Assignement-1 : write the network terminologies with example

**List Of Network Terminologies Are :**

**IP Address:**

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**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):**

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

**Example**: www.example.com resolves to 93.184.216.34.

**MAC Address:**

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**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:**

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**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):**

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**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):**

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

**Example**: The Internet is the largest WAN.

**Router:**

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**Definition**: A router directs data packets between networks.

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

**Switch:**

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**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:**

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**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):**

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**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:**

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**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:**

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

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

**Topology:**

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**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:**

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**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:**

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**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):**

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**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):**

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**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:**

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**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):**

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**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:**

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**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.