- **Assignment: Understanding   and**

Maintenance of 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

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

   network?

   a) Encrypting data transmissions for security

   b) Assigning IP addresses to devices dynamically

   c) Converting domain names to IP addresses

   d) Routing data packets between network segments

3. What type of network topology uses a centralized hub or switch to connect all devices?
   a) Star
   b) Bus
   c) Ring
   d) Mesh
4. Which network protocol is commonly used for securely accessing and transferring files over a network?
   a) HTTP
   b) FTP
   c) SMTP
   d) POP3

Section 2: True or False

5. A firewall is a hardware or software-based security systemthat monitors and controls incoming and outgoing network traffic based on predetermined security rules.

   Ans:true
6. DHCP (Dynamic Host Configuration Protocol) assignsstatic IP addresses to network devices automatically.
   Ans:false
7. True or False: VLANs (Virtual Local Area Networks) enable network segmentation by dividing a single physical network into multiple logical networks.
   Ans:true

Section 3: Short Answer

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

   Ans: A hub broadcasts data to all devices on a network segment, leading to potential collisions and inefficiency. A switch, on the other hand, intelligently forwards data to the specific device based on its MAC address, reducing collisions and improving network efficiency.

9. Describe the process of troubleshooting network connectivity issues.

   Ans: troubleshoot network connectivity issues:

   1. **Verify physical connections**
   2. **Check device configurations**
   3. **Use diagnostic tools**
   4. **Examine network settings**
   5. **Review logs for error messages.**
   6. **Restart networking equipment if necessary.**

Section 4: Practical Application

10. Demonstrate how to configure a wireless router's security settings to enhance network security.
    - **Change the default administrator password.**
    - **Enable WPA3 or WPA2 encryption.**
    - **Disable WPS (Wi-Fi Protected Setup).**
    - **Configure a strong, unique SSID.**
    - **Enable MAC address filtering.**
    - **Disable remote management.**
    - **Regularly update firmware.**

Section 5: Essay

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

Ans: Network documentation is crucial for troubleshooting, maintenance, and scalability. It ensures consistency and aids in the quick resolution of issues. Examples of information to document

Assignment: 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

2. What is the purpose of DHCP (Dynamic Host Configuration Protocol) in a 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

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

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

Section 2: True or False

5. : A VLAN (Virtual Local Area Network) allows network administrators to logically segment a single physical network into multiplevirtual networks, each with its own broadcast domain.
   Ans:true

6. TCP (Transmission Control Protocol) is a connectionless protocolthat provides reliable, ordered, and error-checked delivery of data packets over a network.
   Ans:false

7. A firewall is a hardware or software-based security system thatmonitors and controls incoming and outgoing network traffic based on predetermined
   Ans:true

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

Ans: Plan, configure, secure, test, documen

Section 4: Practical Application

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

Ans:access route settings,enable dhpc

Section 5: Essay

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

Ans:Critical for network integrity, troubleshooting, compliance, upgrades, and future planning.

Assignment: Network Security, Maintenance, and Troubleshooting Procedures

Section 1: Multiple Choice

1. What is the primary purpose of a firewall in a network security infrastructure?
   a) Encrypting network traffic
   b) Filtering and controlling network traffic
   c) Assigning IP addresses to devices
   d) Authenticating users for network access

2. What type of attack involves flooding a network with excessive traffic to disrupt normal operation?
   a) Denial of Service (DoS)
   b) Phishing
   c) Spoofing
   d) Man-in-the-Middle (MitM)

3. Which encryption protocol is commonly used to secure wireless network communications?
   a) WEP (Wired Equivalent Privacy)
   b) WPA (Wi-Fi Protected Access)
   c) SSL/TLS (Secure Sockets Layer/Transport Layer Security)
   d) AES (Advanced Encryption Standard)

4. What is the purpose of a VPN (Virtual Private Network) in a network security context?

   a) **Encrypting network traffic to prevent eavesdropping**

b) Filtering and blocking malicious websites

c) Restricting access to network resources based on user identity

d) Detecting and mitigating network intrusions and attacks

Section 2: True or False

5. Patch management is the process of regularly updating softwareand firmware to address security vulnerabilities and improve system performance.
   ANS:true

6. : A network administrator should perform regular backups of critical data to prevent data loss in the event of hardware failures, disasters, orsecurity breaches.
   ANS:true

   Traceroute is a network diagnostic tool used to identify theroute and measure the latency of data packets between a source and destination device.
   ANS:true

Section 3: Short Answer

8. Describe the steps involved in conducting a network vulnerability Assignment.

Conducting a network vulnerability assessment typically involves:

- Identifying assets and resources to be protected.
- Assessing vulnerabilities and potential threats.

9. Demonstrate how to troubleshoot network connectivity issues using the ping command.

- **Open a command prompt (Windows) or terminal (Linux/Mac).**
- **Type** `ping <IP address>` **or** `ping <hostname>` **and press Enter.**
- **Check if the destination device responds with replies or if there's packet loss.**

10. Discuss the importance of regular network maintenance and the key tasks involved in maintaining network infrastructure.

Ans: • **Security: Updating firewalls, patches, and configurations.**
- **Performance: Monitoring and optimizing network performance.**
- **Reliability: Testing and replacing hardware to prevent failures.**