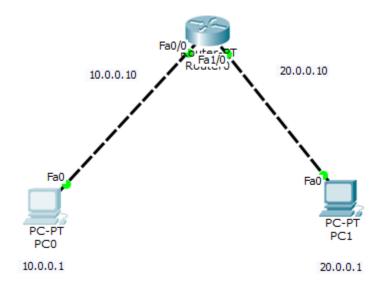
LAB2: Configure IP address to routers in packet tracer. Explore the following messages: ping responses, destination unreachable, request timed out, reply

2A: Topology with 1 router and 2 PCs:



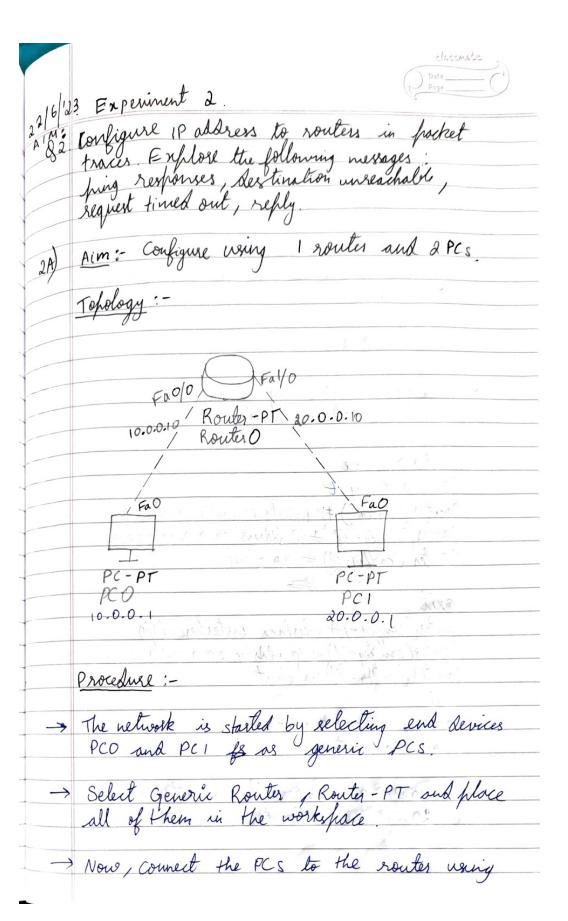
```
Continue with configuration dialog? [yes/no]: n
Press RETURN to get started!
Router>enable
Router#config t
Enter configuration commands, one per line. End with {\tt CNTL/Z}.
Router(config) #interface fastethernet0/0
Router(config-if) #ip address 10.0.0.10 255.0.0.0
Router(config-if) #no shut
Router(config-if)#
%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) #interface fastethernet1/0
Router(config-if) #ip address 20.0.0.10 255.0.0.0
Router(config-if) #no shut
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
exit
Router(config) #exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
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
     10.0.0.0/8 is directly connected, FastEthernet0/0
   20.0.0.0/8 is directly connected, FastEthernet1/0
```

Router#

```
Command Prompt
```

```
Χ
```

```
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=1ms 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 = 0ms
PC>ping 20.0.0.1
Pinging 20.0.0.1 with 32 bytes of data:
Reply from 20.0.0.1: bytes=32 time=0ms TTL=127
Ping statistics for 20.0.0.1:
     Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```



Copper Goss - Over Cable PCO > Fastelhernet 0 to Fastelhernet 0/0 PCI > Fastethernet 0 to Fortethernet 1/0 Setup IP address of the end PCD devices PCO and PCI, by clicking config > FastEtherneto -> I Puddees PCO -> 10.0.0.16 PC 1-> 20.0-0.1 -> Configure router by opening Interface (CLI). In router O Command Line Router > enable Router # config t

Routes (config) # Interface fortetherned 0/0

Router (config-if) # iP address 10.0.0.10 255.0.0.0

Router (config-if) # no shut oxit Router (config m) # interface fastethernel 1/0
Routes (config - if) # ip address 20.0.0.10 255.0.0.0
Routes (config - if) no shut Routes (config) # enit show ip route C 20.0.0.0/8 is Sirectly connected, Fort Ethernet 0/0



> Setup the gelgateway for PCO and PCI PC1: 20.0.0.10 Observation: -> Green lights oppear on the wires when no shut commands are wreiten which indicate that they are ready for data transmission Ping Dulput In PCO: -> When PCI is pings for the first time, there is 25% loss. -> From went ping, there are no losses Ping output in PCO:-PC7 ping 20.0.0.1 Pinging 20.0.0.1 with 32 bytes of Late: Regnest timed out Reply from 20.0.0.1: bytes = 32 time = 0 mg TTL = 127 Reply from 20.0.0.1: bytes = 32 time = 0 mg TTL = 127 Reply from 20.0.0.1: bytes = 32 time = 0 mg TTL = 127 RPing statistics for 20.0-0.1:

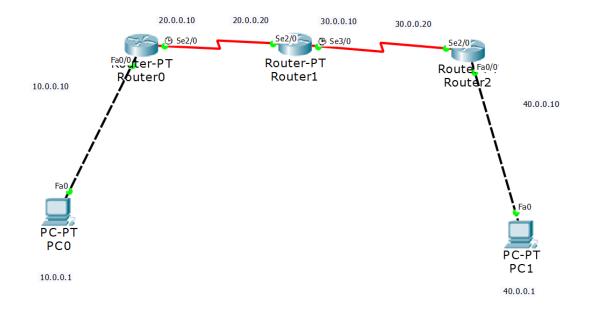
Packets: Sent = 4, Received = 3, Loss = 1 (25% loss)

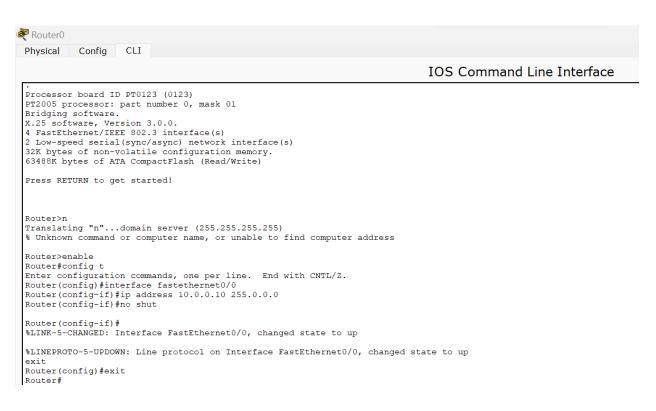
Approximate round trip times in milli-seconds:

Minimum = One, Maximum = Ims, Average = Ones

2B:

Topology:





```
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config) #interface serial2/0
Router(config-if) #ip address 20.0.0.10 255.0.0.0
Router(config-if) #no shut
Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
exit
Router (config) #exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
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
        D - LIGHP, EX - EIGHP 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
     10.0.0.0/8 is directly connected, FastEthernet0/0
C 20.0.0.0/8 is directly connected, Serial2/0
Router#
```

IOS Command Line Interface

```
Bridging software.
X.25 software, Version 3.0.0.
4 FastEthernet/IEEE 802.3 interface(s)
2 Low-speed serial(sync/async) network interface(s) 32K bytes of non-volatile configuration memory.
63488K bytes of ATA CompactFlash (Read/Write)
Press RETURN to get started!
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z. Router(config) #interface serial 2/0
Router(config-if) #ip address 20.0.0.20 255.0.0.0
Router(config-if) #no shut
%LINK-5-CHANGED: Interface Serial2/0, changed state to down
Router(config-if)#exit
Router(config) #interface serial 3/0
Router(config-if)#ip address 30.0.0.10 255.0.0.0 Router(config-if)#no shut
%LINK-5-CHANGED: Interface Serial3/0, changed state to down
Router(config-if)#exit
Router (config) #
%LINK-5-CHANGED: Interface Serial2/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
exit
%SYS-5-CONFIG_I: Configured from console by console
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
     20.0.0.0/8 is directly connected, Serial2/0
Router#
```

IOS Commar

```
Press RETURN to get started!
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config) #interface serial2/0
Router(config-if) #ip address 30.0.0.20 255.0.0.0
Router(config-if) #no shut
Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
exit
Router(config) #interface fastethernet0/0
Router(config-if) #ip address 40.0.0.10 255.0.0.0
Router(config-if) #no shut
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
exit.
Router(config) #show ip route
% Invalid input detected at '^' marker.
Router (config) #exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
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
    30.0.0.0/8 is directly connected, Serial2/0
    40.0.0.0/8 is directly connected, FastEthernet0/0
Router#
```

Ping output before static routing:

```
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>
```

Router 0:

```
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config) #ip route 30.0.0.0 255.0.0.0 20.0.0.20
Router(config)#ip route 40.0.0.0 255.0.0.0 20.0.0.20
Router (config) #exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
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
     10.0.0.0/8 is directly connected, FastEthernet0/0
     20.0.0.0/8 is directly connected, Serial2/0
     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#
```

Router 1:

```
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config) #ip route 10.0.0.0 255.0.0.0 20.0.0.10
Router(config) #ip route 40.0.0.0 255.0.0.0 30.0.0.20
Router (config) #exit
Router#
%SYS-5-CONFIG I: Configured from console by console
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
    10.0.0.0/8 [1/0] via 20.0.0.10
     20.0.0.0/8 is directly connected, Serial2/0
     30.0.0.0/8 is directly connected, Serial3/0
    40.0.0.0/8 [1/0] via 30.0.0.20
Router#
```

Router 2:

```
Router>enable
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config) #ip route 10.0.0.0 255.0.0.0 30.0.0.10
Router(config) #ip route 20.0.0.0 255.0.0.0 30.0.0.10
Router (config) #exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
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
     10.0.0.0/8 [1/0] via 30.0.0.10
     20.0.0.0/8 [1/0] via 30.0.0.10
     30.0.0.0/8 is directly connected, Serial2/0
     40.0.0.0/8 is directly connected, FastEthernet0/0
Router#
```

Ping output after static routing:

```
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, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 2ms, Average = 2ms
PC>ping 40.0.0.1
Pinging 40.0.0.1 with 32 bytes of data:
Reply from 40.0.0.1: bytes=32 time=35ms TTL=125
Reply from 40.0.0.1: bytes=32 time=4ms TTL=125
Reply from 40.0.0.1: bytes=32 time=27ms TTL=125
Reply from 40.0.0.1: bytes=32 time=13ms TTL=125
Ping statistics for 40.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 4ms, Maximum = 35ms, Average = 19ms
PC>
```

2B) Aima Configure using 3 routers and 2 PCs. Topology: 30-0-0-20 30-0-0-10 0.0.0.10 20.0.0.20 Fa0/0 Se 2/0 Routes-PT Routes - PT Router-PT Routes 2 Router Routes 0 40.0.0.10 01.0.0.01 1 Fa0 Fal PC-PT PC-PT PCI PCO 40.0-0-1 10.0.0.1 Procedue: -> The Network is Started by selecting and Devices PCO and PCI as generic PCS. -> Select 3 generic - routes, Router PT-s and place of them on the workspace. -> Connect PO to Router O and RI to Router 2 using copper cross over cable. -> Setup the IP address of the end devices PCO fPCI,



by clicking config > FastEthernel O > IP address PCO > 10.0.0.1 PC1 > 40.0.0.1 Configure the routers by opening (LI. In Router 0:-Router Tenable Router (config)# interface fastithernet 0/0
Router (config) + ip address 10.0.0.10 255.0.0.0
Router (config-if) # no shut
enit Router (config) # intesface serial 2/0
Router (config-if) # ip address 20.0.0-10 255.0.0-0
Router (config-if) # no Shut esuit exit In Routes 1:-Routes > enable Router (config of) # witerface serial 2/0 Router (config-if) # ip address 20.0.0.20 255.0.0.0

Router (config-if) # no shut

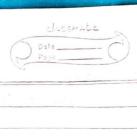
Router (config-if) # enit Router (config) # interface serial 3/0
Routes (config-if) # ip address 30.0.0.10 255.0.0.0
Routes (onfig-if) # no shut crit

Date Puce
In Router 2:-
Rouler > enable
p + 2-1
Koutes (co. lia - 11) It y autous
Roules (Config 4) . The state
and total
Router (config) # interfore fastethernet 0/0 Ponter (config-if) # ip address 40.0.0.10 255.0.0.0 Router (config-if) # no Shut
Routes (configurate) # no Shut
enit
enit → Set up Gateway for P(0+PC1 · P(0: 10.0.0.10) + 1000 · P(1:40.0.0.10)
IP Poute table:
Router 0:
Roules O.
Routes # Show ip route
to Ent Suprend 0/0
C 10.0.0.0/8 is directly connected, Fast Ethernel 0/0 C 20.0.0.0/8 is directly connected, Strial 2/0
C 20.0.0,0/8 is directly connected, social of
TO ASSOCIATE
Routes 1:-
Routes # Show ip route dissettly connected, Serial 2/0
C 20.0.0/8 is directly connected, Serial 2/0 C 30.0.0/8 is directly connected, Serial 3/0
C 50,0,0,0,5 35 www.
Parter 2.
Routes 2. Route # Show ip soute connected, Serial 2/0
Routes 2., Routes # Show ip soute C 30.0.0.0/8 is directly connected, Serial 2/0 C 40.0.0.0/8 is directly connected, FastEthernet 0/0
C 40.0.0.0/8 is directly connected, taxis neuros of



	Ping Dutfut: In PCO
	Ping Dulfut: In PCO PC ping to.o.o.1
F	Dinging 40.0.0.1 with 32 bytes of data:
	refly from 10.0.0.10: Destination hast unreachable
	Refly from 10.0.0.10: Destination host unreachable Refly from 10.0.0.10: Destination host unreachable ofly from 10.0.0.10: Destination host unreachable
0	effy from 10.0.0.10: Destination host unreachable
	ling staticative for 40.0-0.1:
	fing staticalics for 40.0.0.1: Parkels: Sert = 4, Received = 0, Lost = 4 (100% loss)
	(100)
	Of Observation:
	GO 0 - 3-11000011 1
>	Coeper lighte applear
	Common to so the wind to the the
	able her are 1 to travers with they
	Green lights appear on the wires when no shut commands are wasten indicating that they are ready for data transmission
	Here, Sertination host was unreachable as Router O has no knowledge about the network
	30.0.0.0 and 40.0.0.0 and the Packets got stuck. We need to set ip route explicitly.
	We used to Set in south a live les got stucke.
	f store expricitly.
	No house the second second
\rightarrow	Now configure the Routes which does not have dots of the other network a sald the network in CLI
	Soto of the other witness and the water
	b the the think in CLI
	In Roules 0:
	ip route 30.0.0.0 255.0.0.0 20.0.0.20
	ip sonte 40.0.010 255.0.0.0 20.0.0.20

22 0-0-10
20.0.0.10
30.0
The street of th
1000
30.0.0.10
30.0.0.10
-:
ected, FastEtheret of
ected, Serial 2/0
0.0.20
0.0.20
and a short of more
e with the
A Section Contracts
10:17 4 10:00
cted Serial 2/0
ected, Serial 3/0
0.20
I Called No
. 0.10
0.0.10
1,0-0.1
ected, Fast Thernet 0/0



		lossmate
	O Da	e
0.44.4	<u> </u>	
Ping Ocethut now:		42.4
PC) ping 40.0.0.1		\
Pinging 40.0.0.1 with	32 bytes of data	:
Reply from 40.0.0.1: byle Reply from 40.0.0.1: byle Reply from 40.0.0.1: byle)	
Reply from 40.0.0.1: by	es = 32 fine = dms	TTC=125
Refly from 40.0.0.1: byt	Es=32 time=2ms	7TL =125
Reply from 40.0.0.1: byl	3 = 32 time= Jms	TTL=125
11		
Ping statistics for 40.0	.0.1:	
Ping statistics for 40.0 & Packets: Sent = 4, Approximate round trip. Minimum = 2ms, Maximum	Received = 3, Lost	=1 (25% loss
Approximate round trip.	fines in milli-	seconds:
Minimum = 2 ms, Maximu	m=2ms, Average	=2 mg
,	0	
Of		
Now, when PCI is fring Hhere is 25% loss From next fring, there are	ged for the fire	t time,
there is 25% loss		
-> From next fring, there ar	e no losses.	
/ , 3.		
3		
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		2. 2. 2. 3.
		Y-24 y - 3
	Mar X 1 A Land	