**Assignment: Understanding and Maintenance Network**

**Section A: multiple choice**

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

- C > Forwarding data packets between networks

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

- 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

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

- B> FTP

**Section B: 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.

- true

6. True or False: DHCP (Dynamic Host Configuration Protocol) assigns static IP addresses to network devices automatically.

- false

7. True or False: VLANs (Virtual Local Area Networks) enable network segmentation by dividing a single physical network into multiple logical networks.

- true

**Section c : Short Answer**

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

|  |  |
| --- | --- |
| HUB | SWTICH |
| -it is a broardcast device. | -it is a point to point device. |
| -hub only work in half duplex. | -switch work in full duplex. |
| -hub operaters at physical layer o osi model. | -switch operaters at data linl layer of osi model. |
| -hub have 4/12 ports. | -switch have 24/28 ports. |
| -cheaper as compared. | -expensive as compared to hub. |

9. Describe the process of troubleshooting network connectivity issues.

- 1. Check problem - Check if the device is connected to the network by plugging it directly into the router.

2. Check connectivity - Use the ping command followed by the IP address of the default gateway. If the ping is successful, it means the device can reach the router.

Example (Ping 192.168.29.27)

3. Check Network Setting - Ensure that the device's network settings are correct, including IP address, subnet mask, default gateway.

4. Check physical connections - Make sure the cables are properly plugged in and not damaged. Check the physical connections between the device and the router or modem.

5. Reset the device - If the above steps do not resolve the connectivity issue, reset the device to see if it fixes the problem. This can be done by turning off and then turning on the device

**Section 4: Practical Application**

10) Demonstrate how to configure a wireless router’s security to enhance network security.

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i. Log in to the router's web interface.

ii. Navigate to the "Security" or "Wireless Security" section.

iii. Set the security mode to "WPA2-Personal" or "WPA3-Personal".

iv. Choose a strong password for the network. Avoid using common passwords and create a unique, complex password.

v. If available, enable encryption for the network traffic.

vi. Set the maximum number of allowed connections to limit the number of devices that can connect to the network simultaneously.

vii. Enable MAC filtering to prevent unauthorized devices from connecting to the network.

viii. Set up a firewall to block unwanted traffic and protect the network from external threats.

ix. Regularly update the router's firmware to ensure it has the latest security patches.