Program 11

To create a virtual LAN on top of the physical LAN and enable communication between Physical LAN and Virtual LAN.

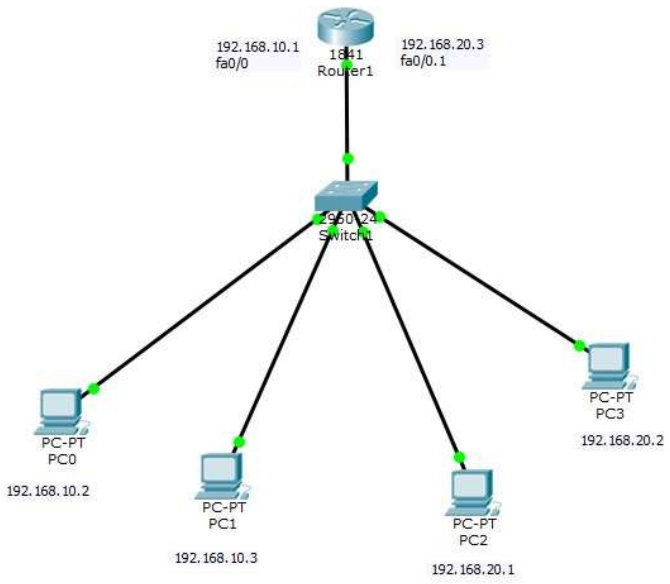


Figure 67: Topology

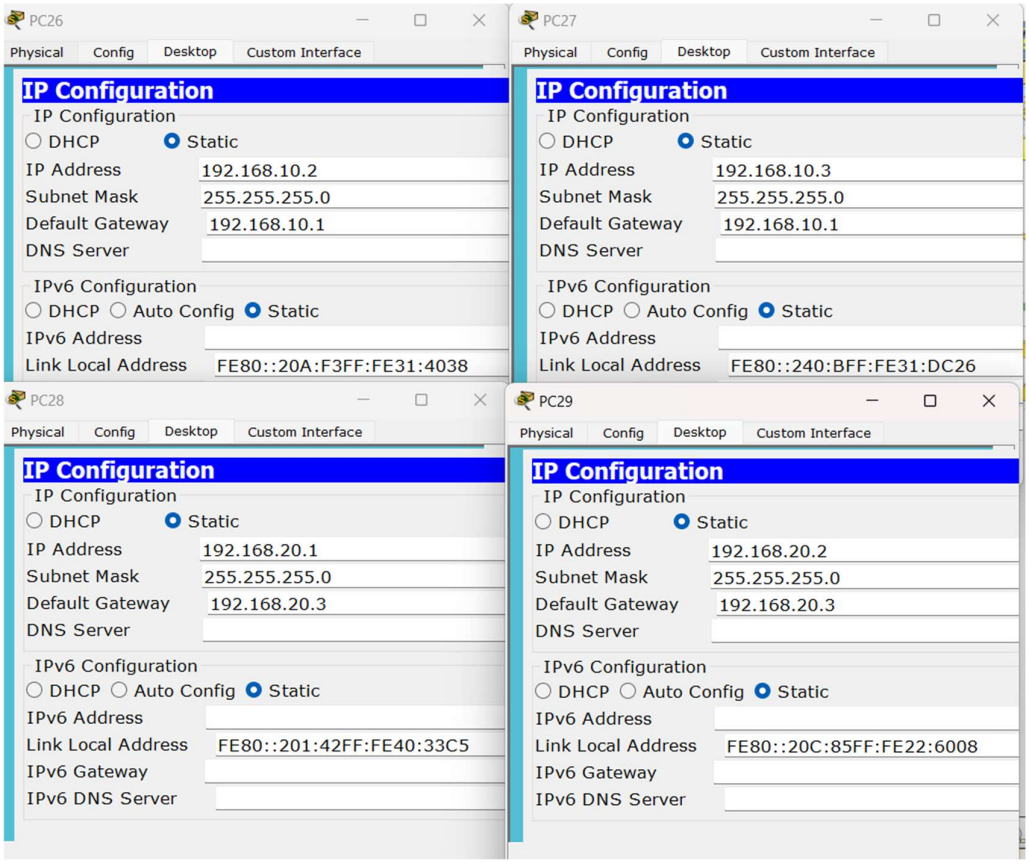


Figure 68: IP Addresses of the PCs

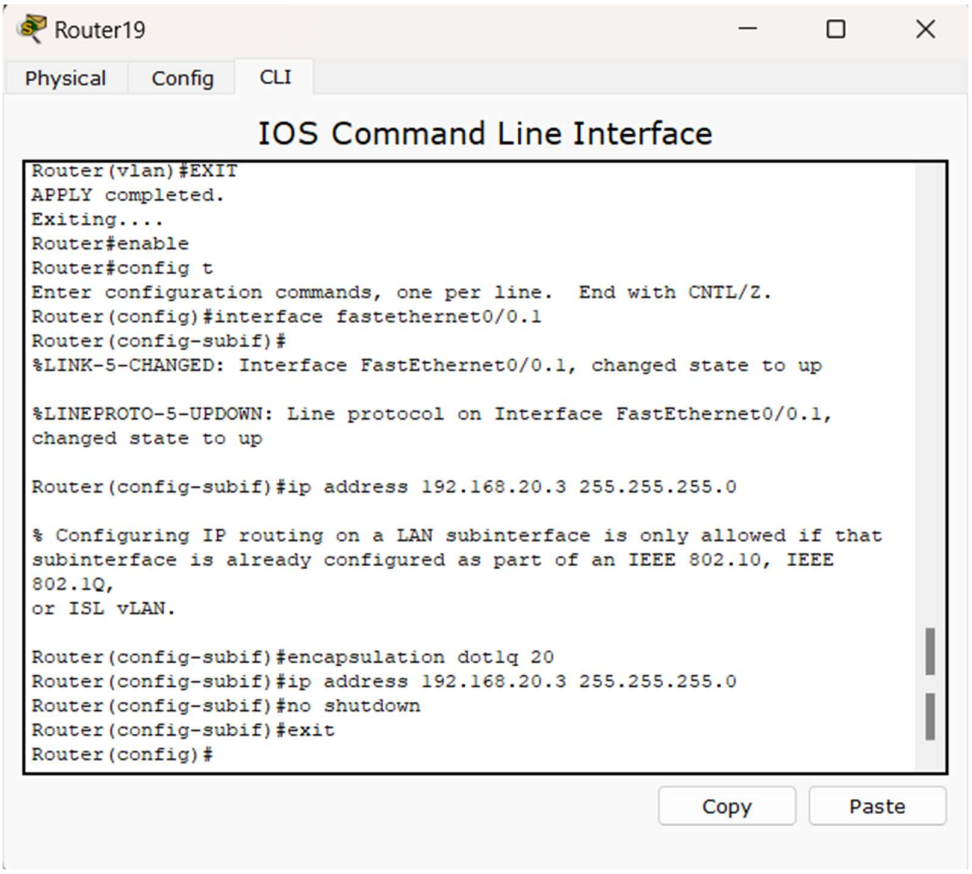


Figure 69: Router CLI

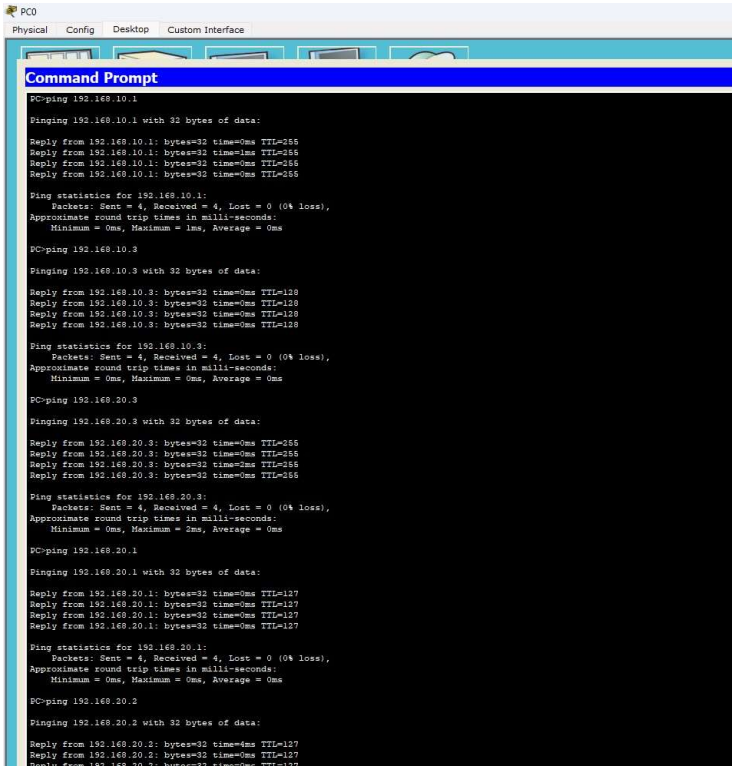
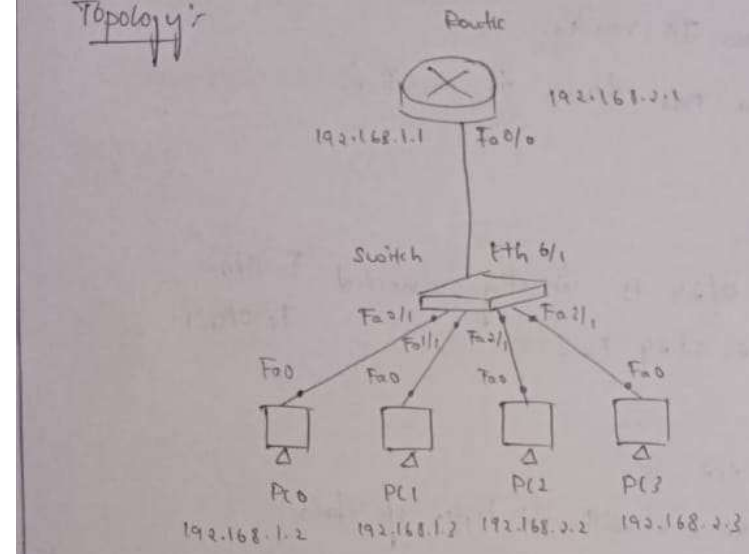


Figure 70: Output

Experiment No 11:-

To construct a VLAN and make PCs communicate among a VLAN.

Topology:-



Procedure:-

1) Open Cisco Packet Tracer.
2) Setup the connections b/w the devices as shown. (choose 1841 router)
3) Set IP and gateway address to all PCs.
4) Setup Router for one gateway
   enable → config terminal → interface Fa 0/0 → IP address 192.168.1.1 255.255.255.0 → no shut → exit.
5) Go to switch config → select VLAN database. Create a new VLAN (VLAN no 2, VLAN name bms) and add.
6) Go to interface ethernet 6/1.

Figure 71: Observation Book 1

7) VLAN database → VLAN 2, name bons → exit.

8) config terminal → interface Fa 0/0.1 → encapsulation dot1q
2 → ip address 192.168.2.1 255.255.255.0 → no shut
exit → exit

9) Enter show ip route.

10) Ping from one device to another.

Result:

show ip route
C. 192.168.1.0/24 is directly connected Fa 0/0
C. 192.168.2.0/24 Fa 0/0.1

PC0
Ping 192.168.2.2
Pinging 192.168.2.2 with 32 bytes of data.
Request timed out
Reply from 192.168.2.2 bytes=32 time=2ms TTL=127
:
ping stats.

Observation:

The VLAN experiment involves creating and configuring VLAN to segment a network, assigning IPs to device for seamless intra VLAN communication and using dot1q encapsulation for inter VLAN connectivity to communicate through a single trunk link. This experiment highlights the importance of VLANs in optimizing and managing modern network effectively.

Thio 31/10/25

Figure 72: Observation Book 2