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**Batch: Hardware (Abdul Hamid Sir) 9:30am to 10:30am 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?

**Ans: c) Forwarding data packets between networks**

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

**Ans: 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?

**Ans: b) Switch**

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

**Ans: 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.

**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**

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**

### **Section 3: Short Answer**

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

**Ans: Steps to set up a wireless network for a SOHO:**

1. **Choose an Internet Service Provider (ISP) – Subscribe to a suitable internet plan.**
2. **Get a Wireless Router – Purchase a router that supports Wi-Fi.**
3. **Connect the Modem to Router – Use an Ethernet cable from modem to router's WAN port.**
4. **Power On Devices – Turn on the modem and router.**
5. **Access Router Settings – Use a web browser to log in (e.g., 192.168.1.1).**
6. **Configure Wi-Fi Settings – Set SSID (network name), password, and encryption (WPA2/WPA3).**
7. **Secure the Network – Change default admin login, enable firewall, and update firmware.**
8. **Connect Devices – Join computers, phones, and printers to the Wi-Fi using the password.**
9. **Test the Connection – Ensure all devices can access the internet.**

### **Section 4: Practical**

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

**Ans: Done**

### **Section 5: Essay**

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

**Ans: In designing, deploying and maintaining computer networks, network documentation is crucial. From the small office to the large enterprise, documenting your network can pay large dividends - in terms of stability, efficiency, and security. This encompasses maintaining accurate records of network configurations, hardware supplies, IP address assignments, cable layouts, access rules and so much more!**

**Troubleshooting and Maintenance** One of the biggest advantages of network documentation is troubleshooting and maintenance. If there are problems, such as of connectivity, hardware, or configuration errors, a clear, well-documented map makes it easy to diagnose and attack failures. When the records are unclear, even minor concerns can result in lengthy downtimes and growing user displeasure.

Documentation is also critical in network scalability. With growth all organizations must expand network to accommodate additional users, devices and services. Access to current documentation empowers the engineers to clearly see the existing network and design expansions or upgrades without creating traffic interruptions. It avoids having the same IP addresses assigned to more than one host, which guarantees strict partitioning and performance.

Also, good documentation is critical for security and compliance. As an instance, what tools are attached, running software and who can access what data are crucial for deploying security policies and abiding by industry regulations. If there is a security incident or an audit, detailed documentation can provide evidence and clarify response.

Documentation is also helpful for training, and for team use. Detailed diagrams and configuration notes mean new IT staff can be brought up to speed more quickly. It simplifies across-task consistency and is less dependent on the memory or expertise of one individual.

In summary, network documentation is not simply a technical box that needs to be ticked; it is a basic fundamental best-practice that fosters a more efficient, secure, and reliable network environment. Document well An investment in solid and accurate documentation pays off in saved time, reduced risk, and long-term success in any networked environment.