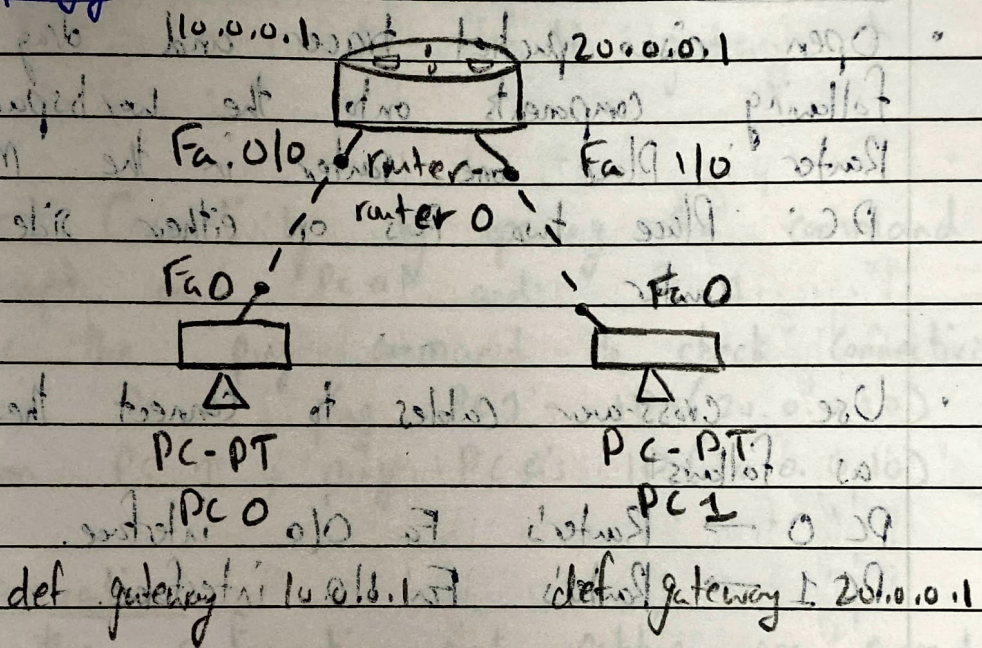Experiment-2a: Configure IP address to routers in a packet trace. Explore ping, responses, destination unreachable, request timeout.

Aim:- To connect two PC's on two different networks using a router.

Topology:

110.0.0.1   20.0.0.1

Fa.0/0 router   Fa 1/0
        router 0

Fa0   Fa0

PC-PT   PC-PT
PC 0   PC 1

def gateway: 10.0.0.1   default gateway: 20.0.0.1

1. PC 0 : Connected to router's interface Fa 0/0 using a cross-over cable.
IP address :   10.0.0.1
Default Gateway : 10.0.0.1

2. PC 1 : Connected to the (router's) interface Fa 1/0 using a cross-over cable.
IP address :   20.0.0.1
Default Gateway : 20.0.0.1

3. **Router:**
- Interface Fa 0/0 connected to PC 0
- Interface Fa 1/0 connected to PC 1
- IP address of Fa 0/0 : 10.0.0.1
- IP address of Fa 1/0 : 20.0.0.1

Procedure

- Open cisco packet tracer and drag the following components onto the workspace:
  Router : Place one router in the middle.
  PC : Place two PC's on either side of the router

- Use cross-over cables to connect the devices as follows:
  PC 0 → Router's Fa 0/0 interface.
  PC 1 → Router's Fa 1/0 interface.

- Configure the router by clicking on the router and enter the (CLI.)
  Assign IP addresses to the router interfaces:
  Router > enable
  Router # configure terminal
  Router (config) # interface fastethernet 0/0
  Router (config-if) # ip address 10.0.0.1 255.0.0.0
  Router (config-if) # no shutdown

  Router (config) # interface fastethernet 1/0
  Router (config-if) # ip address 20.0.0.1 255.0.0.0
  Router (config-if) # no shutdown

- Configure the PCs?

for PC0 -

- Click on PC0 and set the IP address to 10.0.0.10, subnet Mask to 255.0.0.0 and default gateway to 10.0.0.1

For PC 1:
- Click on PC 1 and set the IP address to 20.0.0.10, subnet Mask to 255.0.0.0 and default gateway to 20.0.0.1

- Test Connectivity by opening the command prompt on PC 0 and PC 1.
→ Use the ping command to check Connectivity:
→ From PC 0: ping PC 1's IP (20.0.0.10)
→ From PC 1, ping PC 0's IP (10.0.0.10)

Observation:
- If the configuration and cabling are correct, you will recieve successful ping replies b/w the two PCs.
- If there is no connectivity, troubleshoot by verifying: correct IP addressing, cabling type, both router interfaces are up and running.

- Routing table is observed as the following:
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, NI-OSPF NSSA external type I, N2-OSPF NSSA external type 2, E1-OSPF external type I, 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, Fast Ethernet 0/0
C 20.0.0.0/8 is directly connected, Fast Ethernet 1/0

• The ping results are as follows:

P 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=10 ms TTL=127
Reply from 20.0.0.10 bytes=32 time=10 ms TTL=127
Reply from 20.0.0.10 : byte = 32 time = 0 ms TTL=127
Reply from 20.0.0.10 : byte = 32 time = 0 ms TTL=127

Ping statistics for 20.0.0.10:
Packets Sent = 4, recieved = 4, lost = 0
Approximate round trip times in milli-seconds:
Minimum = 0 ms, Maximum = 0 ms, Average = 0 ms