**N+ - Network Fundamentals and building networks**

**N+ Assignment**

**Module -1**

**• What is network?**

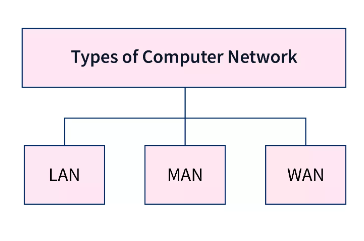
**Ans.** A group of two or more computers or other electronic devices that are interconnected for the purpose of exchanging data and sharing resources.

OR

“Connection between two or more computers and devices is called network.”

**• Explain type of network-- LAN, MAN, WAN?**

**Ans.**

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Local Area Network [LAN]: A collection of devices connected together in one physical office such as a building network and home network.

Metropolitan Area Network [MAN]: A computer network that connects computer within a metropolitan area.

* The MAN is a network type that convers the network connection of an entire city or connection of a small area.

Wide area network [WAN]: The WAN is designed to connect devices over large distances like states or between countries.

* The technology that connects your offices centres, cloud applications, and cloud storage together.

**• What is Internet?**

**Ans.** A worldwide system of computer network it’s called internet.

Or

A global network of billions of computers and other electronic devices.

**• Define Network Topologies.**

**Ans.** Network topologies are the ways devices are physically or logically connected in computer network.

**• Define list of cables in use of network—Twisted pair,**

**Fiber optics.**

**Ans. Twisted pair:** A type of cable that consists of pair of insulted copper wires twisted together.

**Fiber Optics:** A cable made of thin strands of glass or plastic that transmit data using light pulses. Offers high bandwidth and is immune to electromagnetic interference.

**• Straight cable standard sequence 568 A and 568 B**

**Ans.** In a straight cable, the standard sequences for wiring are defined by TIA/EIA-568-A and TIA/EIA-568-B. The 568A sequence is:

1. White-Green
2. Green
3. White-Orange
4. Blue
5. White-Brown
6. Orange
7. White-Brown
8. Brown

The 568B sequence is:

1. White-Orange
2. Orange
3. White-Green
4. Blue
5. White-Blue
6. Green
7. White-Brown
8. Brown

**• What is Fiber optics module and Fiber connector**

**Ans.** Fiber Optic: A device that helps send and receive information using light through thin glass or plastic Fibers.

Fiber Connector: A tool that connects and lets light travel between Fiber optic cables, helping devices communicate using light signals.

**• Explain Switch**

**Ans.** A smart device that helps your gadgets talk to each other in a group, making sure messages go directly to the right one instead of getting mixes up.

Or

A switch responds to an external force to mechanically change an electric signal.

**• Explain Router   
Ans.** A router is a device that connects two or more packet-switched networks or subnetwork. It’s server two primary function: managing traffic between these networks by forwarding data packets to their intended IP addresses, and allowing multiple devices to use the same internet connection.

**• Explain MODEM**

**Ans.** A modem is a network device that both modulates and demodulates analog carrier signals (called sine waves) for encoding and decoding digital information for processing. Modems accomplish both of these tasks simultaneously and, for this reason, the term modem is a combination of “modulate” and “demodulate”.

OR

* A modem is a device that helps your computer communicate with the internet using your phone or cable line. It converts digital data from your computer into signals that can travel over these lines and turns incoming signals back into usable digital data for your computer. It’s like a translator that allows your devices to talk to the internet and vice versa.

**• Explain DHCP Dynamic host configuration protocol Explain Domain Naming Services What is protocol?**

**Ans.** 1. DHCP (Dynamic Host Configuration Protocol):

DHCP is like a digital valet for your devices. It automatically assigns unique IP addresses to your gadgets when they join a network, making it simpler for them to communicate and connect to the internet without you having to manually configure each device.

2. DNS (Domain Naming Services):

DNS is like a global phonebook for the internet. Instead of remembering complicated IP addresses, you use domain names (like [www.example.com](http://www.example.com)), and DNS translates these names into the correct IP addresses, helping your computer find and connect to websites easily.

3. Protocol:

A protocol is like a set of rules that devices follow to communicate with each other over a network. It’s like a shared language that ensures different devices can understand and interact with one another effectively.

**• What is unicast multicast and broadcast?**

**Ans.** 1. Unicast:

Unicast is like sending a private message. It’s when one device communicates directly with another specific device, ensuring that the message reaches only the intended recipient.

2. Multicast:

Multicast is like making a public announcement. It’s when one devise sends data toa select group of devices, allowing efficient communication to multiple recipients without addressing each one individually.

3. Broadcast:

Broadcast is like making a public announcement. It’s when one device send data to all devices within a network, ensuring that the message reaches every connected device, although it may not be relevant or processed by all.

**• What is OSI model?**

**Ans.** The Open Systems Intercommunication (OSI) model is a conceptual model that represent how network communication work.

* The OSI model id a conceptual framework that standardizes the function of a telecommunication or computing system into seven abstraction layers. It’s like a stack of seven layers, each responsible for specific task, enabling communication between different systems.

**• What is port number?**

**Ans.** A port number is a number assigned to uniquely identify a connection endpoint and to direct data to a specific service.

* A port number is like a door on a computer that allows different application to communicate. It helps organize data traffic by assigning specific numbers to different types of communication, like web browsing (port 80) or email (port 25).

**• Difference between TCP V/S UDP communications What is session development?**

**Ans.**

|  |  |
| --- | --- |
| **TCP** | **UDP** |
| Transmission Control Protocol | User Datagram Protocol |
| Connection Oriented | Connection Less |
| Supports Ack’s | No support for Ack’s |
| Reliable communication | Unreliable Communication |
| Slower data Transportation | Faster data Transportation |
| Protocol No is 6  Eg: HTTP, FTP, SMTP | Protocol no is 17  Eg: DNS, DHCP, TFTP |

* Session development involves managing and maintaining connection between devices or users and a system. It ensures smooth interactions, allowing system to retain information about a user across multiple transaction or interaction. Ex. Including keeping a user logged in during a web browsing session.

**• What is flow control?**

**Ans.** Flow control is a synchronization protocol for transmitting and receiving units of information. It determines the advance of information between a sender and a receiver, enabling and disabling the transmission of information.

OR

* In data communications,Flow control is like traffic management for data in a computer network

**• What is the difference between TCP IP model and OSI model?**

**Ans.**

|  |  |
| --- | --- |
| **TCP/IP Model** | **OSI Model** |
| Implementation Model | Reference Model |
| Model around which internet is developed | OSI is a theoretical model |
| TCP/IP has only four layers | OSI model has seven layers |
| TCP/IP follows horizontal approach | OSI follow vertical approach |
| The protocol was developed before the model | The model was developed before the development of the protocol |

**• What is Arp broadcast?**

**Ans.** Adress Resolution Protocol (APR) broadcasts a request packet to all the machine on the LAN and asks if any of the machines are using that particular IP address. When a machine recognizes the IP address as its own, it sends a reply so ARP can update the cache for future reference and proceed with the communication.

**• What is mac-address?**

**Ans.** A MAC Address (Media Access Control Address0) is like a unique ID for your device on a network. It’s a set of numbers assigned to your device’s network interface, helping in identifying and communicating with it. Think of it as your device’s digital fingerprint for networking.

OR

* A MAC address is a 12-digit hexadecimal number assigned to each device connected to the network.

**• What is IP address? Difference between ipv4 address and ipv6 address Assign multiple IPv4 in single network adapter in pc what are network vulnerabilities?**

**Ans. IP address:** An IP address is like your device’s street address on the internet. It’s a numeric label assigned to each device participating in a computer network.

**IPv4 vs. IPv6**

|  |  |
| --- | --- |
| **IPv4** | **IPv6** |
| Deployed 1981 | Deployed 1998 |
| 32-bit IP address | 128-bit IP address |
| Numeric | Alphanumeric |
| Bits divided by a period | Bits divided by a colon |
| Address representation of IPv4 is in decimal | Address Representation Of IPv6 is in hexadecimal |

-IPv4 address are like traditional phone number, limited in quantity. IPv6 address are like a newer, longer set of phone number, providing more possibilities to accommodate the growing number of devices on the internet.

**Multiple IPv4 address on a Single Network Adapter:**

* Assigning multiple IPv4 address to a network adapter is like having multiple mailboxes at your home. Each address represents a distinct location where data can be sent or received.

**Network Vulnerabilities:**

* Network vulnerabilities are like weak point in a fortress. They can include things like outdated software, weak passwords, or unprotected connection, making it easier for unauthorized individual or malicious software to exploit and compromise a network. Think of it as locking your doors to prevent unwanted entry into your home.

**• What is a firewall to use for?**

**Ans.** Firewalls is a provide protection against outside cyber attackers by shielding your computer or network from malicious or unnecessary network traffic. Firewall can also prevent malicious software from accessing a computer or network via the internet.

**• Wireless router configures for internet connection and wireless security what is wireless access point? And what is wireless extender?**

**Ans. Wireless Router for Internet and Security:**

* A wireless router is like the traffic cop for your home internet. It connects to your modem, directing internet traffic to your devices. It also helps secure your connection, acting as a digital bouncer to keep unwanted guest out.

**Wireless Access Point:**

* A wireless access point is like a wi-fi hotspot. It provides wireless connectivity to devices within its range. It’s akin to connect wirelessly to an existing wired network.

**Wireless Extender:** A wireless extender is like a signal booster for your wi-fi. It amplifies and extends the reach of your wireless network, making it stronger in areas with weaker signals. Think of it as a relay runner passing the wi-fi signal to cover more ground in your home.