Network fundamental

1. C. Discover
2. B. permit tcp any any eq 80
3. Network toopologis is topologies structure of a network and may be depicted or logically. It an application of graph theory wherein communicating devices are modeled as nodes and the connection between the devices are modoled as link or lines between the nodes

There are total 7 topologies :

1. Bus Topology
2. Ring topology
3. Star topology
4. Mesh topology
5. Tree topology
6. Hybrid
7. Point to point
8. TCP/IP allows computer on the same network to identify and communicate with each other. TCP/IP is two layer protocol , with the transport layer responsible for reliable end to end communication and the internet layer accountable for routing packets from the host to host .
9. LAN : Local Area Network it only use for local area likewise in the house or in the small company where the device to be connected or connected device is less .

WAN : Wide Area Network it use for wide area where its is use for many devices . for eg : there is a one switch and router which is being use for many connecting devices

1. There are total four devices :

1. NIC : network interface card connect the unicast bridge

2. HUB : multiple pc connector and send broadcast message

3. BRIDGE : connect between two hub and stop the traffic . there is a technology name CSMA/CD

4. SWITCH : after all this switch being introduce which is till today . switch have 48 connector

1. A connector is a physical interface that enables communication between devices or between a device and a cable. Connectors allow the transmission of power and data signals through contact points called pins. Electrically, they enable the flow of power and data signals across devices. Common types of connectors include USB, HDMI, Ethernet, and audio jacks.

### **USB Ports and Connectors**

USB (Universal Serial Bus) has become the standard for connecting peripherals and accessories to computers and mobile devices. Cable USB uses simple, compact connectors that offer plug-and-play convenience.

**Common types of USB connectors include:**

* **USB-A**The standard rectangular USB connector that plugs into USB host ports on computers. USB-A is compatible with USB 1.0, 2.0 and 3.0.
* **USB-B**Rectangular connectors for the device end of USB cables. Used for printers, scanners and other peripherals.
* **USB-C**Oval-shaped, reversible USB connector for both hosts and devices. Supports USB 3.1 and Thunderbolt 3.
* **Mini and Micro USB**Smaller versions of USB-B commonly used in mobile devices, cameras and portable hubs.

### **Video and Audio Connectors**

Connections for audio and video have specialized connectors tailored to their signal requirements. For video, common connectors include:

* **HDMI**HDMI (High Definition Multimedia Interface) connectors are slim, compact connectors used for HDTVs and other HD-capable video devices. HDMI provides high-quality digital video and audio transmission through a single cable.
* **Display Port**DisplayPort connectors can transmit very high resolutions including 4K and 8K video. They provide higher bandwidth performance than HDMI connectors.
* **VGA**VGA (Video Graphics Array) uses analog signals. The 15-pin DE-15 connector has screws to securely fasten to avga port

### **Ethernet Cable Connectors**

Ethernet cables are used to connect devices to networks and the internet. There are two main types of Ethernet connectors:

* RJ45 – The RJ45 connector looks like a large phone jack. It has 8 pins inside that correspond with the 8 wires in an Ethernet cable. RJ45 is the standard connector for Ethernet networks.
* RJ11 – RJ11 connectors have 6 pins and are only capable of handling two pairs of wires. They are too small for full Ethernet connections but may be used for telephone and DSL internet connections.

### **Coaxial Cable Connectors**

Coaxial cables are often used for cable TV and internet connections. Common coax connectors include:

* F-type – The F-type connector has a screw-on design that provides a solid connection for TV and cable internet. They are simple to install even for novices.
* BNC – BNC (Bayonet Neill-Concelman) connectors are used for higher frequency connections and applications where a quick disconnect is required. They twist and lock into place.
* RCA – RCA connectors consist of a central pin surrounded by a cylindrical conductor. They are commonly yellow for video and white/red for stereo audio.

### **Fiber Optic Cable Connectors**

Fiber optic cables transmit data as light pulses along glass or plastic fibers. Some types of fiber optic connectors include:

* LC – The LC connector is a small form factor connecter half the size of an RJ45. It has a locking tab for a reliable connection.
* SC – SC connectors are snap-in connectors that click into place for fast locking. They are commonly used for high speed telecom networks.
* ST – ST connectors were an early fiber optic connector design with a bayonet twist-locking mechanism. They have been mostly phased out in favor of smaller designs.

8. Network devices also known as networking hardware are physical devices that allow hardware on a computer network to communication and interact with one another . for eg : Repeater , Hub , Bridge etc.