Assignment-4

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

Ans. C) Forwarding data packets between networks.

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

Ans. d) Dynamically assigning IP addresses to devices.

Que-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.

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

Ans. b) Bus.

Que-5. 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.

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

Ans. False.

Que-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.

Ans. True.

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

Ans. 1.**Get the required equipment**
You need an internet connection from an ISP, a modem, and a wireless router.

2. **Connect the modem to the router**
Use an Ethernet cable to connect the modem to the router's WAN/Internet port.

3. **Power on the devices**
Turn on the modem first, then the router.

4. **Access the router settings**
Use a computer or phone to log in to the router using its IP address (given on the router).

5. **Set the wireless network name (SSID)**
Choose a name for your Wi-Fi network.

6. **Secure the network**
Set a strong Wi-Fi password and enable security (WPA2 or WPA3).

7. **Connect devices to the network**
Use the Wi-Fi name and password to connect laptops, phones, and printers.

8. **Test the connection**
Check that all devices can access the internet properly.

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

Ans. 1. **Connect the hardware**

- Connect the modem to the router's **WAN/Internet** port using an Ethernet cable.
- Connect a computer to the router using Wi-Fi or a LAN cable.

2. **Power on the devices**

- Turn on the modem first, then the router.

3. **Log in to the router**

- Open a web browser on the computer.

- Type the router’s IP address (such as 192.168.1.1) and press Enter.
- Log in using the router’s username and password.

4. **Enable DHCP on the router**
   - Go to **Network Settings / LAN Settings**.
   - Turn **DHCP Server** ON.
   - Set the IP address range (example: 192.168.1.100 to 192.168.1.200).
5. **Set Internet connection to DHCP**
   - Go to **Internet / WAN settings**.
   - Select **DHCP (Automatic IP)** as the connection type.
   - Save the settings.
6. **Restart the router**
   - Reboot the router so changes take effect.
7. **Test the connection**
   - Connect devices to the router.
   - Check if they automatically receive IP addresses and can access the internet.

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

Ans. **Network documentation** is very important when building and managing networks because it helps keep everything clear and organized.

Importance of network documentation (in simple words):

1. **Easy understanding of the network**
   It shows how the network is designed, including devices, connections, and IP addresses.
2. **Faster troubleshooting**
   When a problem occurs, documentation helps quickly find and fix the issue.
3. **Better network management**
   Administrators can easily manage devices, settings, and configurations.
4. **Saves time and effort**
   New staff can understand the network without starting from scratch.
5. **Improves security**
   Helps track firewalls, access controls, and security rules.
6. **Helps with upgrades and expansion**
   Makes it easier to add new devices or improve the network in the future.

In short, network documentation helps keep the network **organized, secure, and easy to manage**.