

Assignment 1: Write the network terminologies with example.

1. IP Address (Internet Protocol Address):

- **Definition:** A unique string of numbers separated by periods or colons that identifies each computer using the Internet Protocol to communicate over a network.
- **Example:** 192.168.1.1 (IPv4) or 2001:0db8:85a3:0000:0000:8a2e:0370:7334 (IPv6).

2. MAC Address (Media Access Control Address):

- **Definition:** A hardware identification number that uniquely identifies each device on a network.
- **Example:** 00:1A:2B:3C:4D:5E.

3. Router:

- **Definition:** A device that forwards data packets between computer networks, creating an overlay of internetwork.
- **Example:** A home Wi-Fi router that connects multiple devices to the internet.

4. Switch:

- **Definition:** A networking device that connects devices within a network and uses MAC addresses to forward data to the correct destination.
- **Example:** A network switch used in an office to connect computers and printers.

5. Subnet Mask:

- **Definition:** A 32-bit number that divides an IP address into network and host parts.
- **Example:** 255.255.255.0

6. DNS (Domain Name System):

- **Definition:** A system that translates domain names into IP addresses.
- **Example:** Translating `www.example.com` to `93.184.216.34`.

7. DHCP (Dynamic Host Configuration Protocol):

- **Definition:** A network management protocol used to dynamically assign IP addresses to devices on a network.
- **Example:** A laptop automatically receiving an IP address from a DHCP server when connecting to a network.

8. LAN (Local Area Network):

- **Definition:** A network that connects computers within a limited area, such as a residence, school, or office building.
- **Example:** The network within a small office building.

9. WAN (Wide Area Network):

- **Definition:** A telecommunications network that extends over a large geographic area for the primary purpose of computer networking.
- **Example:** The Internet.

10. **Firewall:**

- **Definition:** A network security device that monitors and filters incoming and outgoing network traffic based on an organization's previously established security policies.
- **Example:** A software firewall on a computer that blocks unauthorized access.

11. **VPN (Virtual Private Network):**

- **Definition:** A service that creates a safe and encrypted connection over a less secure network, such as the internet.
- **Example:** Using a VPN service to securely connect to a company's internal network from a remote location.

12. **Bandwidth:**

- **Definition:** The maximum rate of data transfer across a given path.
- **Example:** A home internet connection with a bandwidth of 100 Mbps.

13. **Latency:**

- **Definition:** The delay before a transfer of data begins following an instruction for its transfer.
- **Example:** A video call experiencing a delay, with a latency of 150 milliseconds.

14. **Packet:**

- **Definition:** A unit of data routed between an origin and a destination on the internet or other packet-switched network.
- **Example:** An email broken into packets that travel across the network and reassemble at the destination.

15. **Protocol:**

- **Definition:** A set of rules governing the format of data sent over the internet or other networks.
- **Example:** HTTP (Hypertext Transfer Protocol) used