

CN LABBBBBBBBBBB

Question 1: demonstration of packet tracer installation and packet tracer interface

Step-1: Visit the Cisco Networking Academy website and download the latest version of Packet Tracer for your operating system.

Step-2: Run the downloaded installation file and follow the on-screen prompts to complete the installation process.

Step-3: Open the installed Packet Tracer application from your computer's start menu or desktop shortcut.

Step-4: Familiarize yourself with the main workspace, toolbars, and device panels on the left and right sides of the screen.

Step-5: Click on the device category buttons (e.g., routers, switches, end devices) in the bottom-left corner to view available devices.

Step-6: Drag and drop desired devices from the device panel onto the main workspace area.

Step-7: Use the connection tools in the bottom-right corner to create links between devices on the workspace.

Step-8: Double-click on a device to access its configuration window and modify settings as needed.

Step-9: Use the toggle button in the top-left corner to switch between logical and physical network views.

Step-10: Click on "File" in the top menu, then "Save" to store your network topology and configurations.

Question 2: Design a peer-to-peer network using the packet tracer, check the connectivity using ping command, sending PDU in real time mode and simulation mode.

Step-1: Open Cisco Packet Tracer and create a new project.

Step-2: From the device panel, drag and drop two PCs onto the workspace.

Step-3: Select the appropriate cable (e.g., copper straight-through) from the connections panel.

Step-4: Click on the first PC, then click on the second PC to create a connection between them.

Step-5: Double-click on each PC to open its configuration window.

Step-6: Set up IP addresses for both PCs (e.g., 192.168.1.1 for PC1 and 192.168.1.2 for PC2) with subnet mask 255.255.255.0.

Step-7: Close the configuration windows for both PCs.

Step-8: Click on PC1, open the command prompt, and type "ping 192.168.1.2" to check connectivity.

Step-9: Switch to Simulation mode by clicking the "Simulation" tab in the bottom right corner.

Step-10: Click "Add Simple PDU" in the right panel, then click on PC1 and PC2 to create a packet.

Step-11: Press the "Auto Capture/Play" button to watch the packet travel between the PCs.

Step-12: Switch back to Realtime mode by clicking the "Realtime" tab in the bottom right corner.

Step-13: Click on PC1, open the command prompt, and use the "ping" command again to see real-time results.

Question 3: Design two isolated networks in packet tracer to demonstrate the difference in working of hub and switch.

Step-1: Open Cisco Packet Tracer and create a new project.

Step-2: Drag and drop one hub and one switch onto the workspace.

Step-3: Add three PCs to connect to the hub and three PCs to connect to the switch.

Step-4: Use straight-through copper cables to connect each PC to its respective hub or switch.

Step-5: Configure IP addresses for PCs connected to the hub (e.g., 192.168.1.1, 192.168.1.2, 192.168.1.3).

Step-6: Configure IP addresses for PCs connected to the switch (e.g., 192.168.2.1, 192.168.2.2, 192.168.2.3).

Step-7: Switch to Simulation mode by clicking the "Simulation" tab in the bottom right corner.

Step-8: Create a PDU from one PC connected to the hub to another on the same hub.

Step-9: Click "Auto Capture/Play" and observe how the hub broadcasts to all connected devices.

Step-10: Create a PDU from one PC connected to the switch to another on the same switch.

Step-11: Click "Auto Capture/Play" and observe how the switch sends only to the intended recipient.

Step-12: Compare the network traffic between the hub and switch setups.

Step-13: Switch back to Realtime mode and use ping commands to test connectivity in both networks.

Question 4: Design a network with hybrid topology that includes a bus backbone and three star networks, check the connectivity using ping command, sending PDU in real time mode and simulation mode.

Step-1: Open Cisco Packet Tracer and create a new project.

Step-2: Drag and drop three switches onto the workspace, spacing them apart.

Step-3: Add a router to the workspace to serve as the central node of the bus backbone.

Step-4: Connect the three switches to the router using serial DCE cables to form the bus backbone.

Step-5: For each switch, add three PCs to create three star networks.

Step-6: Connect each PC to its respective switch using straight-through Ethernet cables.

Step-7: Configure IP addresses for all devices. Use different subnets for each star network.

Step-8: Configure router interfaces with appropriate IP addresses for each connected network.

Step-9: Set up default gateways on all PCs to point to their respective router interface IP.

Step-10: Use the ping command from one PC to another in the same star network to test local connectivity.

Step-11: Ping from a PC in one star network to a PC in another star network to test inter-network connectivity.

Step-12: Switch to Simulation mode by clicking the "Simulation" tab in the bottom right corner.

Step-13: Create a PDU from a PC in one star network to a PC in another star network.

Step-14: Click "Auto Capture/Play" to observe the packet traveling through the bus backbone.

Step-15: Switch back to Realtime mode and perform additional ping tests to verify overall network connectivity.

Question 5: Connect two networks using a single router and configure the router for communication between the two networks.

Step-1: Open Cisco Packet Tracer and create a new project.

Step-2: Drag and drop one router onto the workspace.

Step-3: Add two switches to the workspace, one for each network.

Step-4: Connect each switch to a different interface on the router using straight-through Ethernet cables.

Step-5: Add two PCs to each switch using straight-through Ethernet cables.

Step-6: Double-click the router to open its configuration window.

Step-7: Configure the first router interface with IP address 192.168.1.1/24.

Step-8: Configure the second router interface with IP address 192.168.2.1/24.

Step-9: Configure PCs on the first network with IP addresses 192.168.1.2/24 and 192.168.1.3/24, gateway 192.168.1.1.

Step-10: Configure PCs on the second network with IP addresses 192.168.2.2/24 and 192.168.2.3/24, gateway 192.168.2.1.

Step-11: Access the router's CLI by clicking on it and selecting the CLI tab.

Step-12: Enter privileged EXEC mode by typing "enable".

Step-13: Enter global configuration mode by typing "configure terminal".

Step-14: Verify router configuration using "show ip interface brief" command.

Step-15: Test connectivity by pinging from a PC in one network to a PC in the other network.

Question 6: Connect two or more networks with a router in each network and configure the routers for static routing.

Step-1: Open Cisco Packet Tracer and create a new project.

Step-2: Drag and drop two routers onto the workspace.

Step-3: Add a switch to each router.

Step-4: Connect each switch to its respective router using straight-through Ethernet cables.

Step-5: Connect the two routers using a serial DCE cable.

Step-6: Add two PCs to each switch using straight-through Ethernet cables.

Step-7: Configure IP addresses for the first network: 192.168.1.0/24 (PCs: .2, .3; Router interface: .1).

Step-8: Configure IP addresses for the second network: 192.168.2.0/24 (PCs: .2, .3; Router interface: .1).

Step-9: Configure the serial interfaces on both routers (e.g., 10.0.0.1/30 and 10.0.0.2/30).

Step-10: Access the CLI of the first router.

Step-11: Enter global configuration mode with "configure terminal".

Step-12: Add a static route to the second network: "ip route 192.168.2.0 255.255.255.0 10.0.0.2".

Step-13: Access the CLI of the second router.

Step-14: Enter global configuration mode.

Step-15: Add a static route to the first network: "ip route 192.168.1.0 255.255.255.0 10.0.0.1".

Step-16: Verify routes on both routers using "show ip route" command.

Step-17: Test connectivity by pinging from a PC in one network to a PC in the other network.

