Module – 7 Network Fundamentals

Section 1: Multiple Choice

1. Which of the following messages in the DHCP process are broadcasted?

Ans-> Request, Discover

1. Which command would you use to ensure that an ACL does not block web- based TCP traffic?

Ans-> Permit TCP any any eq 80

1. Explain Network Topologies?

Ans-> A network topologies is the physical and the logical arrangement of the nodes and the connections in a network.

. There are some types of network topologies are as follow:-

1. Bus Topology
2. Star Topology
3. Ring Topology
4. Mesh Topology
5. Tree Topology
6. Hybrid Topology
7. Bus Topology-> This topology can connect all the devices in a single central cable is called bus topology or we say backbone.
8. Star topology-> This topology can connect all devices into the hub or in switch is called Star topology.
9. Ring topology-> In this topology, can connect each device into two other devices, forming a circular pathway for signals.
10. Mesh topology-> In this topology, every devices is been connected to every other device in the network.
11. Tree topology-> In this topology, a structure where devices are connected hierarchically.
12. Hybrid topology-> This topology is a combination of the two or more then different types of topologies.
13. Explain TCP/IP Networking Model.

Ans-> The TCP/IP model is the fundamental framework for the computer networking. It is stand for Transmission Control Protocol/ Internet Protocol, that the core protocols of the internet. This model is defines how the data is transmitted over the networks, and ensuring of the reliable communication between devices. There are four types of layers in TCP/IP protocol are as follow:-

1. Network Access Layer
2. Internet Layer
3. Transport Layer
4. Application Layer
5. Network Access Layer-> It is a group of the applications requiring for the network communication. This Layer is responsible for the generating the data and the requesting to the connections.
6. Internet Layer-> This layer is parallel to the functions of the OSI Network Layer. It is defines to the protocols which are responsible for logical transmission of the data over to the entire network.
7. Transport Layer-> The TCP/IP transport layer protocols that exchange data receipt acknowledgments and the retransmit missing packets to ensure that the packets are arrive in order and without any error in it.
8. Applications Layer-> This layer is a analogous to the transport layer of OSI model and it is responsible for the end-to-end communication and the error-free delivery of the data.
9. Explain LAN and WAN Network.

Ans-> LAN(Local Area Network):- LAN is a group of the network devices that allow the communication between the connected devices. This private ownership has to control over the local area network rather than the public or in office.

WAN(Wide Area Network):- WAN covers a big amount of large area than a LAN as well as MAN example country/continent etc. WAN is very expensive and should or be might not be owned in the organization.

1. Explain Operation of Switch.

Ans->

1. Describe the purpose and the functions of various network devices.

Ans-> There are some purpose and the functions of various network devices are as follow:-

1. Router

Purpose-> Connects multiple networks.

Functions->

1. Packet Forwarding
2. Network Address Translation (NAT)-> Converts the private IP addresses to a public IP address for internet.
3. Dynamic Host Configuration Protocol (DHCP)-> Assigns IP addresses to the devices on a network.
4. Switch

Purpose-> Connects multiple devices within a single Local area network (LAN) and use to MAC addresses to forward data.

Functions->

1. MAC Address Learning
2. Frame forwarding
3. VLAN support
4. HUB

Purpose-> A basic networking device that are connects multiple ethernet in many devices.

Functions->

1. Data Broadcasting
2. Basic connectivity
3. MODEM

Purpose-> converts digital data from a computer into the analog signals for the transmission over the phone lines or in the cable systems.

Functions->

1. Modulation
2. Demodulation
3. Internet connectivity
4. Access Point

Purpose-> Extends a wired network by the providing wireless connectivity to the devices within a certain area.

Functions->

1. Wireless Connectivity
2. Network Bridging
3. Security Management
4. NIC (Network Interface Card)

Purpose-> Provides a hardware interface for the connecting a computer or in the other device to a network.

Functions->

1. Data Transmission
2. Addressing
3. Protocol Handling
4. Repeater

Purpose-> Extends the range of a network.

Functions->

1. Signal Boosting
2. Noise Filtering
3. Bridge

Purpose-> Connects two sperate networks and allowing them to the function as a single network.

Functions->

1. Network segmentation
2. Traffic Filtering

8. Make list of the appropriate media, cables, ports, and connectors to 8 connect switches to other.

Ans->

9. Define Network devices and hosts.

Ans-> Network Devices:- Physical devices that are allow hardware on a computer network to interact and to communicate with one another.

Hosts:- A host is a computer or the other device connected to the computer network.