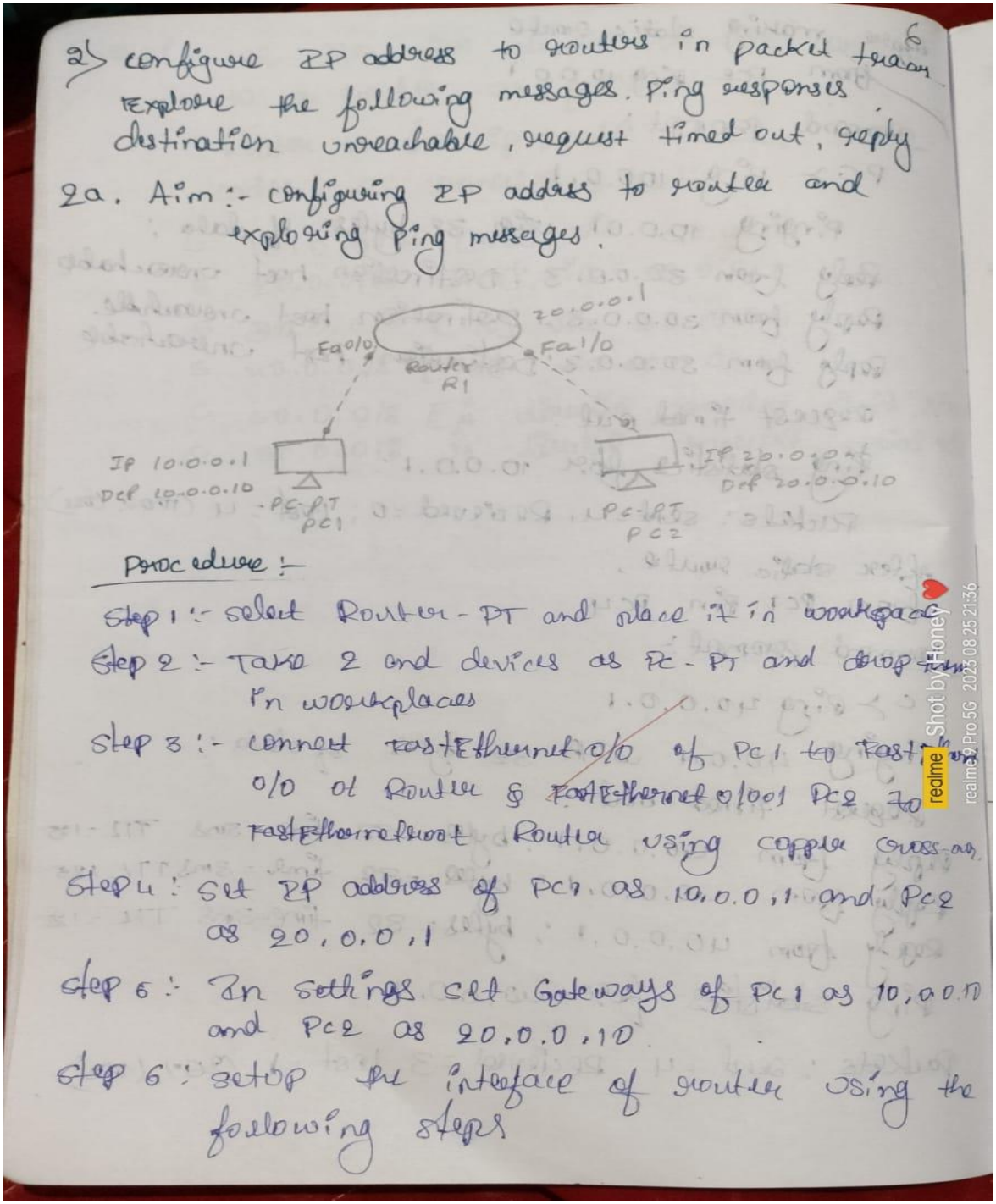
LAB 2

Configure IP address to routers (one and three) in packet tracer. Explore thefollowing messages: ping responses, destination unreachable, request timed out, reply.

OBSERVATION:



TO configure router command line interface (CLI) is used.

Router 0 CLI.
(Press N)

Router > enable
Router # config t
Router (config)# interface fastEthernet 0/0
Router (config-if)# ip address 10.0.0.10 255.0.0.0
Router (config-if)# no shut
exit
Router (config)# interface fastEthernet 1/0
Router (config-if)# ip address 20.0.0.10 255.00.0
Router (config-if)# no shut
exit
Router (config)# exit
Router #
show ip route

C 10.0.0.0/8 is directly connected, FastEthernet 0/0
C 20.0.0.0/8 is directly connected, FastEthet 1/0

step 7: observation

Green lights appear on wires when no shut commands are written which indicate that they are ready for data transmission.

Ping output in PC0:-

PC> ping 20.0.0.1

Pinging 20.0.0.1 with 32 bytes of data

Request timed out

Reply from 20.0.0.1 bytes=32 time=0ms TTL=127

Reply from 20.0.0.1 bytes=32 time=0ms TTL=127

Reply from 20.0.0.1 bytes=32 time=0ms TTL=127

Ping statistics for 20.0.0.1

Packets: Sent=4, Received=3, Lost=1 (25% loss)

Approximate round trip times in milli-seconds

minimum - 0ms, maximum = 1ms, Average

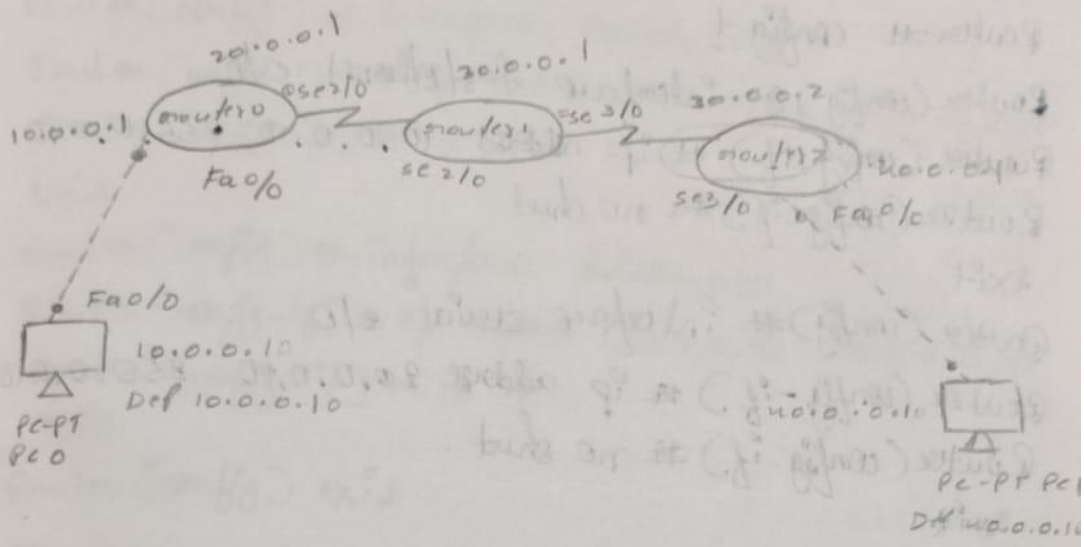
Observation

On pinging in PC0 for the first time there is a 25% loss

from next ping, there are no losses.

26. Aim :- configure using 3 routers and 2 PCs ?

Topology :-



Procedure :-

Step 1 :- The network is started by selecting end devices PC0 & PC1 i.e. generic PCs and placing them in work space.

Step 2 :- Select 3 Router-PT & place them as Router0, Router1 and Router2 in workspace

Step 3 :- PC0 & PC1 are connected to router 0 & Router 2 respectively using copper cross over.

Step 4 :- connect Router 0 to Router 1, Router 1 to Router 2 using.

Step 5 :- Set up IP address of PC0 to 10.0.0.1 PC1 to 40.0.0.1 setup gateway of PC0 as 10.0.0.20 and PC1 as 40.0.0.10

configure the router by opening CLI

In Router 0

Router > enable

Router # config t

Router (config) # interface fastEthernet 0/0

Router (config-if) # ip address 10.0.0.10 255.0.0.0

Router (config-if) # no shut

exit

Router (config) # interface serial 2/0

Router (config-if) # ip address 20.0.0.10 255.0.0.0

Router (config-if) # no shut

exit

exit

In Router 1

Router > enable

Router # config t

Router (config) # interface serial 2/0

Router (config-if) # ip address 20.0.0.20 255.0.0.0

Router (config-if) # no shut

exit

Router (config) # interface serial 3/0

Router (config-if) # ip address 30.0.0.20 255.0.0.0

Router (config-if) # no shut

exit

Router (config) # exit

In Router 2

Router > enable
Router # config t
Router (config) # interface serial 2/0
Router (config-if) # ip address 30.0.0.20 255.0.0.0
Router (config-if) # no shut
exit
Router (config) # interface fastEthernet 0/0
Router (config-if) # ip address 40.0.0.10 255.0.0.0
Router (config-if) # no shut
exit
Router (config) exit

IP Route table :-

Router 0 :

Router # show ip route
C 20.0.0.0/8 is directly connected, FastEthernet 0/0
C 20.0.0.0/8 is directly connected, serial 2/2

Router 1 :

Router # show ip route
C 20.0.0.0/8 is directly connected, serial 2/0
C 30.0.0.0/8 is directly connected, serial 3/0

Router 2

Router # show ip route
C 30.0.0.0/8 is directly connected, serial 2/0
C 40.0.0.0/8 is directly connected, FastEthernet 0/0

Ping output in PC0

PC> Ping 40.0.0.1

Pinging 40.0.0.1 with 32 bytes of data

Reply from 10.0.0.10 : Destination host unreachable
Reply from 10.0.0.10 : Destination host unreachable
Reply from 10.0.0.10 : Destination host unreachable.

Ping statistics for 40.0.0.1:

Packets: set = 4, Received = 0, Lost = 4 (100% loss)

Observations:-

Green lights appears on the wires when no shut is written.

Now configure the router which does not have data of other network add the network in CLI. In all 3 routers CLI write config t. then ip route

Route 0:

IP route 30.0.0.0 255.0.0.0 20.0.0.30
IP route 40.0.0.0 255.0.0.0 20.0.0.20

Router 1:

ip route 10.0.0.0 255.0.0.0 20.0.0.10
ip route 40.0.0.0 255.0.0.0 30.0.0.20

Router 2:

ip route 10.0.0.0 255.0.0.0 30.0.0.10

ip route 20.0.0.0 255.0.0.0 30.0.0.10

new ip route table

exit

Router 0

C 10.0.0.0/8 is directly connected, FastEthernet 0/0

C 20.0.0.0/8 is directly connected, serial 2/0

S 30.0.0.0/8 [1/0] via 20.0.0.20

S 40.0.0.0/8 [1/0] via 20.0.0.20

Router 1

S 10.0.0.0/8 [1/0] via 20.0.0.10

C 20.0.0.0/8 is directly connected serial 2/0

C 30.0.0.0/8 is directly connected serial 3/0

S 40.0.0.0/8 [1/0] via 30.0.0.20

Router 2

S 10.0.0.0/8 [1/0] via 30.0.0.10

S 20.0.0.0/8 [1/0] via 30.0.0.10

C 30.0.0.0/8 is directly connected, serial 2/0

C 40.0.0.0/8 is directly connected, FastEthernet 0/0

Ping messages

Pc > Ping 40.0.0.1

Pinging 40.0.0.1 with 32 bytes of data

Request timed out.

Reply from 40.0.0.1: bytes = 32 time = 2ms TTL = 125

Reply from 40.0.0.1: bytes = 32 time = 2ms TTL = 125

Reply from 40.0.0.1: bytes = 32 time = 2ms TTL = 125

Ping statistics for 40.0.0.1

Packets sent = 4, Recived = 3, lost = 1 (25% loss)

Approximate round trip times in milli-seconds

minimum = 2ms, maximum = 2ms, Average = 2ms

Observation:

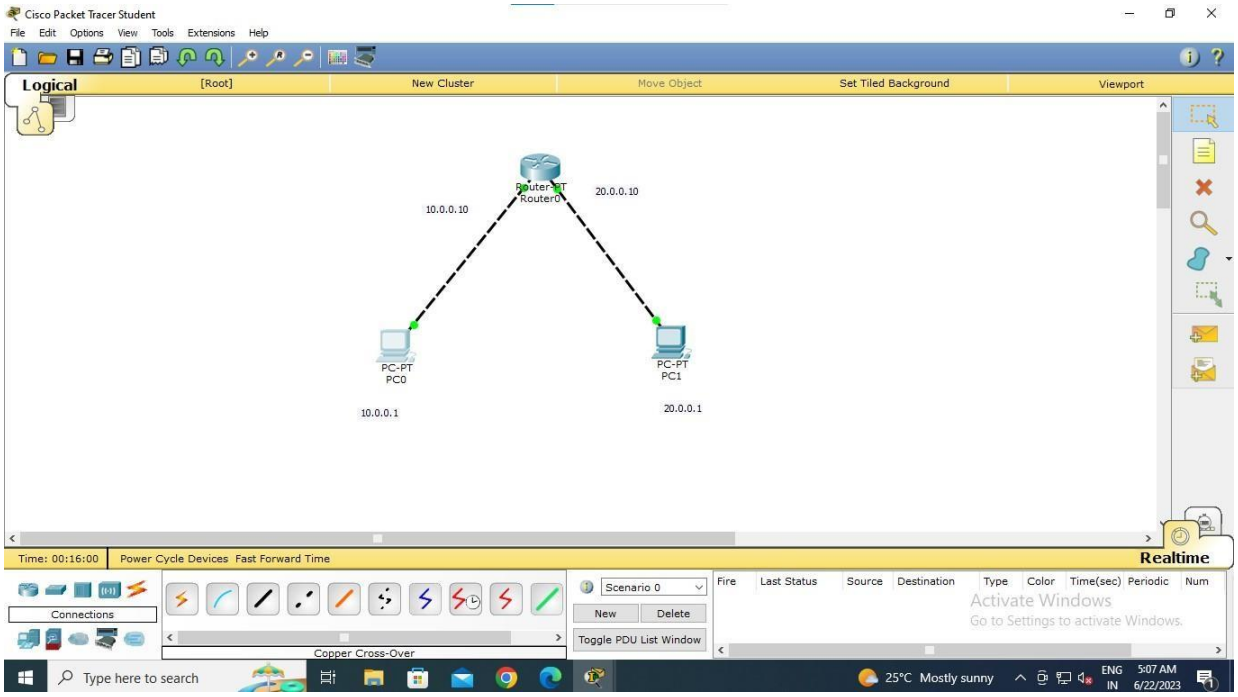
In first Ping destination host was unreachable as Router 0 has no knowledge about the network 30.0.0.0 and 40.0.0.0 & the packets got stuck or lost.

After this ip route is explicitly

Now on pinging there is 25% loss in first time, the following one's has no loss

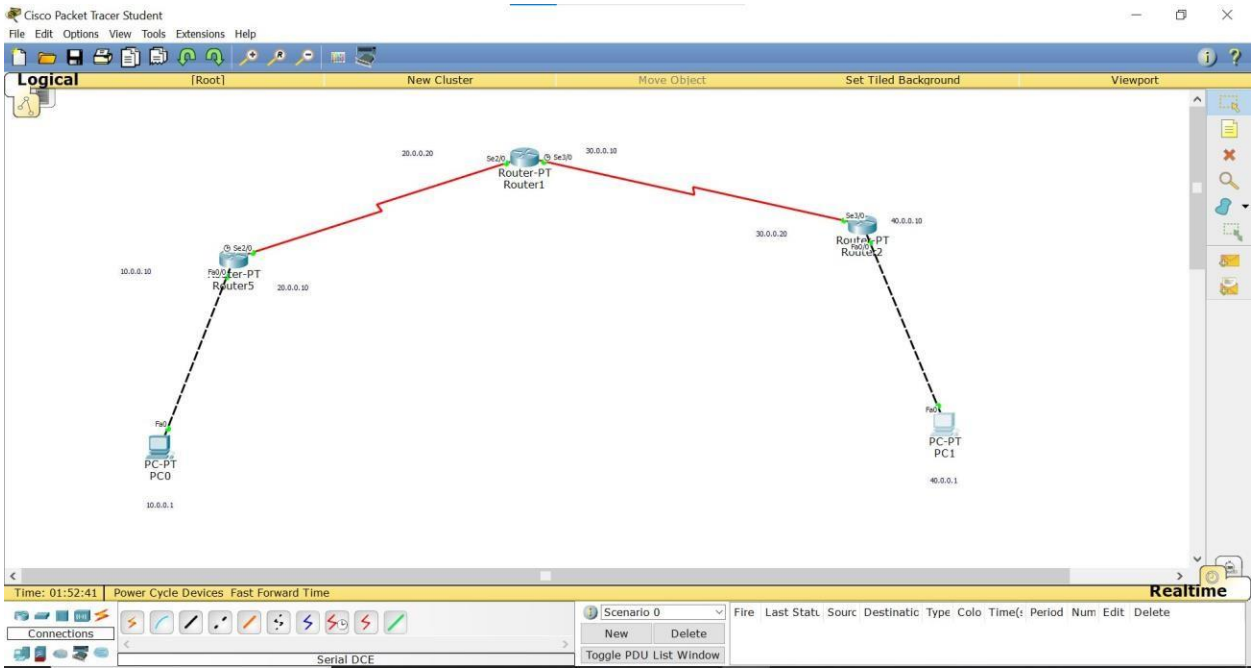
Output :

TOPOLOGY:

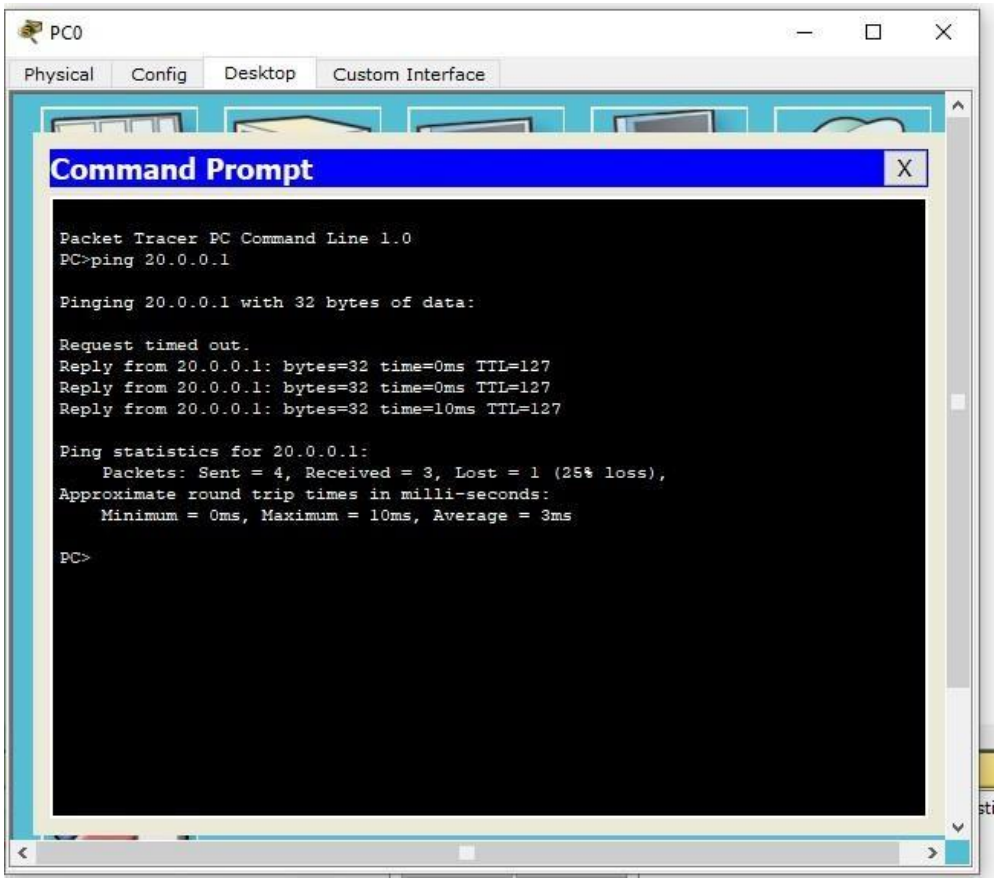


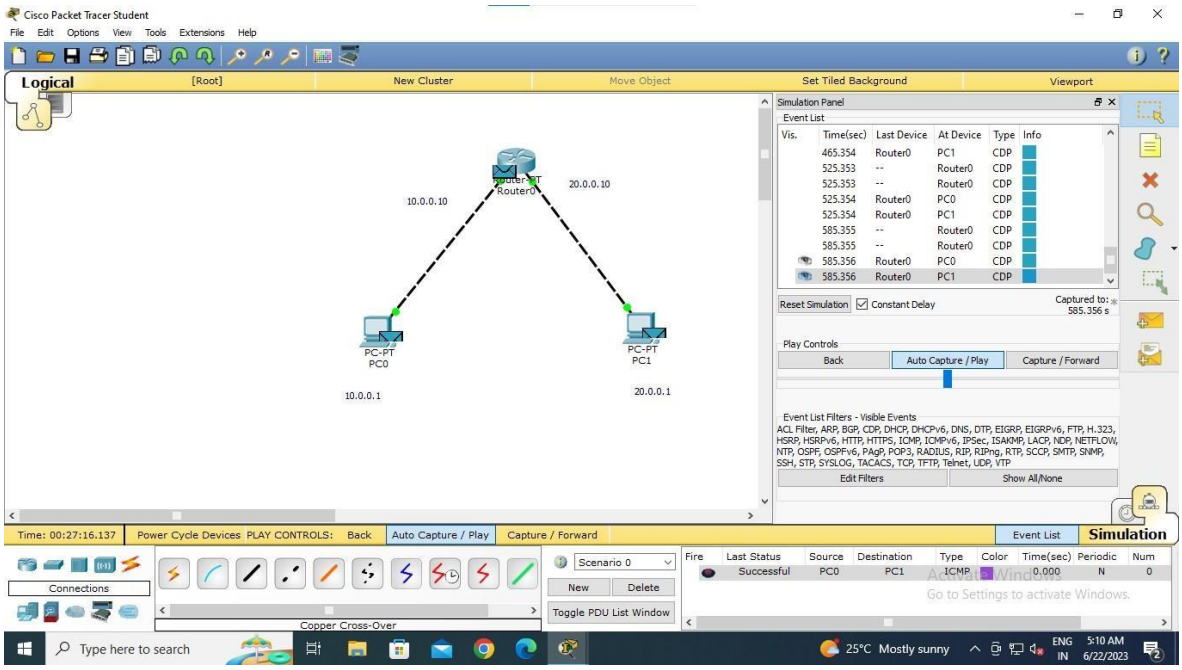
PROGRAM 2.1

PROGRAM 2.2

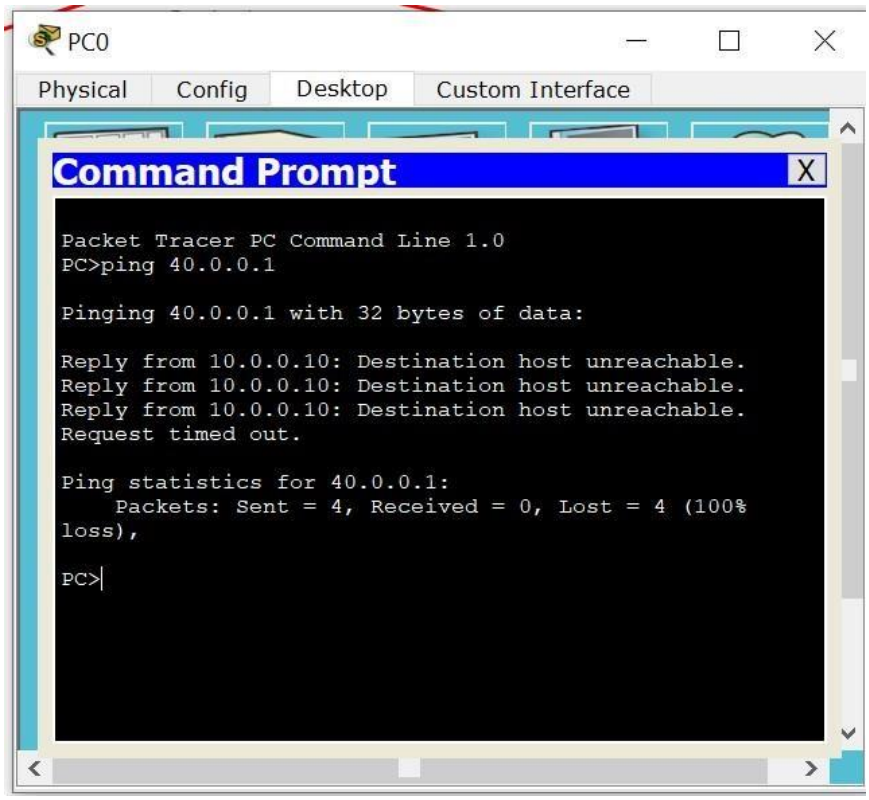


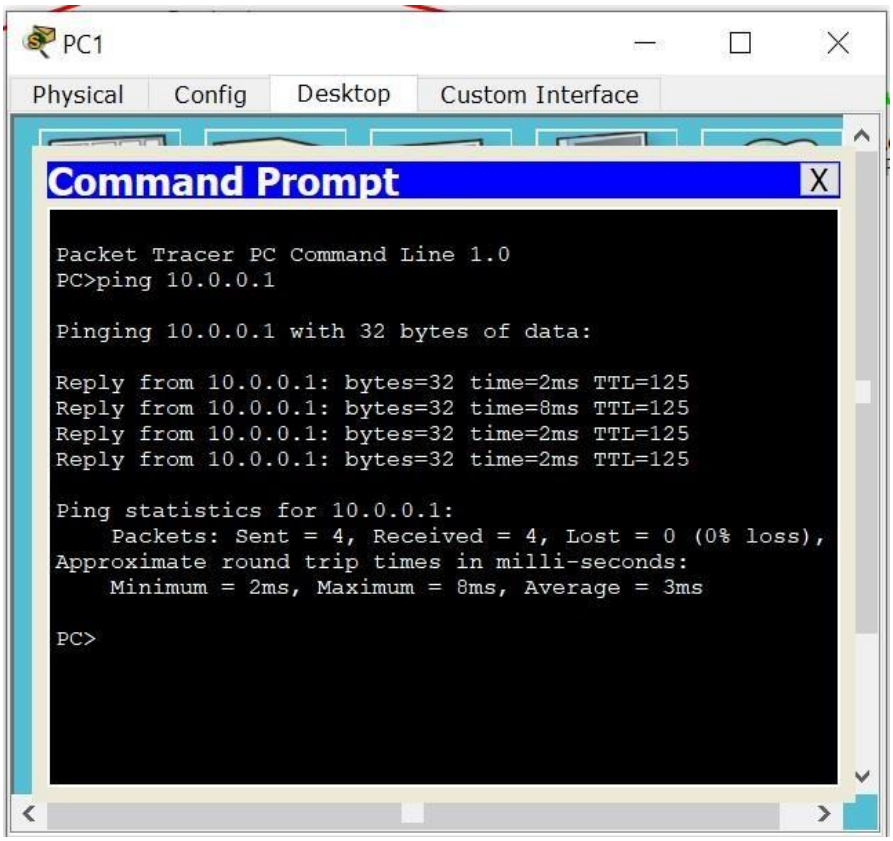
PROGRAM 2.1

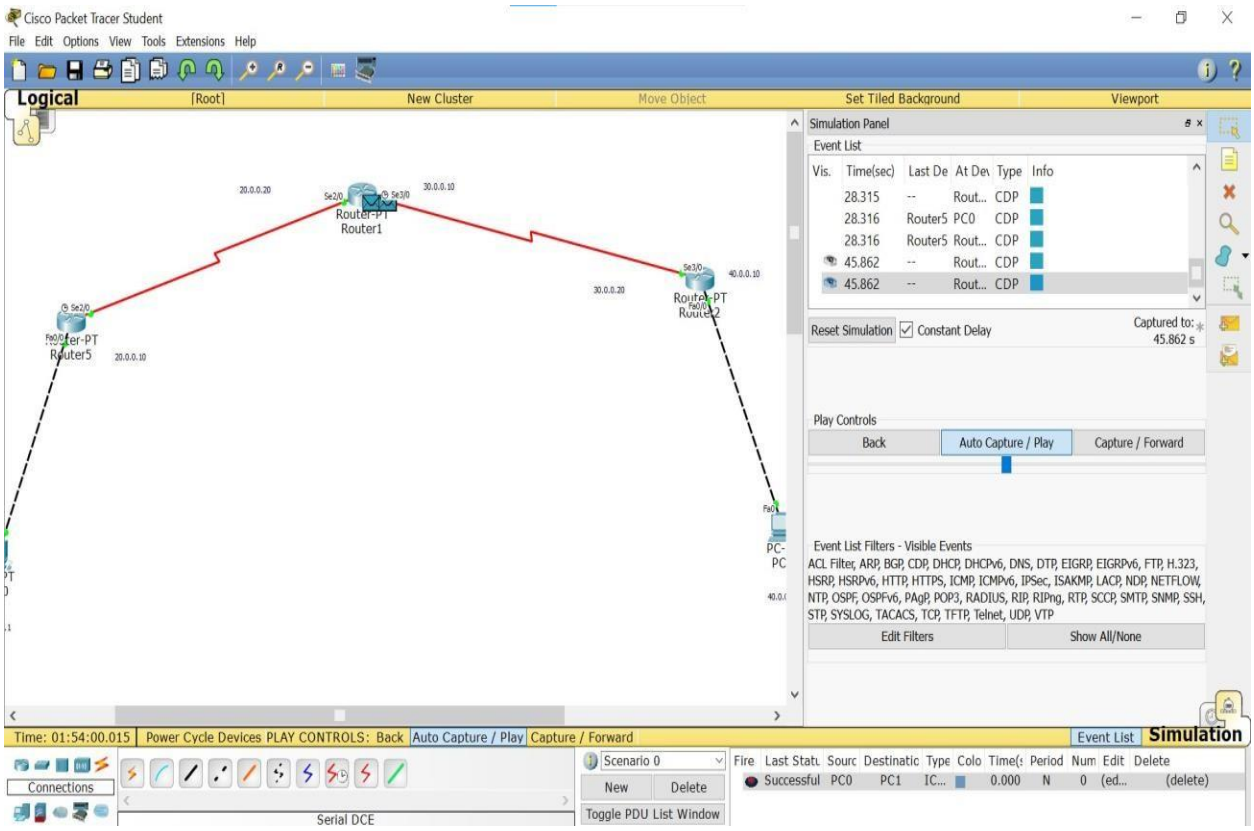

PC0
Physical
Config
Desktop
Custom Interface
Command Prompt
X
Packet Tracer PC Command Line 1.0
PC>ping 20.0.0.1
Pinging 20.0.0.1 with 32 bytes of data:
Request timed out.
Reply from 20.0.0.1: bytes=32 time=0ms TTL=127
Reply from 20.0.0.1: bytes=32 time=0ms TTL=127
Reply from 20.0.0.1: bytes=32 time=10ms TTL=127
Ping statistics for 20.0.0.1:
Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 10ms, Average = 3ms
PC>


Cisco Packet Tracer Student
File Edit Options View Tools Extensions Help
Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
10.0.0.10
20.0.0.10
Router-PT
Router0
PC-PT
PC0
PC-PT
PC1
10.0.0.1
20.0.0.1
Simulation Panel
Event List
Reset Simulation
Constant Delay
Play Controls
Back
Auto Capture / Play
Capture / Forward
Edit Filters
Show All/None
Time: 00:27:16.137
Power Cycle Devices PLAY CONTROLS: Back
Auto Capture / Play
Capture / Forward
Event List
Simulation
Connections
Copper Cross-Over
Scenario 0
New
Delete
Toggle PDU List Window
Fire
Last Status
Source
Destination
Type
Color
Time(sec)
Periodic
Num
Successful
PC0
PC1
ICMP
0.000
N
0
Type here to search
25°C Mostly sunny
ENG
IN
5:10 AM
6/22/2023

PROGRAM 2.2


PC0
Physical
Config
Desktop
Custom Interface
Command Prompt
X
Packet Tracer PC Command Line 1.0
PC>ping 40.0.0.1
Pinging 40.0.0.1 with 32 bytes of data:
Reply from 10.0.0.10: Destination host unreachable.
Reply from 10.0.0.10: Destination host unreachable.
Reply from 10.0.0.10: Destination host unreachable.
Request timed out.
Ping statistics for 40.0.0.1:
Packets: Sent = 4, Received = 0, Lost = 4 (100%
loss),
PC>


PC1
Physical
Config
Desktop
Custom Interface
Command Prompt
X
Packet Tracer PC Command Line 1.0
PC>ping 10.0.0.1
Pinging 10.0.0.1 with 32 bytes of data:
Reply from 10.0.0.1: bytes=32 time=2ms TTL=125
Reply from 10.0.0.1: bytes=32 time=8ms TTL=125
Reply from 10.0.0.1: bytes=32 time=2ms TTL=125
Reply from 10.0.0.1: bytes=32 time=2ms TTL=125
Ping statistics for 10.0.0.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 2ms, Maximum = 8ms, Average = 3ms
PC>


Cisco Packet Tracer Student
File Edit Options View Tools Extensions Help
Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
Router-PT
Router1
Router-PT
Router2
Router-PT
Router5
PC-PT
PC
20.0.0.20
30.0.0.10
30.0.0.20
40.0.0.10
20.0.0.10
Simulation Panel
Event List
Vis. Time(sec) Last De At De Type Info
28.315 -- Rout... CDP
28.316 Router5 PC0 CDP
28.316 Router5 Rout... CDP
45.862 -- Rout... CDP
45.862 -- Rout... CDP
Reset Simulation
Constant Delay
Captured to: 45.862 s
Play Controls
Back
Auto Capture / Play
Capture / Forward
Event List Filters - Visible Events
ACL Filter, ARP, BGP, CDP, DHCP, DHCPv6, DNS, DTP, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPSec, ISAKMP, LACP, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, RADIUS, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, VTP
Edit Filters
Show All/None
Time: 01:54:00.015
Power Cycle Devices PLAY CONTROLS: Back
Auto Capture / Play
Capture / Forward
Event List
Simulation
Connections
Serial DCE
Scenario 0
New
Delete
Toggle PDU List Window
Fire Last Stat. Sourc Destinatic Type Colo Time(s Period Num Edit Delete
Successful PC0 PC1 IC... 0.000 N 0 (ed... (delete)