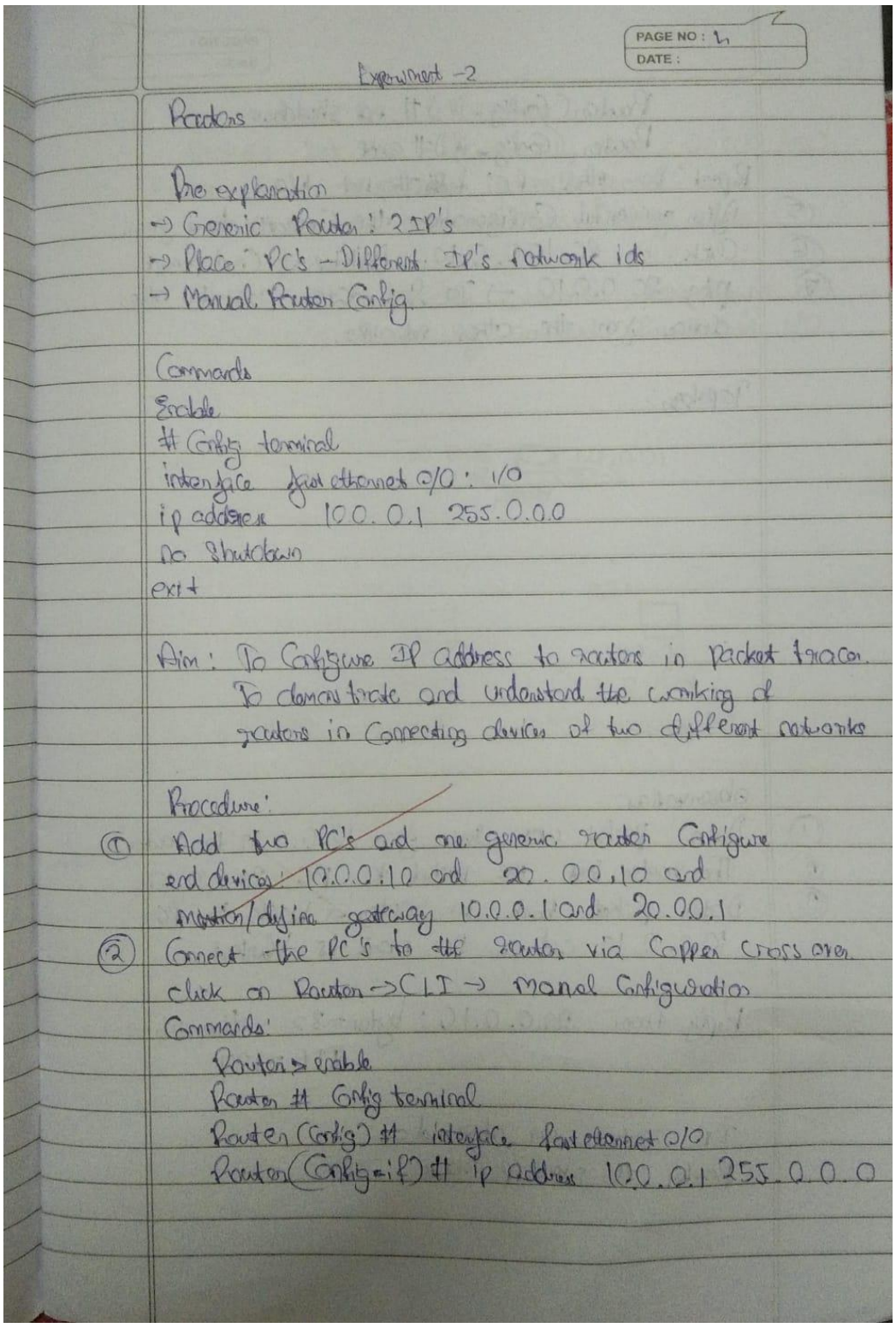
LABORATORY PROGRAM – 2

Configure IP address to routers in packet tracer. Explore the following messages: ping responses, destination unreachable, request timed out, reply.



Experiment -2

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Routers

Pre explanation
→ Generic Router : 2 IP's
→ Place : PC's - Different IP's network ids
→ Manual Router Config

Commands
Enable
Config terminal
interface fast ethernet 0/0 : 1/0
ip address 100.0.1 255.0.0.0
no shutdown
exit

Aim : To Configure IP address to routers in packet tracer.
To demonstrate and understand the working of routers in Connecting devices of two different networks

Procedure :
① Add two PC's and one generic router Configure end devices : 10.0.0.10 and 20.00.10 and mention/define gateway 10.0.0.1 and 20.00.1
② Connect the PC's to the router via Copper Cross over
click on Router → CLI → Manual Configuration
Commands :
Router > enable
Router # Config terminal
Router (Config) # interface fastethernet 0/0
Router (Config-if) # ip address 100.0.1 255.0.0.0

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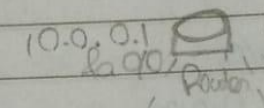
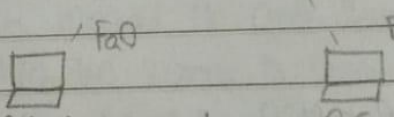
Router(Config-if)# no shutdown
Router(Config-if)#exit
Repeat for other PC: fastethernet 1/0

(5) After successful Configuration, the Connection turns green.
(6) Click on PC 10.0.0.10 → Desktop → Cmd prompt
(7) ping 20.0.0.10 → To Send data packet to other device from the other networks.

Topology:





PC-PT
10.0.0.10
Def gateway 10.0.0.1

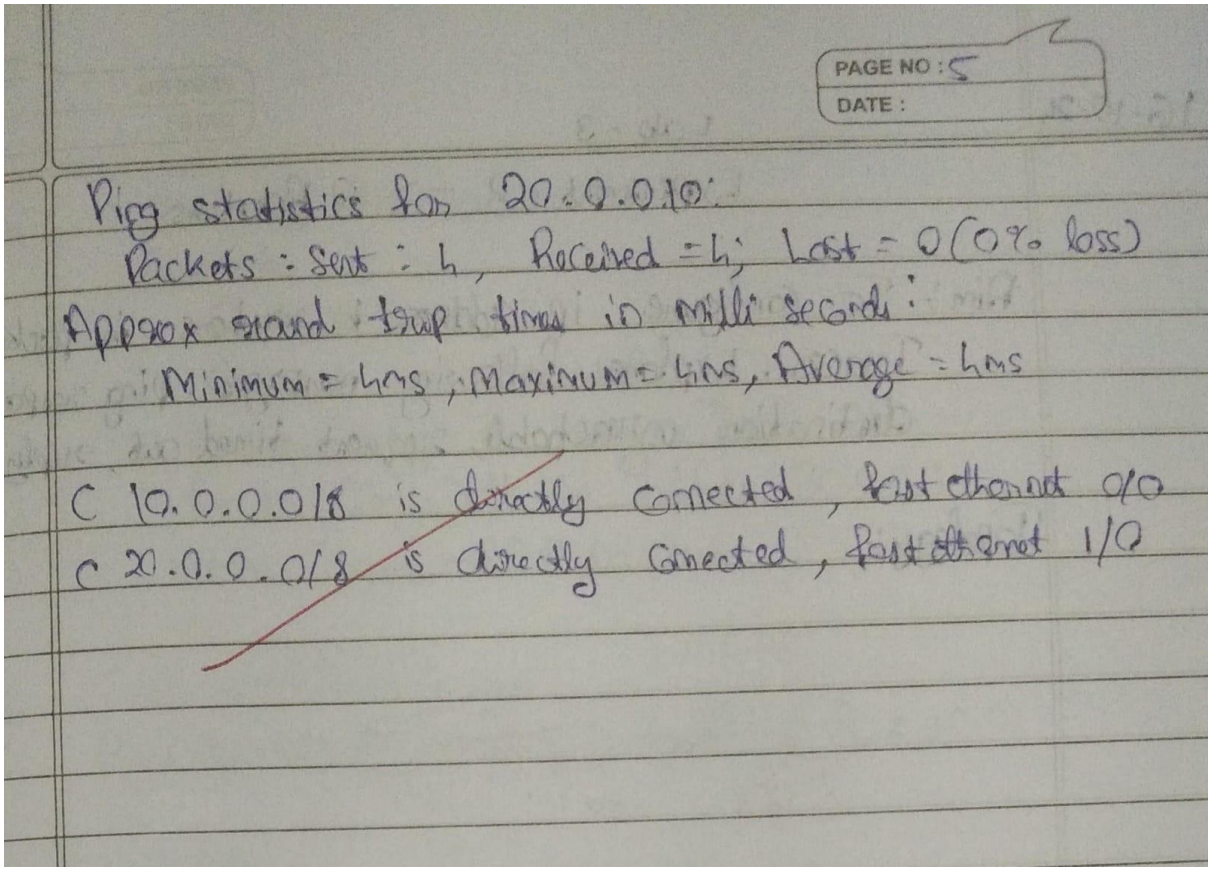
PC-PT
20.0.0.10
Def gateway 20.0.0.1

Observation:

(1) Data packet was sent from 10.0.0.10 to router.
(2) The router sent the packet to PC 20.0.0.10
(3) Data packet back to router → back to PC 10.0.0.10 and a tick mark is blinked.

Reply from 20.0.0.10: bytes=32 time=4ms TTL=127

IP route was observed as:
Router# show ip route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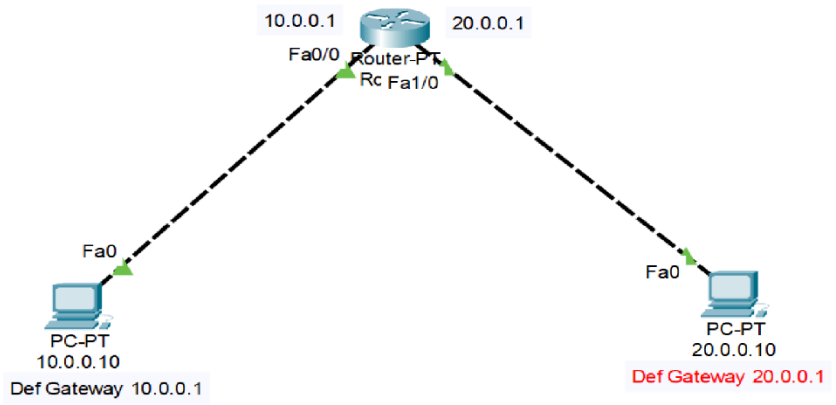
Ping statistics for 20.0.0.10:
Packets : Sent : 4, Received = 4; Lost = 0 (0% loss)
Approx round trip times in milli seconds:
Minimum = 4ms, Maximum = 4ms, Average = 4ms
C 10.0.0.0/8 is directly connected, fast ethernet 0/0
C 20.0.0.0/8 is directly connected, fast ethernet 1/0

Screenshots:



Router0

Physical Config CLI Attributes

IOS Command Line Interface

```
2 Low-speed serial(sync/async) network interface(s)
32K bytes of non-volatile configuration memory.
63488K bytes of ATA CompactFlash (Read/Write)


         --- System Configuration Dialog ---

Would you like to enter the initial configuration dialog? [yes/no]: no


Press RETURN to get started!



Router>enable
Router#config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface fastethernet0/0
Router(config-if)#ip address 10.0.0.1 255.0.0.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#exit
Router(config)#interface fastethernet1/0
Router(config-if)#ip address 20.0.0.1 255.0.0.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up

Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#
```

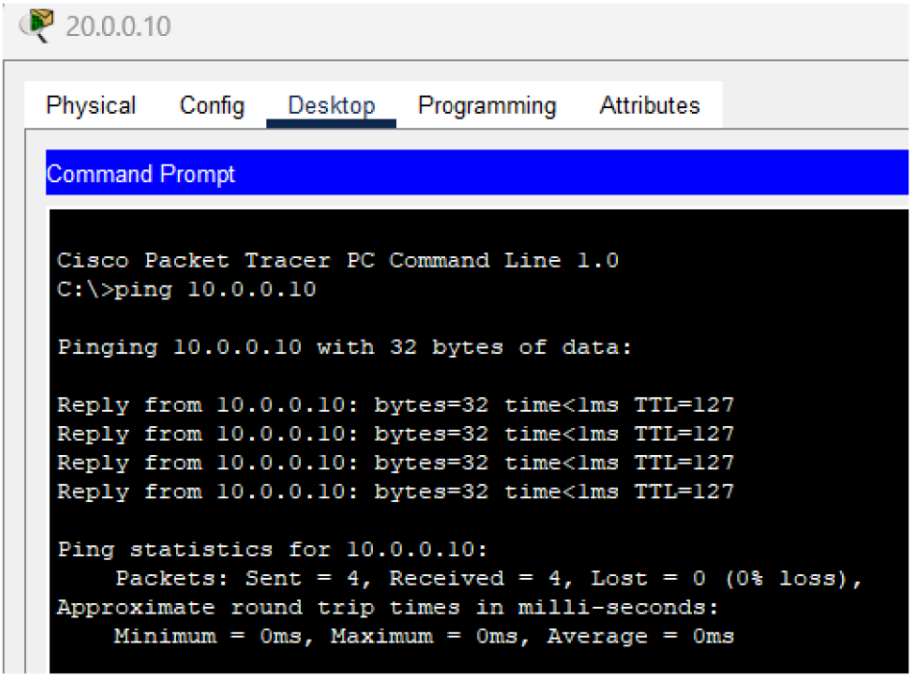
```
C:\>ping 20.0.0.10

Pinging 20.0.0.10 with 32 bytes of data:

Reply from 20.0.0.10: bytes=32 time<1ms TTL=127
Reply from 20.0.0.10: bytes=32 time<1ms TTL=127
Reply from 20.0.0.10: bytes=32 time<1ms TTL=127
Reply from 20.0.0.10: bytes=32 time<1ms TTL=127

Ping statistics for 20.0.0.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```



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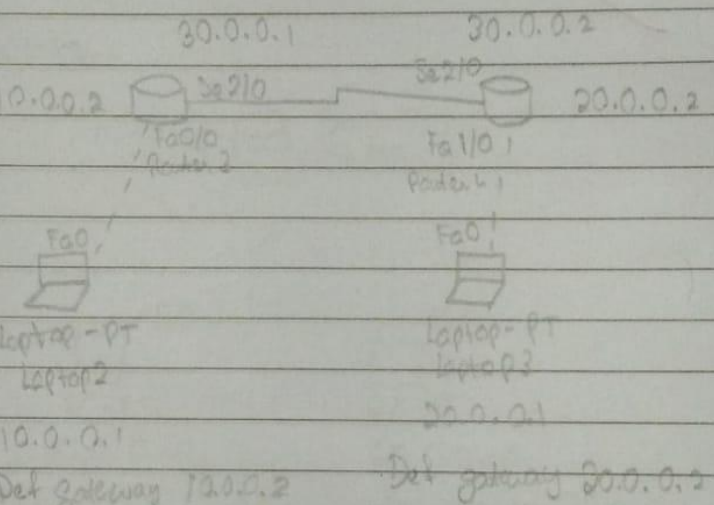
Lab - 3

Experiment - 3 → 2 Routers

Aim:- To configure ip address to routers in packet Tracer. Explore following messages: ping responses, destination unreachable, request timed out, reply

Topology:-



Procedure:

1. Add two PC's and two generic routers. Configure end devices: 10.0.0.1 and 20.0.0.1 and mention/define gateway 10.0.0.2 and 20.0.0.2.
2. Connect the PC's to the routers via copper cross over. Connect the routers to each other using Serial DCE.
3. Configure the routers:
   Click on Route → CLI
   - Configure to end devices similar to last experiment.

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4. → Connecting the routers:

Commands:

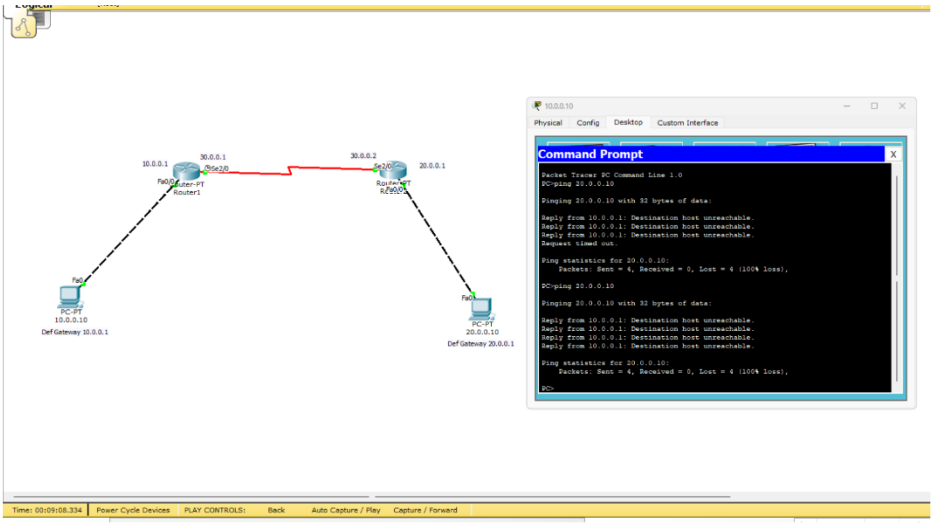
Router > enable
Router # Config terminal
Router (Config) # interface Serial 2/0
Router (Config) # ip address 30.0.0.1
Router (Config-if) # no shut

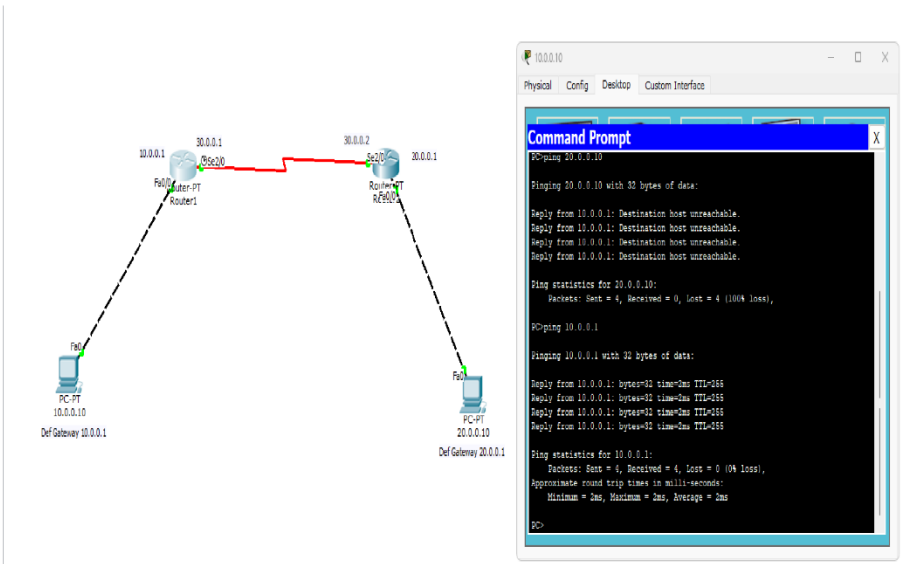
5. Give appropriate naming
6. Ping the device 20.0.0.1 from 10.0.0.1

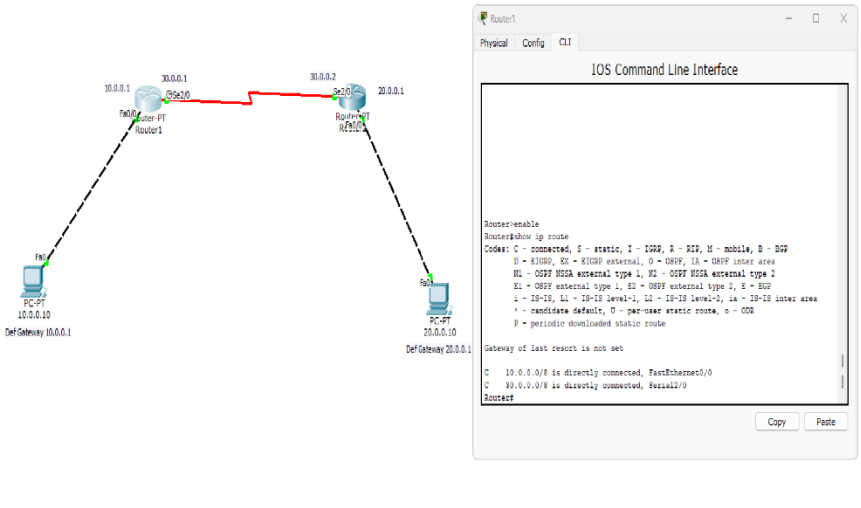
Observations:

1. The connections were done properly and green lights were displayed.
2. But when the device 10.0.0.1 pinged to 20.0.0.1 the output showed that the host was unreachable.
3. Since the networks are not direct neighbours / directly connected, the data sent was failed.
4. Pinging the same networks was a success since they can directly connected, Pinging 30.0.0.1 for 10.0.0.1 was a success.

Screenshots:






10.0.0.1
30.0.0.1
Se2/0
30.0.0.2
20.0.0.1
Router-PT
Router1
PC-PT
10.0.0.10
Def Gateway 10.0.0.1
PC-PT
20.0.0.10
Def Gateway 20.0.0.1
Router1
Physical
Config
CLI
IOS Command Line Interface
Router>enable
Router#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
* - candidate default, U - per-user static route, o - ODR
P - periodic downloaded static route
Gateway of last resort is not set
C 10.0.0.0/8 is directly connected, FastEthernet0/0
C 30.0.0.0/8 is directly connected, Serial2/0
Router#
Copy
Paste