sending a message to a single email id or multiple email ids. Receiving an incoming message and allow us to reply to the sender. Forwarding a received message to another address. Delete messages that are no longer required and printing the message.
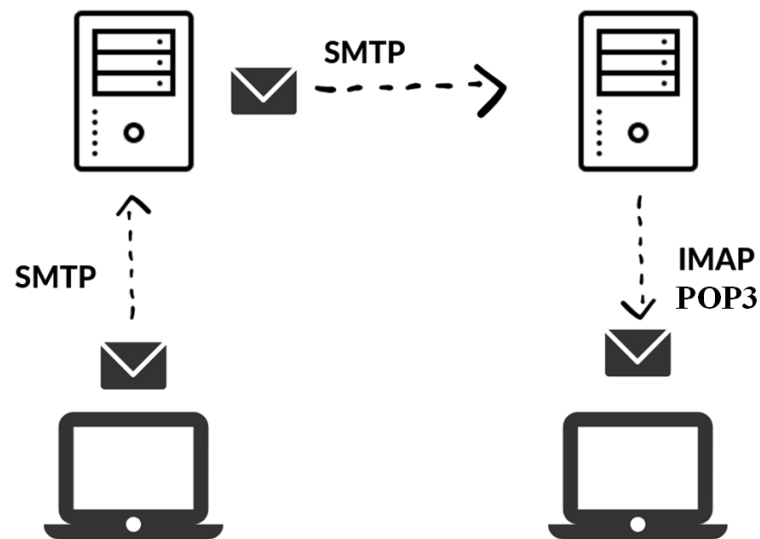

Email protocols

Email client require different protocols for sending and receiving an email. For sending an email SMTP (Simple Mail Transfer Protocol) is used. For receiving an email there are two protocols available. POP3 (Post Office Protocol), which receives the message from the server and the message in sever is deleted. IMAP (Internet Message Acccess Protocol), this protocols enables the email client to synchronize to receive the email from the server. It does not delete the message from the server.

3. Write about Search Engine.

Search engines are answer machines which are used to answer user queries. Search engines do all of this by discovering and cataloguing all available content on the Internet. There are various search engines available with different search engine algorithms, some of them are Google, Bing, Yahoo and Yandex.

The search engine uses an algorithm for providing search results to the user. Search engine has the following principles

- Crawling: Search engine sends robots known as spiders or crawlers to find new and updated content on the internet.
- Indexing: Store the information in a large database in an organized manner. Enable super fast response to query.
- Creating Results (Rank): Search engine search the index to get result for a user search. The results are ordered by rank and displayed to user.
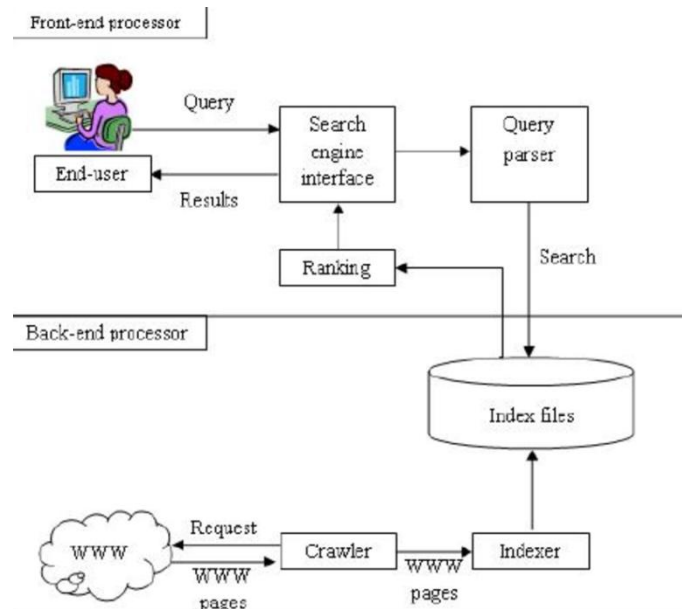
4. Write in detail about Classful Addressing.

In this type of addressing the IPv4 address space is divided into five classes so that it can be used to avoid wastage of network address. The classes are called as A, B, C, D and E.

- **Class A**: The first bit is '0', remaining 7 bit is assigned for net id. It consists of a total of block $2^7 = 128$. In each block there are $2^{24} = 1,67,77,216$ host. Total address in Class A is $2^{31} = 214,74,83,648$.
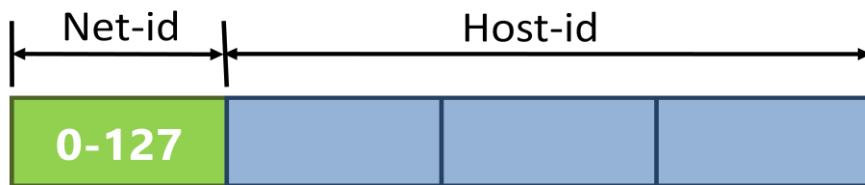
- **Class B:** The first two bits are fixed as '10', remaining 14 bits net-id. It consist of a total no of block $2^{14} = 16,384$. In each block there are $2^{16} = 65,536$ host. Total address in Class B $2^{30} = 107,37,41,824$.
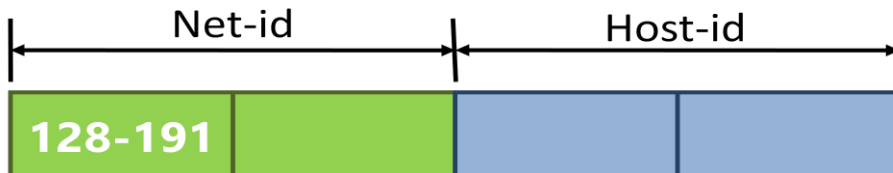
- **Class C:** In this the first three bits are fixed as '110', remaining 21 bits net-id. It consists of a total no of block $2^{21} = 20,97,152$. In each block there are $2^8 = 256$ hosts. Total address in Class C $2^{29} = 53,68,70,912$
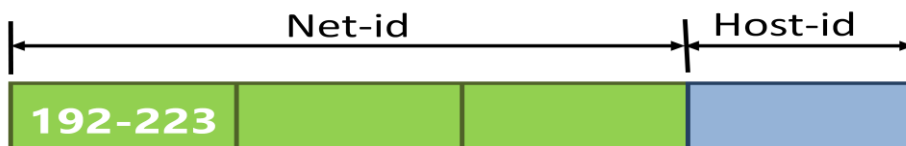
- **Class D:** In this the IPv4 address is not divided into net-id and host-id. The first four bit of class D is fixed as '1110'. It consists of a total of 2^{28} = 26,84,35,456 address.

224-239			

- **Class E:** This is similar to that of Class D. It uses only a single block for addressing. The first four bits of class E is '1111'. It consists of a total of 2^{28} = 26,84,35,456 address.

240-255			

5. Explain in detail about Basic HTML tags.

HTML tags are used to markup contents on a webpage. The basic criteria of HTML are each opening tag must have a closing tag. Some of the basic tags are

- DOCTYPE
- HTML: This has two main parts
    - Head
    - Body

Example
```
<!DOCTYPE html>
<html>
      <head>
       <title>First Web Page</title>
      </head>
      <body>
       <h1>Welcome</h1>
       <p>This is My First web page</p>
      </body>
</html>
```

<!DOCTYPE>

It is the first element on a webpage which tells the browser about the version of the HTML used. It must be given in all the HTML documents.

<html>

It is called as the root element in HTML. All the other elements are wrapped within this tag.

<head>

This tag contains the information about the page. The content of this tag is not visible on webpage. Title element is the required element other tags are optional. JavaScript code is given in <script> tag. CSS styling is given in <style> tag. Meta data about the page is given in <meta> tag.

<body>

  On a HTML webpage there can be only one body element. It contain the content of the webpage that is visible to the user.

6. Explain the use of Image tag with an example.

  This tag is used to insert an image into the HTML page. The tag reads the image from the given source and renders the image in the webpage.

Syntax

  Important attributes in this tag are src, alt, width and height. src attribute provides the source link of the image to be rendered. alt attribute is used to shows a text if image not available. width/height attributes are used to provide size of the image to be displayed on the page.

```
<!DOCTYPE html>
<html>
 <head>
      <title>Image</title>
 </head>
 <body>
  <h1>Image Tag</h1>
  <p>First Image</p>
  <img src="never1.jpg" alt="Image Not Found" width="200" height="200"/>
 </body>
</html>
```