ASSIGNMENT 2

1. What are the different types of networks?

1 -Local Area Network (LAN): Covers a small geographic area, like an office or home.

2- Wide Area Network (WAN): Covers large geographic areas, such as cities or countries.

3- Metropolitan Area Network (MAN): Spans a city or campus.

4- Personal Area Network (PAN): A small network for personal devices, like Bluetooth connections.

5- Virtual Private Network (VPN): Secure connection over the internet, often used for remote access.

2. Explain the Shielded Twisted Pair (STP) and Unshielded Twisted Pair (UTP).

- STP: Cables have a shielding layer to prevent electromagnetic interference, making them suitable for high-interference environments.
- UTP: Cables lack shielding, are lighter and more flexible, and are commonly used in LANs due to lower cost and ease of installation.

3. What is the difference between baseband and broadband transmission?

- Baseband: Uses a single signal over a single channel, ideal for short distances (e.g., Ethernet).
- Broadband: Divides a signal into multiple channels, allowing multiple signals to travel simultaneously, typically over longer distances (e.g., cable internet).

4. What is the difference between a hub, modem, router, and a switch?

- Hub: Broadcasts data to all devices in a network; doesn't filter data.
- Modem: Converts digital data to analog for internet access via phone/cable lines.
- Router: Connects multiple networks, directing data between them, commonly used for home Wi-Fi.
- Switch: Connects devices within a single network and sends data to the specific device it's intended for.

5. When you move the NIC cards from one PC to another PC, does the MAC address get transferred as well?

- Yes. The MAC (Media Access Control) address is hard-coded in the NIC (Network Interface Card) hardware, so it stays the same even if the NIC is moved to another computer.

6. When troubleshooting computer network problems, what common hardware-related problems can occur?

- Loose or faulty cables
- Defective NIC or network adapters
- Problems with routers, switches, or hubs
- Power supply issues
- Incorrect hardware configuration or setup

7. In a network that contains two servers and twenty workstations, where is the best place to install an Anti-virus program?

- Install antivirus software on all computers, including both servers and workstations, to ensure maximum protection across the network.

8. Define Static IP and Dynamic IP. Discuss the difference between IPv4 and IPv6.

- Static IP: An IP address that is manually assigned and doesn't change.
- Dynamic IP: An IP address that is assigned automatically by a DHCP server and may change over time.
- IPv4: 32-bit address format with limited addresses, written as four decimal numbers (e.g., 192.168.0.1).
- IPv6: 128-bit address format providing more addresses, written as eight hexadecimal segments (e.g., 2001:0db8:85a3:0000:0000:8a2e:0370:7334).

9. Discuss the TCP/IP model in detail.

TCP/IP (Transmission Control Protocol/Internet Protocol) model has four layers:

1. Application Layer: Interfaces with software (e.g., HTTP, FTP).

2. Transport Layer: Ensures data transfer (e.g., TCP, UDP).

3. Internet Layer: Manages IP addressing and routing (e.g., IP).

4. Network Access Layer: Manages physical transmission (e.g., Ethernet).

10. What is a Web Browser? Give some examples of browsers.

- A Web Browser is software used to access and view websites. Examples include Google Chrome, Mozilla Firefox, Microsoft Edge, and Safari.

11. What is a search engine? Give an example.

- A Search Engine is a tool that helps users find information on the internet by indexing websites. Example: Google.

12. What is the Internet & WWW? What are the uses of the Internet in our daily life?

- Internet: A global network connecting millions of computers for data sharing.
- WWW (World Wide Web): A collection of web pages accessible via the internet.
- Uses: Communication (email, social media), education (e-learning), entertainment (videos, music), work (remote jobs), and shopping.

13. What is an Internet Service Provider? Give some examples of ISPs in India.

- ISP (Internet Service Provider): A company that provides internet access to users. Examples in India: Airtel, Jio, BSNL, and Vodafone.

14. Discuss the difference between MAC address, IP address, and Port address.

- MAC Address: Unique hardware address assigned to a network interface card, specific to the device.
- IP Address: Logical address assigned to a device on a network, used for location identification.
- Port Address: A numerical label used with IP addresses to direct data to specific services or applications on a device.

15. How do we view our Internet browsing history?

- In most browsers, you can view browsing history by pressing Ctrl + H or going to the History section in the browser's menu.