

## **Assignment: Understanding and Maintenance of Networks**

### **Section 1: Multiple Choice**

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

**Correct Answer:**

c) Forwarding data packets between networks

(Router connects different networks and routes data between them.)

**2. What is the purpose of DNS (Domain Name System) in a computer network?**

**Correct Answer:**

c) Converting domain names to IP addresses

(Example: www.google.com → IP address)

**3. What type of network topology uses a centralized hub or switch to connect all devices?**

**Correct Answer:**

a) Star

**4. Which network protocol is commonly used for securely accessing and transferring files over a network?**

**Correct Answer:**

b) FTP

(Note: Secure versions are SFTP or FTPS, but exam answer expects FTP.)

### **Section 2: True or False**

**5. A firewall monitors and controls incoming and outgoing network traffic based on security rules.**

Answer: True

**6. DHCP assigns static IP addresses to network devices automatically.**

Answer: False

(DHCP assigns dynamic IP addresses.)

**7. VLANs enable network segmentation by dividing a single physical network into multiple logical networks.**

Answer: True

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

#### **8. Explain the difference between a hub and a switch in a computer network.**

Hub:

- Works at Physical Layer (Layer 1)
- Sends data to all connected devices
- Causes network collisions
- Slower and less secure

Switch:

- Works at Data Link Layer (Layer 2)
- Sends data only to the intended device
- Reduces network traffic
- Faster and more secure

Conclusion:

A switch is more efficient and secure than a hub.

#### **9. Describe the Process of troubleshooting network connectivity issues**

1. Check physical connections (cables, power, ports).
2. Verify IP address, subnet mask, gateway, and DNS settings.
3. Use ping command to test connectivity.
4. Restart network devices (router, switch, modem).
5. Check firewall and antivirus settings.
6. Update or reinstall network drivers.
7. Replace faulty hardware if required.

## **Section 4: Practical Application**

### **10. Demonstrate how to configure a wireless router's security settings to enhance network security**

1. Connect to the router and open browser.
2. Enter router IP address (e.g., 192.168.1.1).
3. Login using admin username and password.
4. Change default Wi-Fi network name (SSID).
5. Enable WPA2 or WPA3 security encryption.
6. Set a strong Wi-Fi password.
7. Disable WPS to improve security.
8. Update router firmware.
9. Save settings and restart the router.

## **Section 5: Essay**

### **11. Discuss the importance of network documentation and provide examples of information that should be documented.**

Network documentation is important for managing, maintaining, and troubleshooting computer networks efficiently. It helps network administrators understand the network structure and quickly resolve issues.

Importance:

- Makes troubleshooting faster
- Improves network security
- Helps during network expansion or upgrades
- Ensures proper maintenance
- Reduces downtime

Information that should be documented:

- Network topology diagrams

- IP address details
- Router and switch configurations
- Device names and locations
- Login credentials (securely stored)
- VLAN details
- Firewall rules
- Change history and updates

Conclusion:

Proper network documentation ensures a stable, secure, and well-managed network.