Lab Session 03

OBJECT

- Configuration Router on a stick.
- Basic commands of IOS.
- Configuration of router with different networks.

THEORY

Router:

This device forwards data packets along networks. It is connected to at least two networks, commonly two LANs or WANs or a LAN and its ISP.s network. Routers are located at gateways, the places where two or more networks connect. Routers use headers and forwarding tables to determine the best path for forwarding the packets.

Switch:

In networks, a device that filters and forwards packets between LAN segments. Switches operate at the data link layer (layer 2) and sometimes the network layer (layer 3) of the OSI Reference Model and therefore support any packet protocol. LANs that use switches to join segments are called switched LANs.

IP address:

Internet Protocol Address (or IP Address) is an unique address that computing devices such as personal computers, tablets, and smartphones use to identify itself and communicate with other devices in the IP network. Any device connected to

the IP network must have an unique IP address within the network. An IP address is analogous to a street address or telephone number in that it is used to uniquely identify an entity.

Subnet mask :

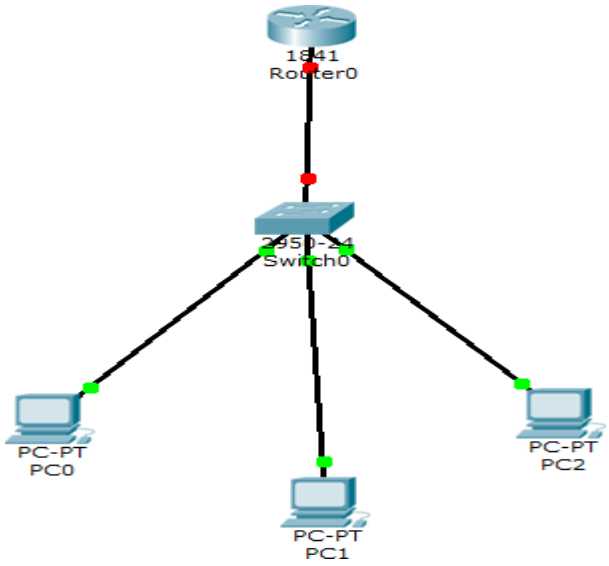
A subnet mask is a number that defines a range of IP addresses that can be used in a network . A subnet mask hides, or "masks," the network part of a system's IP address and leaves only the host part as the machine identifier.

MODES

The Cisco IOS is comprised of several modes, each of which contains a set of commands specific to the function of that mode.

Command Mode	Access Method	Prompt	Purpose	Exit Method
User Exec	Default mode after booting. **Login** with password, if configured.	Router>	Allow you to connect with remote devices, perform basic tests, temporary change terminal setting and list system information	Use exit command
Priveleged Exec	Use **enable** command from user exec mode	Router#	Allow you to set operating parameters. It also includes high level testing and list commands like show, copy and debug.	Use exit command.
Cofiguration Mode	Use configure terminal command from privileged exec mode	Router(config) #	Contain commands those affect the entire system	Use exit command
Global /interface Configuration mode	Use interface type number command from global configuration mode	Router(config-if)#	Contain commands those modify the operation of an interface	Use exit command to return in global configuration mode.
Sub interface Configuration	Use interface type sub interface number command from global configuration mode or interface configure mode.	Router(config-subif)#	Configure or modify the virtual interface created from physical interface	Use exit to return in previous mode. Use end command to return in privileged exec mode.
ROMMON	Enter reload command from privileged exec mode. Press CTRL + C key combination during the first 60 seconds of booting process	ROMMON>	If router automatically enter in this mode, then it indicates that it fails to locate a valid IOS image. Manual entrance in this mode Allow you to perform low-level diagnostics.	Use exit command.

TOPOLOGY:



METHOD:

- First assign IP to all the pc using same class and their default gateway & subnet mask.
- Now go to router CLI tab and write down the following commands .

After these commands your network are able to communicate with routers and pcs, now you can check your network by passing messages and ping command.

EXERCISES:

Q1.What happens if we connect PC directly to the router without using switch in between the two devices i.e. PC's and router?

Q2. What do you understand by the term **Default-Gateway IP?** why we need to assign this?

Q3. PC1 is configured with default gateway address. PC2 is not configured with a default gateway. What would happen if PC1 pings PC2.

Q4. Explain the function of this command “Router(config-if)#”.

Q.5. Configure the following network.