Assignment 1

Lab 1: Introduction to Packet Tracer

Scenario

A small company named **SmartOffice Solutions** is setting up its first office. They need a basic network to connect four computers, a central printer, and a server. To avoid errors during implementation, the IT team decides to simulate the network using Cisco Packet Tracer.

Objective

- To introduce Cisco Packet Tracer and simulate a small network.
- To test connectivity between devices using Simple and Complex PDUs.

Tasks

1. Open Cisco Packet Tracer and explore the workspace.
2. Create a network with four computers connected through a switch.
3. Add a printer and server to the network.
4. Test connectivity between devices using the Simple PDU tool.

Lab 2: Network Topologies and Simple/Complex PDU

Scenario

A company, **NetSys Innovations**, is planning a new office network and wants to evaluate different topologies (Star, Mesh, Bus). They need to ensure the network is reliable, fast, and redundant. The IT team will simulate these topologies using Packet Tracer.

Objective

- To understand different network topologies and their behavior.
- To analyze communication using Simple and Complex PDUs.

Tasks

1. Simulate a Star topology in Packet Tracer and test communication with Simple PDUs.
2. Simulate a Mesh topology and analyze communication using Complex PDUs.
3. Simulate a Bus topology and test connectivity.
4. Compare communication speed, packet delivery, and redundancy for each topology.

Lab 3: Connecting 3 Networks Using Routers (DHCP & DNS Configuration)

Scenario

GlobalConnect Corp has three branch offices in different cities. They need to connect the branches using routers and automate IP allocation with DHCP. Additionally, DNS is required for hostname resolution.

Objective

- To connect multiple networks using routers.
- To configure DHCP for dynamic IP allocation and DNS for name resolution.

Tasks

1. Create a network with three branches, each connected by routers.
2. Configure DHCP on each branch to assign IP addresses automatically.
3. Set up a DNS server for hostname-to-IP resolution.
4. Test communication between the branches to ensure functionality.

Lab 4: Configuration of Different Application Services (SMTP, FTP, HTTP, TFTP, DHCP, DNS)

Scenario

TechFlow Inc. is setting up its office network and requires various services like email (SMTP), file sharing (FTP), web hosting (HTTP), and more. The IT team must ensure these services are configured and operational.

Objective

- To configure essential network application services in Packet Tracer.
- To test the functionality of each service.

Tasks

1. Set up an SMTP mail server and configure clients to send and receive emails.
2. Configure an FTP server for file uploads and downloads.
3. Set up an HTTP server to host a basic webpage.

4. Configure DHCP and DNS services for IP management and hostname resolution.

Lab 5: Study on VMware

Scenario

A company is transitioning to a virtualized infrastructure to save costs. The IT team needs to create and manage virtual machines, configure networking, and use snapshots for backups.

Objective

- To perform basic virtualization tasks using VMware.
- To manage virtual machine networking, disks, and snapshots.

Tasks

1. Create a virtual machine in VMware.
2. Configure networking to enable communication between VMs.
3. Split and merge virtual disks for storage management.
4. Clone the guest OS to create identical VMs.
5. Create and manage snapshots for backups.