

Assignment Module 5: Network Fundamentals and Building Networks

Section 1: Multiple Choice

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

Answer: c) Forwarding data packets between networks

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

Answer: d) 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?

Answer: b) Switch

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

Answer: b) Bus

Section 2: True or False

5. A VLAN allows network administrators to logically segment a single physical network into multiple virtual networks, each with its own broadcast domain.

Answer: True

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

Answer: False – TCP is a connection-oriented protocol.

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

Answer: 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.

Answer:

- Choose a reliable wireless router.
- Connect the router to the modem using an Ethernet cable.
- Access the router's setup page.
- Configure SSID and strong Wi-Fi password.
- Enable WPA2/WPA3 encryption.
- Connect devices and test connectivity.
- Optionally create a guest network and update firmware.

Section 4: Practical Application

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

Answer:

- Connect router's WAN port to the ISP modem.
- Log in to router's web interface.
- Select "Obtain IP Automatically (DHCP)".
- Save and restart router.
- Connect computer to LAN port.
- Verify automatic IP and test Internet connection.

Section 5: Essay

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

Answer:

Network documentation is essential for maintaining, troubleshooting, and expanding networks. It ensures clarity, consistency, and reliability.

Benefits include:

- Simplifies troubleshooting.
- Ensures consistent configurations.
- Supports scalability and planning.
- Improves security by tracking access and IPs.
- Enables collaboration among IT staff.

It should include topology diagrams, IP maps, configuration files, and device inventories. Good documentation strengthens network performance and reliability.