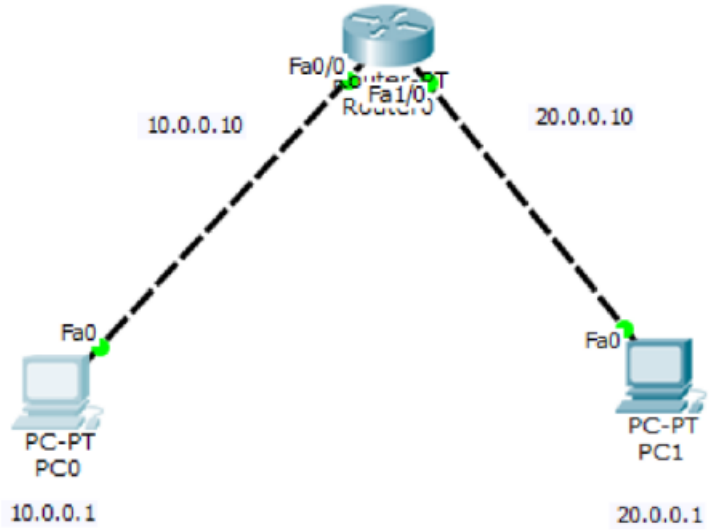
Experiment - 2

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



Command Prompt

```
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
```

```
%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

C    10.0.0.0/8 is directly connected, FastEthernet0/0
C    20.0.0.0/8 is directly connected, FastEthernet1/0
```

Command Prompt

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

Ping statistics for 40.0.0.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

```
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

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

S    10.0.0.0/8 [1/0] via 20.0.0.10
C    20.0.0.0/8 is directly connected, Serial2/0
C    30.0.0.0/8 is directly connected, Serial3/0
S    40.0.0.0/8 [1/0] via 30.0.0.20
Router#
```

```
Router(config)#ip route 20.0.0.0 255.0.0.0 30.0.0.10
Router(config)#ip route 10.0.0.0 255.0.0.0 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

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, Serial2/0
C    40.0.0.0/8 is directly connected, FastEthernet0/0
Router#
```

```
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)#show ip route
                ^
% Invalid input detected at '^' marker.

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

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    20.0.0.0/8 is directly connected, Serial2/0
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#
```

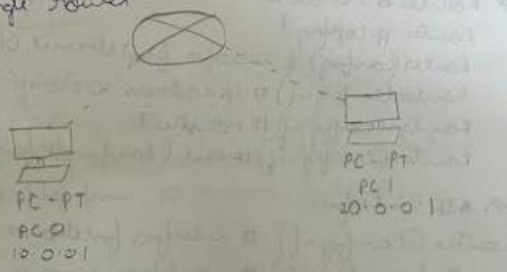
```
PC>ping 40.0.0.1

Pinging 40.0.0.1 with 32 bytes of data:

Reply from 40.0.0.1: bytes=32 time=16ms TTL=125
Reply from 40.0.0.1: bytes=32 time=2ms TTL=125
Reply from 40.0.0.1: bytes=32 time=12ms TTL=125
Reply from 40.0.0.1: bytes=32 time=23ms 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 = 2ms, Maximum = 23ms, Average = 13ms
```

Lab-2

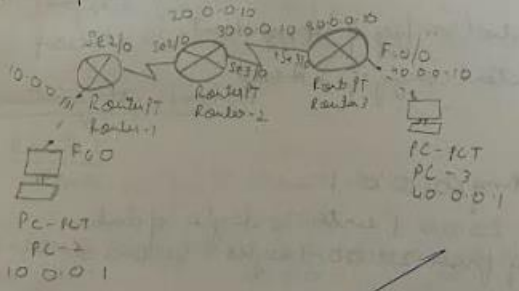
Aim :- To configure the address to route in packet tracer and explore the following messages: ping response, destination, unreachable, request timed out reply.

Topology :-

(i) Single router



(ii) Multiple router :-



Procedure

(i) Single router

→ Connect the 2 networks consisting of one end device each using a router as showing topology

→ Set the IP address and gateway for each end device

	IP address	Gateway
Device 1	10.0.0.1	10.0.0.10
Device 2	20.0.0.1	20.0.0.10

→ Configure the router using command line interface

- 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
  Router(config-if) # exit (exit interface)

For II interface

Router(config-if) # interface fastethernet 1/0
Router(config-if) # ip address 20.0.0.10 255.0.0.0
Router(config-if) # no shut
Router(config-if) # exit

O/P:

PC > Ping 20.0.0.1

Ping 20.0.0.1 with 32 bytes of data

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

Ping statistics for 20.0.0.1:

Packets sent = 4, Received = 4, Lost = 0

Approx round trip time in ms min = 0
max = 0 Avg = 0

(iv) Multiple Routes

→ Connect an end to end device of network 10.0.0.0 to II network 20.0.0.0 thro 3 routers shown in topology.

→ Configure the IP address gate way of II end device

→ Configure the Routers: Each router for each interface as followed for a single router in step 3 of the procedure.

Ping O/P

PC > Ping 40.0.0.1

Pinging 40.0.0.1 with 32 bytes of data

Reply from 10.0.0.10 destination

..

Ping stats for 40.0.0.1

Packets sent = 4, Received = 0, lost = 4

Routing the packets

Route 1

Router (config) # IP route 30.0.0.0 255.0.0.0 20.0.0.0

Router (config) # IP route 40.0.0.0 255.0.0.0 20.0.0.0

Route 2

Router (config) # IP route 10.0.0.0 255.000 30.0.0.0

Router (config) # IP route 20.0.0.0 255.0.0.0 30.0.0.0

O/P

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 = 7 ms
TTL = 125

" " " time = 11 ms

" " " time = 5 ms

Ping stats for 40.0.0.1

Packets sent = 4, Received = 3 lost = 1

Approx round trip time in ms:

~~Min time taken = 4 ms~~

Min = 4 ms Max = 11 ms Avg = 7 ms

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 = 13 ms
TTL = 125

" " time = 2 ms TTL = 125

" " time = 2 ms TTL = 125

" " time = 2 ms TTL = 125

Ping stats for 40.0.0.1

Packets sent = 4, received = 4, lost = 0

Approx round trip time in ms = 2 ms Max = 13 ms
Avg = 7 ms

30/8/2023

Observation:

observed different cases of Ping response such as destination unreached, request timed out & reply.