

N+ Assignment

Module 5. Network Fundamentals and Building Networks



1. What is network?

A : When two or more devices connected to each other , and can communicate and share resource with each other is called network.

2. List Common Network Components.

A : Switch, Hub, Router, Access point , cables etc.

3. Add and configure loopback adaptor in network and sharing center.

A : Go to Settings > Network & internet > Change adapter options > Add new device > select Microsoft Loopback Adapter, and then set IP .

1. Explain application of network.

A: Networks allows communication, data sharing, internet access, business operations, entertainment, remote access etc. They play a crucial role in connecting people, devices, and systems for various applications and services.

2. What do you mean by Node?

A : Node is any device that can send or receive data. Like computers, servers, switches, routers etc.

1. List types of devices.

A : Computers, Servers, Switches, Hubs, Routers, Firewalls etc.

2. Explain types of routers .

A : Home Router, Enterprise Router, Wireless Router, Edge Router , core router, branch router etc.

## Topic: Type of Network

1. What is Difference between a LAN, MAN, WAN?

A : LAN : Local area network allows network in small location like a home.

MAN : Metropolitan Area Network can cover a city or large campus.

WAN : Wide Area Network connects large geographical areas, and connects distant locations.

2. Common Network Components.

A : NIC, Switches, Hubs, Routers, Access points, Firewalls etc.

1. Explain Wide Area Network.

A : A Wide Area Network connects multiple Local Area Networks or over large geographic area, facilitating long-distance communication and data exchange.

2. Explain Network Backbone.

A : A network backbone is the primary infrastructure that connects multiple networks or devices within a network, serving as a high-capacity pathway for data transmission.

3. Explain CAN.

A : Campus Area Network is a type of network that connects multiple interconnected Local Area Networks within a limited geographic area.

1. Define Physical Network Topologies.

A: Bus , Ring , Star, Mesh and Hybrid Topology.

2. Network Architecture: Peer-to-Peer

A: In a Peer-to-Peer network architecture, devices communicate directly with each other without a central device.

3. Point-to-multipoint network.

A: Point-to-Multipoint network has a central hub connecting to multiple endpoints, enabling efficient one-to-many communication.

## Topic: Network Devices

1. Why we use Network and Devices.

A: Networks and devices enable fast communication, data sharing, collaboration, internet access, remote connectivity etc.

2. Explain Switch?

A : switch is a device in a network that exchange data traffic between devices in a Local Area Network by using MAC addresses, enhancing communication efficiency and reducing collisions.

1. Define list of cables in use of network.

A : Ethernet cable, Fiber optic cable, coaxial cable, usb cable .

2. Explain Define Access point.

A: An access point is a device that enables wireless devices to connect to a wired network, providing Wi-Fi access for communication and internet connectivity.

3. Which types of transmission modes in computer network.

A: Simplex mode, Half duplex mode, Full-duplex mode.

1. Explain Repeater and router.

A: Repeater extends the range of a network by amplifying signals. It receives and strengthens incoming signals, the retransmits them to cover larger areas.

Router allows LAN to connect to the WAN. It directs data between different networks.

2. What is multiplexer?

A: A multiplexer combines multiple input signals into a single output, optimizing bandwidth usage in communication systems.

3. Explain MODEM.

A: A modem converts digital signals from a computer into analog signals for transmission over communication lines.

## Topic: Install and configure DHCP, DNS

1. Explain DHCP Dynamic host configuration protocol.

A: DHCP automatically assigns IP addresses and network configuration to devices on a network, simplifying setup and management.

1. Explain Domain naming Services.

A: DNS translates user-friendly domain names to computer-friendly IP addresses, making it easier to access websites on the internet.

## Topic: Network Topologies

1. What are the 5 network topologies?

A: Bus , Ring , Star, Mesh and Hybrid Topology.

2. What is Internet topology?

A: The Internet topology is a complex, decentralized network structure with a mix of various topologies, including mesh and star configurations.

3. What is protocol.

A: A protocol is a set of rules governing how data is transmitted and received in a network, ensuring standardized communication between devices.

1. What is the most common network topology?

A: Star topology

2. Explain star topology in networking?

A: In star topology , every device is connected to the central hub or switch. It makes easy for installation, configuration, management. Issues with one device typically do not affect others in the network.

1. Explain Hybrid topology.

A: Hybrid topology is a network design that combines different types of topologies, offering versatility, reliability through redundancy, scalability, and customization to meet specific network requirements.

2. What is physical and logical topology?

A: Physical Topology: Describes the physical arrangement of devices and cables.

Logical Topology: Describes the flow of data in a network, irrespective of physical layout.

3. What are the types of logical topology?

A: Bus, Ring, Star topology

## Topic: OSI Model

1. What is OSI model explain?

A: The OSI model is a framework with seven layers that standardizes network functions, from physical connections to user interactions. It guides communication between devices, each layer with specific responsibilities.

2. List of Application layer protocol.

A: HTTP,HTTPS,TELNET,DHCP etc.

3. How many types of protocols are there?

A: Communication protocols, Internet Protocols, Web protocols, File transfer protocols, Network management protocols etc.

1. What is the difference between TCP IP model and OSI model?

A: OSI Model:

Seven layers, More detailed functions, Less practical adoption.

TCP/IP Model:

Four layers, Merges some functions, Widely adopted, especially in the internet.

2. What is TCP IP networking?

A: TCP/IP networking is a set of protocols that forms the foundation of the internet and many networks. It ensures reliable and efficient communication between devices, managing data transmission and addressing.

1. What is a wired Internet connection?

A: Any device connected to the internet or network via any kind of cable is called wired connection . Like connected via UTP cable or fiber cable.

2. What are the disadvantages of wired networks?

A: Wired network has some disadvantages , like it is very costly to give all device separate connection, to maintain cable is another challenge.

## Topic: TCP/IP

1. What is TCP/IP?

A: TCP/IP is the set of rules that allows devices to communicate over the internet and networks, ensuring reliable data transmission.

2. What is the full form of TCP/IP?

A: Transmission Control Protocol / Internet Protocol

1. List out the types of IP.

A: IPv4 & IPv6

2. What is protocol?

A: A protocol is a set of rules that controls how data is sent and received in a networks.

## Topic: Cables

1. Types of cables and connectors?

A: There are many types of cables like twisted pair cable , fiber optic cable, coaxial cable etc. and connectors like rj11, rj45, SFP etc.

2. Explain twisted pair cable and shielded twisted pair cable.

A: A twisted pair cable has two wires twisted together. This twisting reduces interference. There are two types: Unshielded Twisted Pair is common and cost-effective, used in regular networks. Shielded Twisted Pair has extra shielding for better protection, suitable for places with more interference, like factories.

1. Which of these cables connect computers to monitors?

### A : VGA, DVI, HDMI, Display Port cable, Thunderbolt Cable

2. How do I connect to a shared printer?

A: Enable printer sharing on the computer with the printer. In your computer settings, find and add the shared printer from the network. Install any required drivers and complete the setup.

1. Which cable that is commonly used to connect a computer to a printer?

A: VGA and HDMI

2. Which cable that is commonly used to connect a computer to a printer?

A: USB

3. How do I connect my laptop to my printer without cable?

A: with Wi-Fi

4. Which of following operates at the 5GHz frequency range?

A: 802.11a, 802.11ac

5. What frequency does 802.11g use?

A: It uses 2.4GHz frequency

6. What standard is compatible with 802.11a?

A: It is compatible with device which is using same standard.

# Topic: TCP/IP concepts - IPv6, IPv4

1.What is the difference between IPv4 & IPv6?

A: IPv4 has shorter addresses, uses decimals, and lacks built-in security and QoS features. IPv6 has longer addresses, uses hexadecimal, includes built-in security and better QoS support. The transition involves coexistence mechanisms.

2. Explain IPV6 Address with Address structure.

A: Pv6 addresses are 128-bit identifiers in hexadecimal, organized in eight groups. Leading zeros and consecutive zeros can be abbreviated. Types like global unicast indicate scope. In global unicast, subnet ID and Interface ID provide details. This structure accommodates a large number of unique addresses, addressing IPv4 limitations.

3. Define IPV6 reserve address.

A: IPv6 reserved addresses are special codes designated for specific purposes, such as loopback (::1) for self-testing and the unspecified address (::) for certain situations.

4. Explain Difference between public ip and private ip.

A: Public IP addresses are unique and used for devices accessible over the Internet. Private IP addresses are used within local networks and are not accessible from the Internet.

1. Brief explanation of ip Addresses.

A: IP addresses are like digital labels for devices on the internet, helping them talk to each other. There are public ones for the internet and private ones for local networks. They're essential for devices to share information.

2. What is the advantage of IPv6 over IPv4?

A: IPv6 provides a much larger pool of unique addresses, simplifies network configuration, integrates built-in security, supports better quality of service, and efficiently handles multicast and anycast.

# Topic: IP routing and Routing protocols

1. What Is Routing?A: Routing is finding the best path for data to travel from the source to the destination on a network, using routers to make decisions based on network conditions and addresses.

2. How Routing Starts Up?

A: Routing starts when a device sends data. The device looks at its list to figure out where to send it next. Each stop along the way does the same until the data reaches its destination.

1 . What Is Hybrid Routing Protocol?

A: Hybrid routing is like using two tools together for better and flexible directions in a network.

2. What Are the Range of Ad Values?A: Administrative Distance values range from 0 to 255 in routing protocols. Lower values are more preferred.

3. What Is an Autonomous System?

A: Autonomous System is a network controlled by one organization, identified by a unique number, and used for internet routing decisions.

# Topic: Switching and VLANS

1. What is VLAN?A: VLAN is a way to separate and organize devices on a network into logical groups, enhancing security and network management.

2. Which two benefits of creating VLANs?

### A: Enhanced Security and Improved Network Performance

3. What is Dynamic VLAN?

A: Dynamic VLANs automatically assign VLAN membership based on user or device characteristics, enhancing flexibility and scalability.

4. What is Static VLAN?

A: Static VLAN is manually configured by administrators, assigning specific ports on a switch to a particular VLAN.

1. What is VLAN and INTERVLAN?

A: VLAN is a logical network segment, and INTERVLAN is the process of enabling communication between different VLANs using a router or layer 3 switch.

2. What is trunk port?

A: Trunk port is a switch port configured to carry data for multiple VLANs, enabling communication between switches or between a switch and a router.