**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?

⇒ c) Forwarding data packets between networks

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

⇒ 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?

⇒ b) switch

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

⇒ 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.

⇒ 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.

⇒ 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.

⇒ True

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

⇒ Here’s a **short and simple version** for setting up a SOHO wireless network:

1. **Get Equipment** → Wireless router + modem (or combo).
2. **Connect Hardware** → Plug modem into router, router into power.
3. **Access Router Settings** → Open browser → enter router’s IP (e.g., 192.168.1.1).
4. **Set Network Name (SSID)** → Give your Wi-Fi a unique name.
5. **Set Password & Security** → Use **WPA2/WPA3** with a strong password.
6. **Configure Internet** → Use ISP settings (DHCP or PPPoE if needed).
7. **Place Router Properly** → Central location for best coverage.
8. **Test Connection** → Connect devices (laptops, phones, printers) to Wi-Fi.

**Section 4: Practical**

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

⇒ Here’s a **short and simple guide** to configure a router for Internet access using **DHCP**:

1. **Connect Router** → Plug the modem into the router’s WAN/Internet port.
2. **Login to Router** → Open a browser → enter router IP (e.g., 192.168.1.1).
3. **Go to WAN/Internet Settings** → Select **DHCP (Automatic IP)**.
4. **Save & Reboot** → Router will request an IP from the ISP automatically.
5. **Check Status** → Confirm router got an IP address from ISP.
6. **Test Internet** → Connect a device to Wi-Fi/LAN and browse.

**Section 5:**

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

⇒ **Network documentation** is important because it:

1. **Keeps records** of devices, IP addresses, cables, and configurations.
2. **Helps troubleshooting** – problems can be fixed faster when setup details are clear.
3. **Saves time** when adding new devices or making changes.
4. **Improves security** by tracking who has access and what is connected.
5. **Helps teamwork** – any admin can understand the network easily.