SUMIT PATEL

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?
   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
   ANS: c) Forwarding data packets between networks
   (The primary function of a router is to forward data packets between different networks by determining the best path for them to reach their destination.)

2. What is the purpose of DHCP (Dynamic Host Configuration Protocol) in 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
   ANS: d) Dynamically assigning IP addresses to devices
   (Dynamically assigning IP addresses to devices, allowing each device to connect to the network without manual configuration.)

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
   ANS: b) Switch
   (The network device that operates at Layer 2 (Data Link Layer) of the OSI model and forwards data packets based on MAC addresses is a switch)

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
ANS: b) Bus

(The network topology that connects all devices in a linear fashion, with each device connected to a central cable or backbone, is the bus topology)

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
   (TCP is a connection-oriented protocol that provides reliable, ordered, and error-checked delivery of data packets over a network. It establishes a connection before data transfer and ensures all packets are received in sequence without errors.)

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

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

   I. Choose a Wireless Router
   II. Connect the Router
   III. Access Router Settings
   IV. Set Network Name (SSID)
   V. Create a Password
   VI. Configure Security: (Use WPA2 or WPA3 security)
   VII. Save Settings and Restart
   VIII. Connect Devices
   IX. Test the Connection

Section 4: Practical

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

   I. Access Router Settings: Connect your computer to the router
   II. Login: Enter the router's admin username and password.
   III. Find Internet or WAN Settings: Look for a section called "Internet," "WAN," or "Network Settings."
   IV. Set Connection Type: Choose DHCP as the Internet connection type. This tells your router to get an IP address automatically from your Internet Service Provider
   V. Save Settings: Click "Save" or "Apply" to update the router configuration.
   VI. Restart Router: Restart the router to ensure the settings take effect.
   VII. Check Connection: Verify that the router shows an active Internet connection status.

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

ANS:

I. **Helps You Understand**: It shows all the parts of your network and how they connect.
II. **Fix Problems Faster**: When something breaks, you can find and fix it quickly.
III. **Keeps Things Organized:** Makes sure the network is set up the same way every time.
IV. **Helps Plan Changes:** Easy to add new devices or change things because you know what's already there.
V. **Good for Emergencies:** If something goes wrong, you have a guide to fix the network fast.
VI. **Saves Knowledge:** Keeps information safe even if people leave the job.
VII. **Makes Network Better and Safer:** Helps avoid mistakes and keeps the network running smoothly and securely.