Exp No: 9
15.9.2025

SubNetting

Aim:

Implementation of subnetting in Cisco packet Tracer simulator.

classless IP subnetting is a technique that allows for more efficient use of IP addresses by allowing for subnet masks that are not just default masks for each IP class. This means that we can divide our IP address space into smaller subnets, which can be useful when we have a limited no. of addresses but need to create multiple Networks.

Creating a Network Topology:

The First step is to create a network topology in packet Tracer. For that, select the "New" button in the top left corner, then select "Network" and "Generic". This will create a blank Network topology that we use to add devices.

Adding the Devices:

Here we add routers, switches and PC's. select the device & add it onto the network topology. Then, connect the devices by dragging a cable from one device's port to another device's port.

subnetting :-

To subnet the network addr
of 192.168.1.0/24 to provide enough
space for atleast 5 addresses for
end devices, the switch and the
router, we can use a /27 subnet
mask. This will give us 8 subnets
with 30 host addresses each

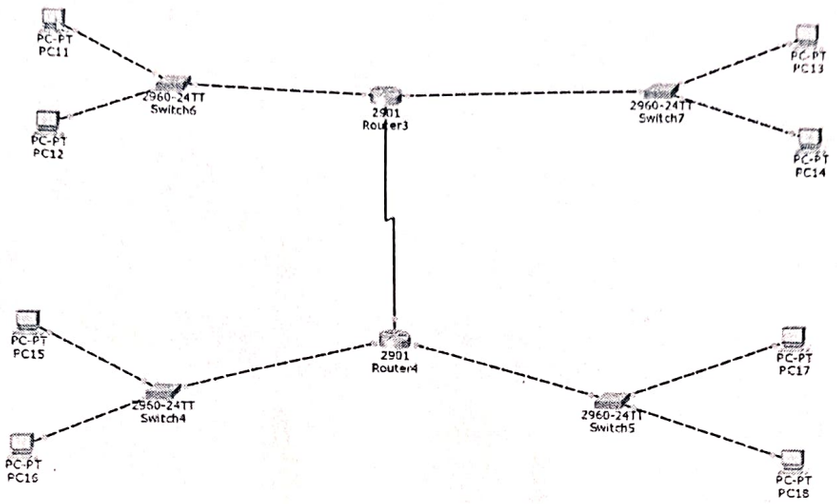
configuring the Devices :-

Now that we
have added our devices and
connected them, we can start
configuring them. We will start by
configuring the router, the switch
and then the PC's.

Testing the Network :

Now we can test the
network. Open a command prompt
on each PC and try to ping the other
PC. If the ping is succesful. then
the network is functioning properly

9)



student observation:

1) Write down your understanding of subnetting

Subnetting is diriding a larger network into smaller sub network for efficient IP usage and management.

2) What is the advantage of implementing subnetting with Network.

It improves IP utilization, reduces broadcast traffic, enhances security + makes network easier to manage.

Result:

Subnetting was successfully implemented in cisco Packet Tracer. Network devices communicated properly using assigned subnetted IP addresses.