Term - 2 ====≫ Ccna - Network Fundamentals

1- Which of the following messages in the DHCP process are broadcasted? (Choose two)
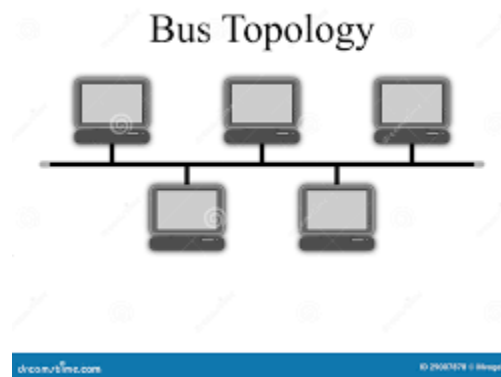Ans. A. Request
    B. Offer

2- Which command would you use to ensure that an ACL does not block web-based TCP traffic?
Ans. B. permit tcp any any eq 80

3-Explain Network Topologies

Topology : A physical arrangement of devices.

Bus Topology: All devices are connected to a single cable that runs through the center of the network. Data travels in both directions along this cable.


Star Topology: Devices are connected to a central hub or switch. Data travels only in one direction from the hub to the devices.
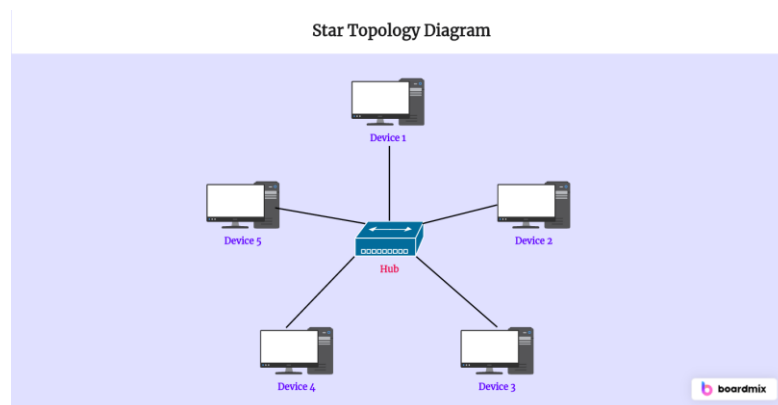
Ring Topology: Devices are connected in a circular fashion, with each device connected to the next and the last device connected to the first. Data travels in one direction around the ring.
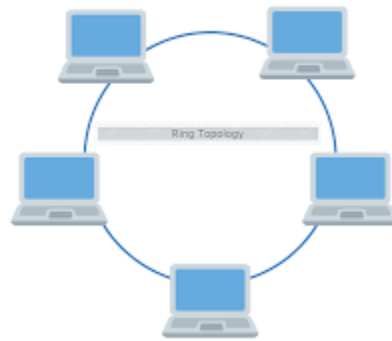

Tree Topology: Devices are connected in a hierarchical fashion, with each device connected to one or more other devices. Data travels in both directions between devices.
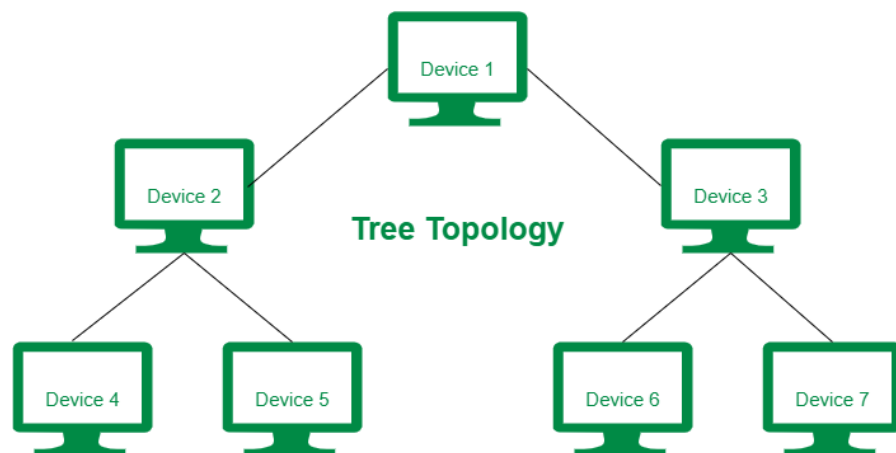
Mesh Topology: Each device is connected to every other device in the network, forming a fully connected network. Data travels in both directions between devices.
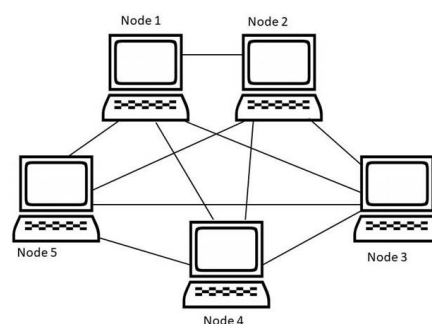
Hybrid Topology: A combination of two or more topologies, such as a star topology with additional devices connected to each hub or switch in a star topology
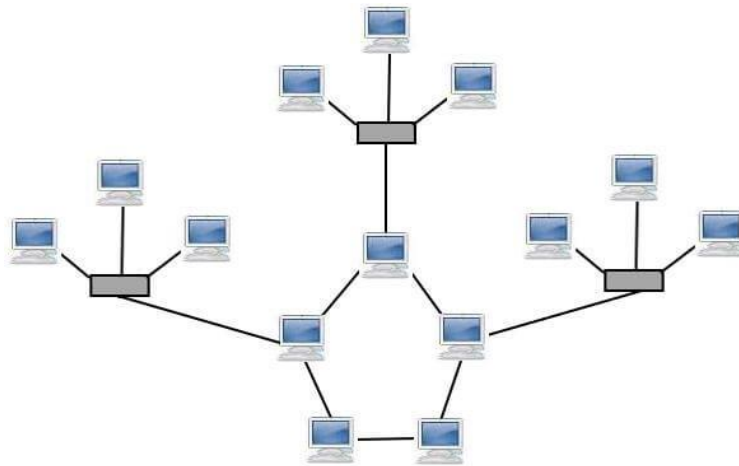
4-Explain TCP/IP Networking Model.
Ans.
TCP/IP (Transmission Control Protocol/Internet Protocol) is a suite of communication protocols used to interconnect networked devices on the internet. It is a layered protocol architecture that consists of four main layers:

1. **Application Layer**: This layer is the highest layer in the TCP/IP model. It is responsible for providing standardized interfaces for applications to communicate with each other. Some of the protocols in this layer are HTTP, FTP, SMTP, POP, and DNS.
2. **Transport Layer:** This layer is responsible for end-to-end communication between applications on different hosts. It provides reliable, ordered, and error-checked delivery of data segments between the application layers of different hosts. The main protocols in this layer are TCP (Transmission Control Protocol) and UDP (User Datagram Protocol).
3. **Internet Layer**: This layer is responsible for packetizing data from the transport layer and routing it through the network to its destination. It defines the logical addressing and routing of data packets. The main protocols in this layer are IP (Internet Protocol) and ARP (Address Resolution Protocol)
4. **. Network Layer:** This layer is responsible for the physical addressing and transmission of data across the network. It defines the protocols that control the hardware devices

and the way data is transferred over the network media. The main protocols in this layer are Ethernet, Wi-Fi, and PPP (Point-to-Point Protocol).

5-Explain LAN and WAN Network .

Ans.

LAN (Local Area Network) and WAN (Wide Area Network) are two types of computer networks that are used to connect devices in different locations.

LAN: A LAN is a network that connects devices within a limited geographic area, such as a home, office, or university campus. It is typically used to share resources and services within a single organization or building.

WAN: A WAN, on the other hand, connects devices across a larger geographic area, such as between cities, states, or even countries. It is used to connect organizations, businesses, or individuals located in different locations.
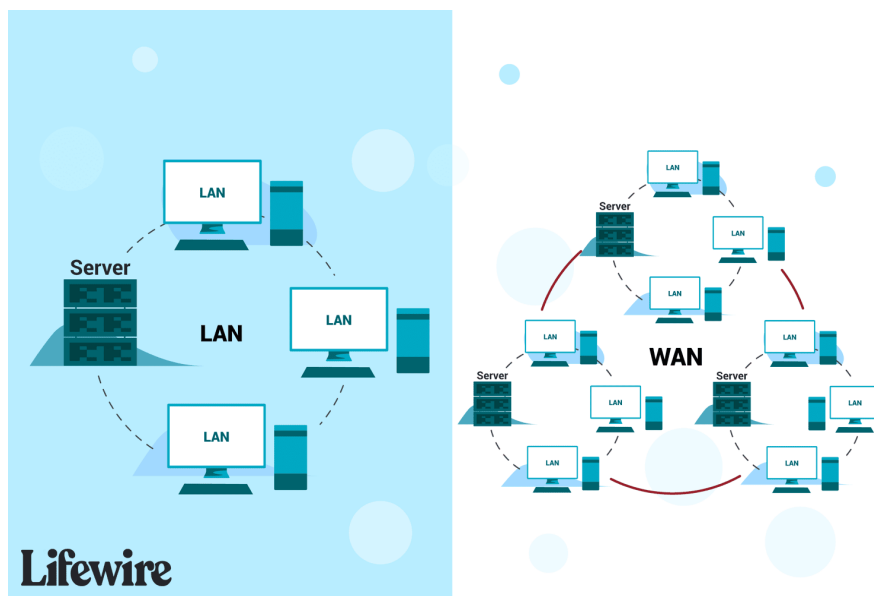
6-Explain Operation of Switch

Ans.

7-Describe the purpose and functions of various network devices

Network devices are essential components of a computer network that enable communication and data exchange between devices. Here are some of the most common network devices and their purposes and functions:

1. Router: A router is a networking device that forwards data packets between networks. It operates at the network layer (IP) of the OSI model and uses routing tables to determine the best path for data to travel from one network to another. Routers can be used to connect multiple networks, allowing data to flow between them.
2. Switch: A switch is a networking device that connects multiple devices within a network. It operates at the data link layer (Layer 2) of the OSI model and forwards data packets based on their destination MAC addresses. Switches are used to efficiently share resources and enable communication between devices within a local area network (LAN).
3. Access Point (Wi-Fi): An access point is a networking device that allows wireless devices to connect to a wired network. It operates at the physical layer (Layer 1) of the OSI model and converts the wireless signals from Wi-Fi devices into the appropriate electrical signals for the network. Access points are used to extend a wireless network to reach areas with no wired infrastructure.
4. Hub: A hub is a networking device that connects multiple devices to a single network. It operates at the physical layer (Layer 1) of the OSI model and broadcasts data to all connected devices. Hubs are simple and cheap, but they do not support multiple networks or provide any security features.
5. Bridge: A bridge is a networking device that connects two or more networks together. It operates at the data link layer (Layer 2) of the OSI model and forwards data packets

between the networks based on their destination MAC addresses. Bridges are used to extend the range of a network by connecting it to another network.

8-Make list of the appropriate media, cables, ports, and connectors to 8-

9. Define network devices and hosts.

Network devices and hosts are essential components of a computer network. Here's a brief explanation of each:

1.Network Devices:

Network devices are physical or virtual devices that enable communication between computers, servers, and other networked devices.

Examples of network devices include routers, switches, access points, hubs, bridges, servers, and clients.

2.Hosts:

Hosts are end devices that are connected to a network.

Hosts can be computers, servers, network-attached storage devices (NAS), printers, and other devices that require network connectivity.

Each host is assigned a unique network address (IP address) by the network administrator to enable communication with other hosts.