Computer Network Lab

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# **Lab 2 | Static Routing**

**Step 1:** First set all the IP addresses, subnet mask, and default gateway on the PC.

**Step 2:** Ip Configuration -

* enable
* conf t
* int f 0/1
* ip add 192.168.1.1 255.255.255.0
* no sh
* exit

Here conf = configure, t = terminal, int = interface, sh = shutdown, add = address. Used ip address is Class C.

**Step 3:**

Static Routing -

* ip route 192.168.1.0 255.255.255.0 f 0/1

Here used the network address.

# **Lab 3 | Dynamic Routing (RIP)**

**Step 1:** First set all the IP addresses on the PC.

**Step 2:** Ip configuration -

* enable
* conf t
* int f 0/1
* ip add 192.168.1.1 255.255.255.0
* no sh
* exit

This way every port has to configure the IP addresses.

**Step 2:**

Still remain on the Config mode, Then RIP Configuration -

* router rip
* network 192.168.1.0
* network 192.168.2.0
* network 192.168.3.0
* network 10.0.0.0

The connected network in the router was listed here. The listed network is the Network address.

# **Lab 4 | Dynamic Routing (OSPF)**

**Step 1:** First set all the IP addresses on the PC.

**Step 1:** Then we have to configure the IP address of all the connected ports on the router. That’s like the **Dynamic Routing (RIP)** IP address configuration process.

Now,

**Step 2:**

Remain on the config mode, Then Router connected network configuration.

* router ospf 1
* network 192.168.1.0 0.0.0.255 area 1
* Network 192.168.2.0 0.0.0.255 area 1

But our network address subnet mask(0.0.0.255) is different.

# **Lab 5 | Virtual Local Area Network (VLAN)**

**Step 1:** First set all the IP addresses on the PC.

Default vlan is 1.

How many vlan Networks have -

* do show vlan

**Step 2:** First create a vlan,

* vlan 2
* name CSE
* exit

**Step 3:**  Port Select under a vlan.

* int range f 0/1-2
* sw access vlan 2
* sw mode access
* exit

Here, sw = switchport.

**Trunk port** = switch to switch connection.

**Access port** = switch to router connection.

**Step 4:**

* int f 0/6
* sw mode trunk

So this way the router configures all the access port, and trunk port and assign the vlan.

# **Lab 6 | NAT (Network Address Translation)**

Server-side router,

* ip route 0.0.0.0 0.0.0.0 se 2/0
* ip nat inside source static 192.168.2.1 192.168.10.2
* int f 0/0
* ip nat inside
* int se 2/0
* ip nat outside
* enable
* conf t
* ip route 0.0.0.0 0.0.0.0 se 2/0
* access-list 1 permit 192.168.1.0 0.0.0.255
* ip nat inside source list 1 interface se 2/0
* int f 0/0
* ip nat inside
* int se 2/0
* ip nat outside

# **Lab 7 | Dynamic Host Configuration Protocol(DHCP)**

**Step 1:**  IP address set in the PC.

**Step 2:** Config mode, Here **XYZ** is the **DHCP server name**.

* ip dhcp pool XYZ
* network 192.168.1.0 255.255.255.0
* default-router 192.168.10.1
* exit

**Step 3 (Optional):** If the Server reserves some IP addresses. Then This way we can make a range for reserved IP addresses.

* ip dhcp excluded-address 192.168.10.2 192.168.10.30

Here (192.168.10.2 to 192.168.10.30) IP addresses are reserved.

**Step 4:** Then set all the PC static forms to DHCP form. For Automatic IP addresses configuration.