

Assignment:- 5

Network Fundamentals and Building Networks

Section 1: Multiple Choice

1. What is the primary function of a router in a computer network?

Ans:- c) Forwarding data packets between networks

2. What is the purpose of DHCP (Dynamic Host Configuration Protocol) in a computer network?

Ans:- d) Dynamically assigning IP addresses to devices) Dynamically assigning IP addresses to devices

3. Which network device operates at Layer 2 (Data Link Layer) of the OSI model and forwards data packets based on MAC addresses?

Ans:- b) Switch

4. Which network topology connects all devices in a linear fashion, with each device connected to a central cable or backbone?

Ans:- b) Bus

Section 2: True or False

5. True or False: A VLAN (Virtual Local Area Network) allows network administrators to logically segment a single physical network into multiple virtual networks, each with its own broadcast domain

Ans:- True

6. True or False: TCP (Transmission Control Protocol) is a connectionless protocol that provides reliable, ordered, and error-checked delivery of data packets over a network.

Ans:- False

7. True or False: A firewall is a hardware or software-based security system that monitors and controls incoming and outgoing network traffic based on predetermined security rules.

Ans :-True

Section 3: Short Answer

8. Describe the steps involved in setting up a wireless network for a small office or home office (SOHO) environment.

☐ **Get Your Equipment:**

- **Router:** Choose a good wireless router.
- **Modem:** Make sure you have a modem from your internet service provider (ISP).

- **Cables:** Have some Ethernet cables ready.

☐ **Connect Everything:**

- **Modem to Router:** Use an Ethernet cable to connect the modem to the router's WAN (Internet) port.
- **Power Up:** Plug in and turn on both the modem and the router.

☐ **Access Router Settings:**

- **Connect to Router:** Use a computer or mobile device to connect to the router via Wi-Fi or an Ethernet cable.
- **Open Browser:** Enter the router's IP address into the browser's address bar.

☐ **Set Up Wi-Fi:**

- **Login:** Enter the default username and password
- **Network Name (SSID):** Choose a unique name for your Wi-Fi network.
- **Password:** Set a strong password using WPA2 or WPA3 security.

☐ **Connect Devices:**

- **Join Wi-Fi:** Connect your devices to the new Wi-Fi network using the SSID and password you set.
- **Check Internet:** Make sure all devices can access the internet.

☐ **Secure Your Network:**

- **Change Default Login:** Change the router's default login credentials to something secure.

- **Update Firmware:** Check for and install any firmware updates for the router.
- **Enable Firewall:** Turn on the router's firewall for extra security.

Section 4: Practical

9. Demonstrate how to configure a router for Internet access using DHCP (Dynamic Host Configuration Protocol).

Ans:- Done

Section 5:- Essay

10. Discuss the importance of network documentation in the context of building and managing networks.

Ans:-

- ☐ **Clarity:** Provides a clear blueprint of the network.
- ☐ **Troubleshooting:** Helps quickly identify and fix issues.
- ☐ **Security:** Identifies vulnerabilities and ensures only authorized access.
- ☐ **Scalability:** Eases network expansion and upgrades.
- ☐ **Compliance:** Ensures adherence to regulations and standards.
- ☐ **Knowledge Transfer:** Aids in training new team members.
- ☐ **Disaster Recovery:** Facilitates quick recovery in case of failures