Assignment module 3 : Understanding and Maintenance of

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

Ans:- c) Forwarding data packets between networks

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

Ans:- c) Converting domain names to IP addresses

3. What type of network topology uses a centralized hub or switch to connect all devices?
a) Star
b) Bus
c) Ring
d) Mesh

Ans:- a) Star

4. Which network protocol is commonly used for securely accessing and transferring files over a network?
a) HTTP
b) FTP
c) SMTP
d) POP3

Ans:- b) FTP

Section 2: True or False

5. 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

6. True or False: DHCP (Dynamic Host Configuration Protocol) assigns static 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 the network, causing more collisions and less efficiency.
A **switch** sends data only to the intended device, improving speed and reducing network traffic.

9. Describe the process of troubleshooting network connectivity issues

Ans:-

- Check physical connections (cables, power).
- Restart the router and computer.
- Verify IP settings (use `ipconfig` or `ifconfig`).

- Ping local and remote addresses to test response.
- Check firewall or antivirus settings.
- Update network drivers.
- Contact ISP if the issue persists.

Section 4: Practical Application

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

Ans:-

- **Login to Router:**
  Open a browser → Enter router IP (usually `192.168.0.1` or `192.168.1.1`) → Login with admin credentials.
- **Change Default Login Info:**
  Go to **Admin Settings** → Change default username and password to something strong.
- **Enable WPA3 or WPA2 Encryption:**
  Go to **Wireless Settings** → Set security mode to **WPA3** (or **WPA2** if WPA3 not available) → Set a strong Wi-Fi password.
- **Disable WPS:**
  Turn off **WPS (Wi-Fi Protected Setup)** to prevent brute-force attacks.
- **Change SSID (Wi-Fi name):**
  Avoid using personal info in SSID → Change to something neutral.
- **Enable Network Firewall:**
  Make sure the router's firewall is enabled under **Security** or **Advanced Settings**.
- **Disable Remote Management:**
  Turn off **Remote Access/Web Management** to prevent external access.
- **Update Firmware:**
  Check for and install firmware updates to patch security vulnerabilities.

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 managing, troubleshooting, and scaling a network efficiently. It helps IT teams understand the network structure, identify problems quickly, and maintain consistency.

Benefits:

- Speeds up troubleshooting
- Simplifies network upgrades and changes
- Enhances security and compliance
- Aids in disaster recovery

Examples of Information to Document:

- Network topology diagrams
- IP address assignments
- Device names and locations
- Router/switch configurations
- Login credentials (stored securely)
- VLAN setups
- Firewall and port settings
- Backup schedules and procedure