Section 1: Multiple Choice

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

a) Assigning IP addresses to devices

b) Providing wireless connectivity to devices

c) Forwarding data packets between networks



d) Managing user authentication and access control

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

computer network?

a) Assigning static IP addresses to devices

b) Resolving domain names to IP addresses

c) Managing network traffic and congestion

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?

a) Router

b) Switch



c) Hub

d) Repeater

4. Which network topology connects all devices in a linear fashion, with each

device connected to a central cable or backbone?

a) Star

b) Bus



c) Ring

d) Mesh

Section 2: True or

False

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.   
  
**True**  
**VLANs logically divide a network into smaller broadcast domains**

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.   
  
**False  
  
TCP is a connection-oriented protocol, not connectionless, and it ensures reliable, ordered, and error-checked data delivery.**

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.   
  
**True  
Firewalls are used to enforce security policies by controlling network traffic.**

8. Describe the steps involved in setting up a wireless network for a small

office or home office (SOHO) environment.   
  
 **Select a wireless router**: Choose a wireless router that supports the required wireless standards and has the necessary features (e.g., WPA3 encryption, guest networks).

**Connect the router to the modem**: Plug the router into the Internet modem using an Ethernet cable to provide the Internet connection.

**Power on the router**: Turn on the router and wait for the indicator lights to stabilize (usually indicating power, Internet, and Wi-Fi status).

**Access the router's admin interface**: Using a device with a web browser, connect to the router’s default IP address to access the admin panel.

**Configure the wireless settings**:

* Set the **SSID** for the wireless network.
* Choose the **Wi-Fi security type**.
* Set a strong **password** for the Wi-Fi network.

**Connect devices**: On each device that will connect to the wireless network, search for the SSID and enter the Wi-Fi password.

**Test the connection**: Ensure that devices can access the internet and communicate with each other over the network.

Section 4: Practical

9. Demonstrate how to configure a router for Internet access using DHCP

(Dynamic Host Configuration Protocol).   
  
**Steps to Configure a Router for Internet Access Using DHCP:**

**1. Connect the Router to the Modem**

**2. Access the Router’s Admin Interface**

**3. Configure the Internet Settings**

**4. Save and Apply Settings**

**5. Test the Internet Connection**

**6. Optional: Set Up Wireless Network**

Section 5:

Essay

10. Discuss the importance of network documentation in the context of

building and managing networks.  
  
Network documentation is essential for the design, implementation, and management of computer networks, particularly as they grow in size and complexity. Well-maintained documentation serves several important purposes:

1. **Troubleshooting**: Proper documentation enables network administrators to quickly identify and resolve issues
2. **Network Planning and Design**: When building or expanding a network, documentation helps network engineers plan and design the infrastructure effectively
3. **Security and Compliance**: Network documentation can be used to ensure that the network is secure and compliant with industry standards
4. **Efficiency in Management**: With comprehensive documentation, network administrators can manage devices, connections, and configurations more efficiently.
5. **Knowledge Transfer**: Network documentation makes it easier to onboard new team members and ensure continuity in case of staff turnover.
6. **Audit and Reporting**: Network documentation is often necessary for auditing purposes and helps in generating reports about network performance, configuration changes, and compliance.