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Assignment Module 7 : Network Fundamentals

Q.1. which of the following messages in the DHCP process are broadcasted? (Choose two)

Answer: (A). Request (C). Discover

Q.2. which command would you use to ensure that an ACL does not block web-based TCP traffic?

Answer: (B). permit tcp any any eq 80

Q.3. Explain Network Topologies

Answer: Network topology refers to the arrangement of different elements (links, nodes, etc.) in a computer network. Common types of network topologies include:

Bus Topology: All devices share a single communication line.

Star Topology: All devices are connected to a central hub.

Ring Topology: Each device is connected to two other devices, forming a ring.

Mesh Topology: Devices are interconnected, with each device connected to multiple other devices.

Q.4. Explain TCP/IP Networking Model

Answer: The TCP/IP model is a set of protocols that define how data is transmitted over the internet. It consists of four layers:

Application Layer: Provides network services directly to applications (e.g., HTTP, FTP).

Transport Layer: Ensures data is transferred reliably (e.g., TCP, UDP).

Internet Layer: Handles logical addressing and routing (e.g., IP).

Network Access Layer: Manages hardware address ing and media access (e.g., Ethernet).

Q.5. Explain LAN and WAN Network

Answer:

LAN (Local Area Network): A network that covers a small geographic area, like a home, office, or building. It allows devices within close proximity to connect and communicate.

WAN (Wide Area Network): A network that covers a large geographic area, such as cities, countries, or even continents. It connects multiple LANs and can be public (e.g., the internet) or private.

Q.6. Explain Operation of Switch

Answer: A network switch is a device that connects devices within a LAN and uses MAC addresses to forward data to the correct destination. It operates primarily at the Data Link layer (Layer 2) of the OSI model but can also function at Layer 3.

Q.7. Describe the purpose and functions of various network devices

Answer:

Router: Connects different networks and directs data packets.

Switch: Connects devices within a LAN and forwards data based on MAC addresses.

Hub: Broadcasts incoming data to all ports.

Modem: Converts digital data to analog signals and vice versa for internet access.

Access Point: Extends the wireless coverage of a network.

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

Answer:

Media: Twisted-pair cable (e.g., Cat5e, Cat6), Fiber optic cable.

Cables: Ethernet cables (e.g., RJ45 for Cat5e/Cat6), Fiber optic cables.

Ports: Ethernet ports, Fiber optic ports.

Connectors: RJ45 connectors, Fiber optic connectors

Q.9. Define Network devices and hosts

Answer:

Network Devices: Devices that facilitate network communication, such as routers, switches, hubs, modems, and access points.

Hosts: Devices that use network resources and services, such as computers, smartphones, servers, and printers.