Assignement-1 : write the network terminologies with example

List Of Network Terminologies Are :

IP Address:

Definition: An Internet Protocol (IP) address is a unique identifier assigned to each device connected to a network.

Example: 192.168.1.1 for a home router, or 172.217.14.238 for google.com.

DNS (Domain Name System):

Definition: DNS translates human-friendly domain names to IP addresses.

Example: www.example.com resolves to 93.184.216.34.

MAC Address:

Definition: A Media Access Control (MAC) address is a hardware identifier for network interfaces.

Example: 00:1A:2B:3C:4D:5E for a network interface card.

Subnet Mask:

Definition: A subnet mask divides an IP address into the network and host portions.

Example: 255.255.255.0 is a common subnet mask for a small network.

LAN (Local Area Network):

Definition: A LAN is a network that spans a small geographical area, such as a home or office.

Example: The network within a home that connects computers, printers, and other devices.

WAN (Wide Area Network):

Definition: A WAN spans a large geographical area, connecting multiple LANs.

Example: The Internet is the largest WAN.

Router:

Definition: A router directs data packets between networks.

Example: A home router connects a local network to the Internet

Switch:

Definition: A switch connects devices within a single network, using MAC addresses to forward data to the correct device.

Example: A network switch in an office connecting multiple computers and printers.

Firewall:

Definition: A firewall controls incoming and outgoing network traffic based on predetermined security rules.

Example: A software firewall on a computer, or a hardware firewall device protecting a network.

VPN (Virtual Private Network):

Definition: A VPN creates a secure, encrypted connection over a less secure network, such as the Internet.

Example: Employees using a VPN to securely access their company's internal network from home.

Gateway:

Definition: A gateway is a network node that connects two different networks, often used to forward traffic from a local network to external networks.

Example: A home router acting as a gateway to the Internet.

Bandwidth:

Definition: Bandwidth is the maximum rate of data transfer across a given path.

Example: An Internet connection with a bandwidth of 100 Mbps.

Topology:

Definition: Network topology refers to the arrangement of elements (links, nodes, etc.) in a computer network.

Example: A star topology where all devices are connected to a central hub.

Protocol:

Definition: A protocol is a set of rules governing the exchange or transmission of data between devices.

Example: HTTP (Hypertext Transfer Protocol) used for transmitting web pages.

Ethernet:

Definition: Ethernet is a family of networking technologies commonly used in LANs.

Example: Connecting a computer to a network using an Ethernet cable.

DHCP (Dynamic Host Configuration Protocol):

Definition: DHCP automates the assignment of IP addresses and other network settings to devices.

Example: A laptop getting an IP address from a router when it connects to a Wi-Fi network.

NAT (Network Address Translation):

Definition: NAT modifies network address information in IP packet headers while in transit, allowing multiple devices on a local network to share a single public IP address.

Example: A home router using NAT to allow multiple devices to access the Internet through one public IP.

Latency:

Definition: Latency is the time it takes for data to travel from the source to the destination.

Example: A ping time of 20 milliseconds to a local server.

Wireless Access Point (WAP):

Definition: A WAP allows wireless devices to connect to a wired network using Wi-Fi.

Example: A Wi-Fi router that provides Internet access to wireless devices.

Port:

Definition: A port is a virtual point where network connections start and end, associated with a specific process or service.

Example: Port 80 for HTTP traffic and port 443 for HTTPS traffic.