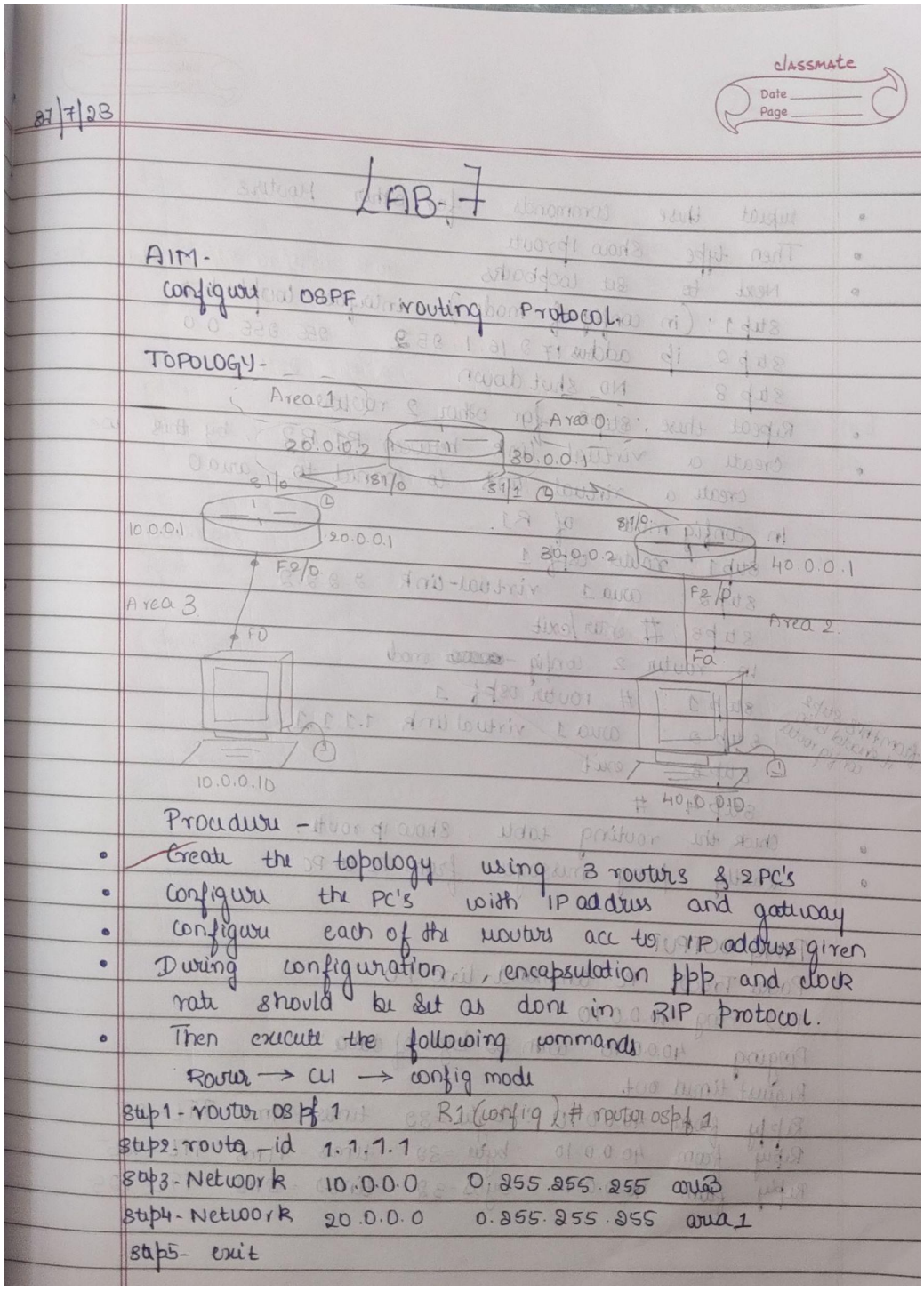
WEEK 7

Configure OSPF routing protocol.

OBSERVATION:



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LAB-7

AIM-
Configure OSPF routing Protocol.

TOPOLOGY-

Procedure -

- Create the topology using 3 routers & 2 PC's
- Configure the PC's with IP address and gateway
- Configure each of the routers acc to IP address given
- During configuration, encapsulation ppp and clock rate should be set as done in RIP protocol.
- Then execute the following commands

Router → CLI → config mode

Step1 - router ospf 1 R1(config)# router ospf 1
Step2 - router-id 1.1.1.1
Step3 - Network 10.0.0.0 0.255.255.255 area 3
Step4 - Network 20.0.0.0 0.255.255.255 area 1
Step5 - exit

- Repeat these commands for other Routers.
- Then type show ip route.
- Next to set loopbacks go to interface s1/0, & then do these

step 1 : (in config-if mode) interface loopback 0
step 2 : ip address 172.16.1.252 255.255.0.0
step 3 : NO shut down

- Repeat these steps for other 2 routers
- Create a virtual link between R1, R2, by this we create a virtual link to connect to area 0.

In config mode of R1.

step 1 : router ospf 1
step 2 : area 1 virtual-link 2.2.2.2
step 3 : # enter/exit

In router 2 config - mode

step 1 : # router ospf 1.
step 2 : area 1 virtual link 1.1.1.1
step 3 : exit
step 4 : #

on this step2 it should be in config router

- Check the routing table, show ip route.
- Lastly ping messages from PC to PC

PING OUTPUT-

Packet Tracer PC command-line 1.0
PC> Ping 40.0.0.10
Pinging 40.0.0.10 with 32 bytes of data:
Request timed out
Reply from 40.0.0.10 : bytes=32 time=11ms TTL=125
Reply from 40.0.0.10 : bytes=32 time=11ms TTL=125
Reply from 40.0.0.10 : bytes=32 time=8ms TTL=125

Ping statistics for 40.0.0.10:
Packets Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
Minimum = 8ms, Maximum = 11ms, Average = 10ms

OBSERVATION:

- OSPF is a link-state routing protocol that is used to find the best path between source & destination router using its own SPF Algorithm.
- This network is divided into 4 areas. where area0 is the backbone.
- After we make the virtual-link between the area which is not connected to the backbone area, we can ping messages succesfully.

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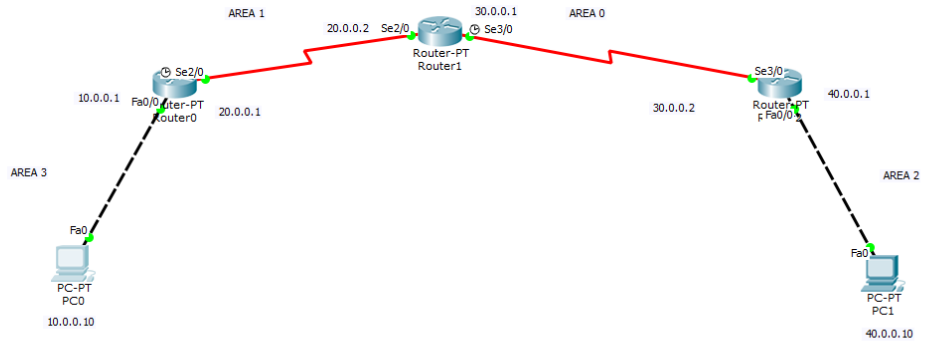
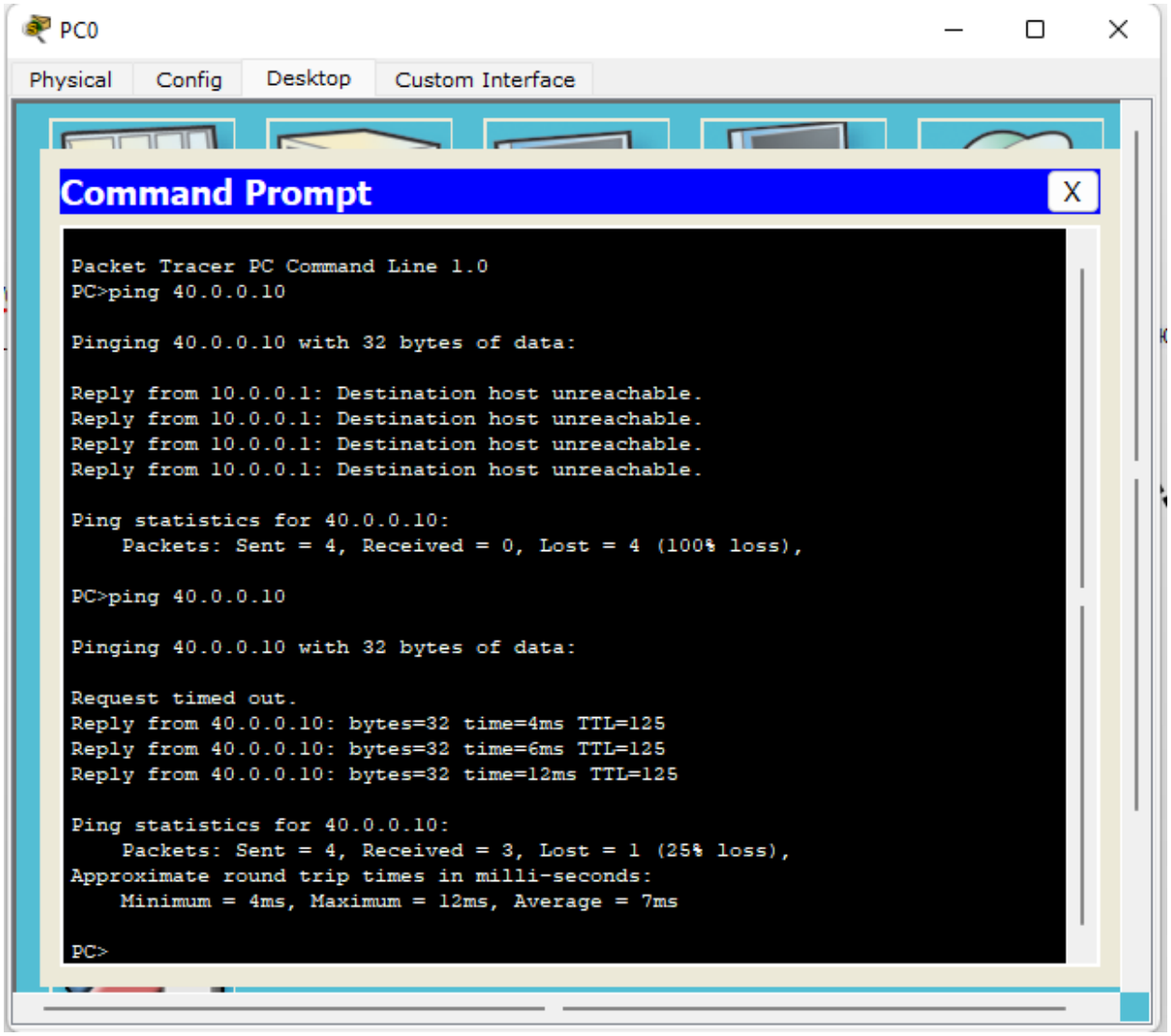
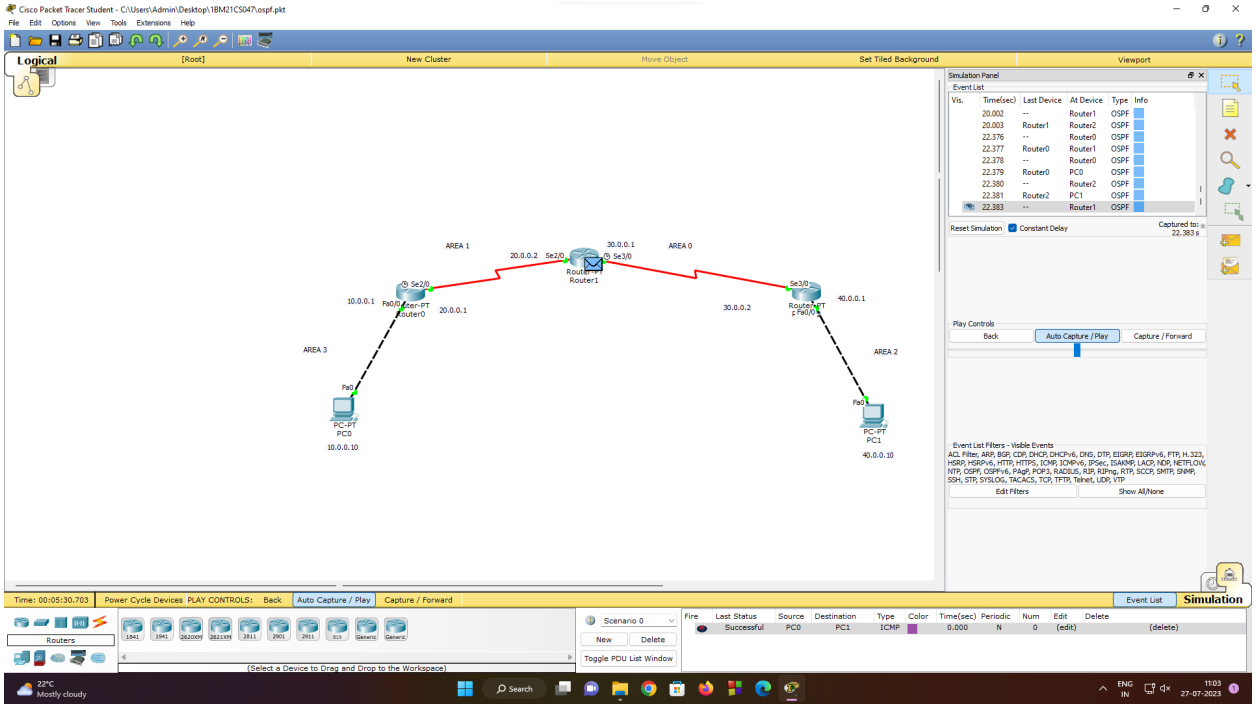
TOPOLOGY:



OUTPUT:




Cisco Packet Tracer Student - C:\Users\Admin\Desktop\1BM21CS047\ospf.pkt
File Edit Options View Tools Extensions Help
Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
AREA 1
AREA 0
AREA 3
AREA 2
20.0.0.2
Se2/0
30.0.0.1
Se3/0
Router-PT
Router1
Se2/0
10.0.0.1
Fa0/0
Router-PT
Router0
20.0.0.1
30.0.0.2
Se3/0
Router-PT
Fa0/0
40.0.0.1
Fa0
PC-PT
PC0
10.0.0.10
Fa0
PC-PT
PC1
40.0.0.10
Simulation Panel
Event List
Vis.
Time(sec)
Last Device
At Device
Type
Info
20.002 -- Router1 OSPF
20.003 Router1 Router2 OSPF
22.376 -- Router0 OSPF
22.377 Router0 Router1 OSPF
22.378 -- Router0 OSPF
22.379 Router0 PC0 OSPF
22.380 -- Router2 OSPF
22.381 Router2 PC1 OSPF
22.383 -- Router1 OSPF
Reset Simulation
Constant Delay
Captured to: 22.383 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: 00:05:30.703
Power Cycle Devices PLAY CONTROLS: Back Auto Capture / Play Capture / Forward
Event List
Simulation
Routers
(Select a Device to Drag and Drop to the Workspace)
Scenario 0
New
Delete
Toggle PDU List Window
Fire
Last Status
Source
Destination
Type
Color
Time(sec)
Periodic
Num
Edit
Delete
Successful PC0 PC1 ICMP 0.000 N 0 (edit) (delete)
22°C
Mostly cloudy
Search
ENG
IN
11:03
27-07-2023