**Computer Network Lab**



**Lab Task 11**

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**1. DHCP (Dynamic Host Configuration Protocol)**

**Definition:**

DHCP is a protocol that automatically assigns IP addresses, subnet masks,

default gateways, and other network settings to devices on a network.

**Example:**

A PC connects to a network, and instead of manually configuring the IP address,

it requests an address from the DHCP server, which assigns it automatically.

**Why Use DHCP?**

1) Saves time and effort in large networks where manually assigning IPs is impractical.

2) Reduces errors caused by manual IP configuration.

**2. VLAN (Virtual Local Area Network)**

**Definition:**

VLAN is used to logically segment a network into smaller parts,

even if devices are physically connected to the same switch.

**Example:**

In an office, HR and IT departments are on the same physical network

but isolated using VLANs (e.g., VLAN 10 for HR, VLAN 20 for IT).

This ensures data separation and improves security.

**Why Use VLAN?**

1) Enhances security and performance by segregating traffic.

2) Reduces broadcast domains.

**3.DNS (Domain Name System)**

**Definition:**

DNS translates human-readable domain names (e.g., www.example.com) into IP addresses (e.g., 192.168.1.1).

**Example:**

When you type google.com in a browser, DNS resolves it to an IP like 172.217.5.110 to establish the connection.

**Why Use DNS?**

1)Simplifies access to network resources by using names instead of numeric IPs.

2)Centralizes name resolution for an organization.