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AIM: -

a) Simulate Virtual LAN configuration using CISCO Packet Tracer

Simulation.

# Step 1: Set Up Devices in Cisco Packet Tracer

1. Add Devices o Open Cisco Packet Tracer. o At the bottom left, find the Switches category. o Drag 2 switches (S1 and S2) into the workspace.
   * Next, find the End Devices category and drag 2 PCs (PC-A and PC-B) into the workspace.
2. Connect Devices
   * Click the Connections icon (lightning bolt) at the bottom left to see cable options.
   * Select Copper Straight-Through Cable and connect:
     + PC-A to S1 (PC-A to S1’s FastEthernet0/1).
     + PC-B to S2 (PC-B to S2’s FastEthernet0/1).
   * Choose Console Cable (also found under Connections) to connect:
     + PC-A to S1’s console port
     + PC-B to S2’s console port

# Step 2: Configure Basic Switch Settings

1. Access Switch CLI via Console Connections o Click PC-A > Desktop > Terminal.
   * Click OK in the Terminal settings window to access S1’s CLI (Command Line Interface).
   * Repeat this for PC-B to access S2’s CLI.
2. Enter Configuration Mode on Each Switch o For each switch, enter the following commands:

enable configure terminal

hostname <SwitchName>

1. Set Console and Enable Passwords o Still in global configuration mode, type:

line console 0

password <console\_password>

login exit

enable secret <enable\_password>

1. Set IP Address on Switch VLAN Interface o Type the following commands:

interface vlan 1

ip address <IP\_address> <subnet\_mask>

no shutdown

exit

1. Save Configuration o Exit back to privileged EXEC mode by typing exit. o Save the configuration with write memory or copy running-config startup-config.

# Step 3: Configure IP Address on PCs

1. Configure PC-A o Click PC-A > Desktop > IP Configuration.
   * Set the IP Address to 192.168.1.2, Subnet Mask to 255.255.255.0, and Default Gateway to 192.168.1.1.

1. Configure PC-B
   * Click PC-B > Desktop > IP Configuration.
   * Set the IP Address to 192.168.1.3, Subnet Mask to 255.255.255.0, and Default Gateway to 192.168.1.1.

# Step 4: Create VLANs on Each Switch

1. Create VLANs on S1 and S2
   * Access each switch’s CLI through PC-A and PC-B respectively, and enter the following commands:

enable configure terminal vlan 10

name SALES

exit vlan 20 name HR

exit

1. Assign Ports to VLANs o For S1:

interface range fa0/1 - 12 switchport mode access switchport access vlan 10

exit

interface range fa0/13 - 24 switchport mode access switchport access vlan 20 exit

* + For S2:

interface range fa0/1 – 12 switchport mode access switchport access vlan 10

exit

interface range fa0/13 - 24 switchport mode access switchport access vlan 20

exit

1. Verify VLAN Configuration
   * Type show vlan brief on each switch to verify that VLANs 10 and 20 have been created and that ports are correctly assigned.

# Step 5: Configure Trunking Between Switches

1. Enable Trunk Ports on Both Switches o Access S1 through PC-A and S2 through PC-B.
   * Set port FastEthernet0/1 to trunk mode on both switches:

interface fa0/1 switchport mode trunk

exit

1. Verify Trunking
   * Type show interfaces trunk to confirm that FastEthernet0/1 is operating as a trunk port on each switch.

Step 6: Testing Connectivity

1. Ping Between PCs o Click PC-A > Desktop > Command Prompt.
   * Type ping 192.168.1.3 (PC-B’s IP address) to test connectivity.

1. Troubleshooting
   * If the ping fails, verify the VLAN and trunk configurations on each switch and ensure the correct IP settings on each PC.

OUTPUT:

