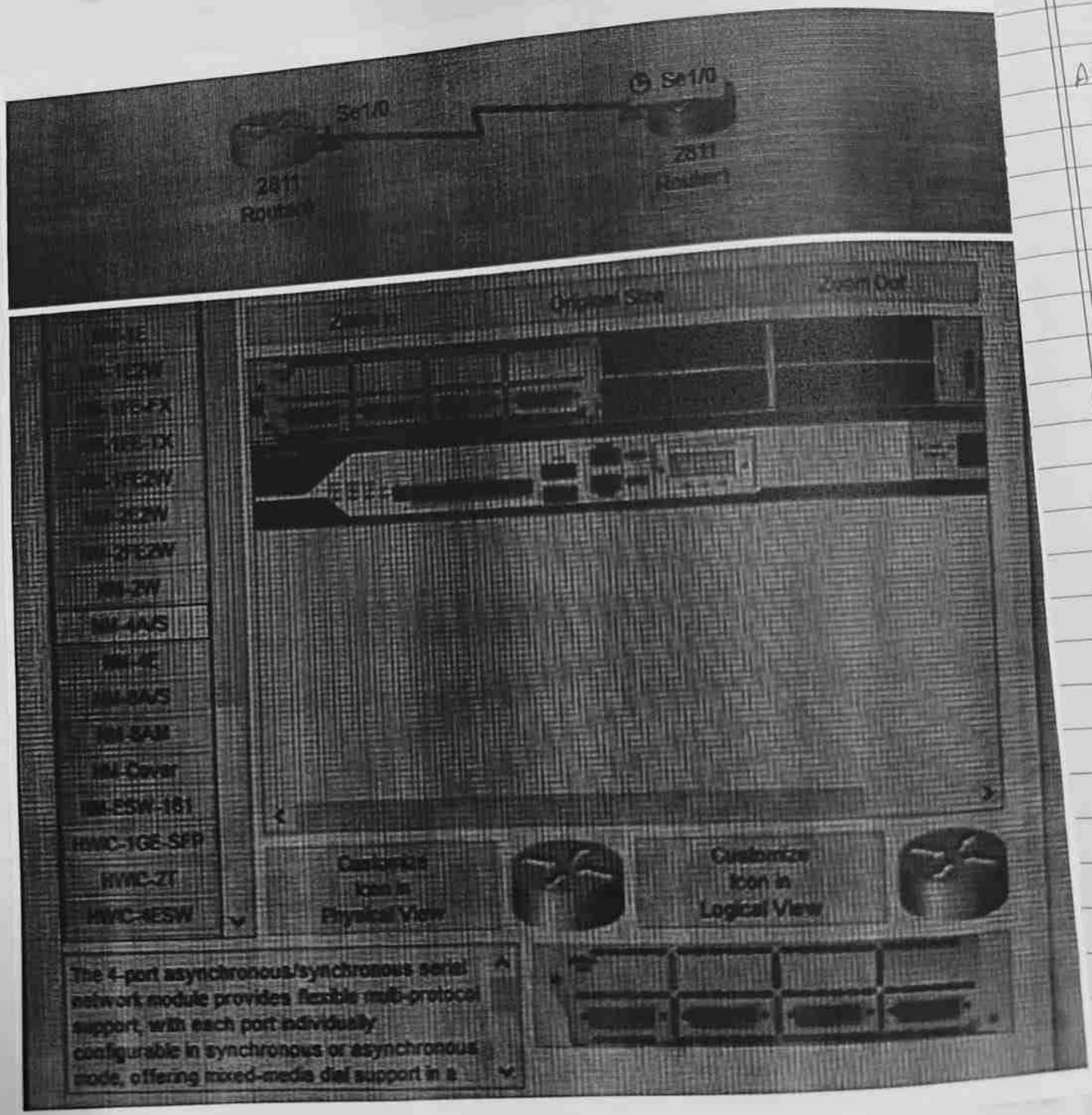

Se1/0
Se1/0
2811
Router0
2811
Router1
Zoom Out
NM-4E
NM-4AS
NM-8AM
NM-CIDS
NME-CSW-16T
HWIC-1GE-SFP
HWIC-2T
HWIC-4ESW
Customize
Icon in
Physical View
Customize
Icon in
Logical View
The 4-port asynchronous/synchronous serial network module provides flexible multi-protocol support, with each port individually configurable in synchronous or asynchronous mode, offering mixed-media dial support in a

Practical No: 1

Aim:- Basic connection connect the devices as per topology change the port in router are shown in the picture.

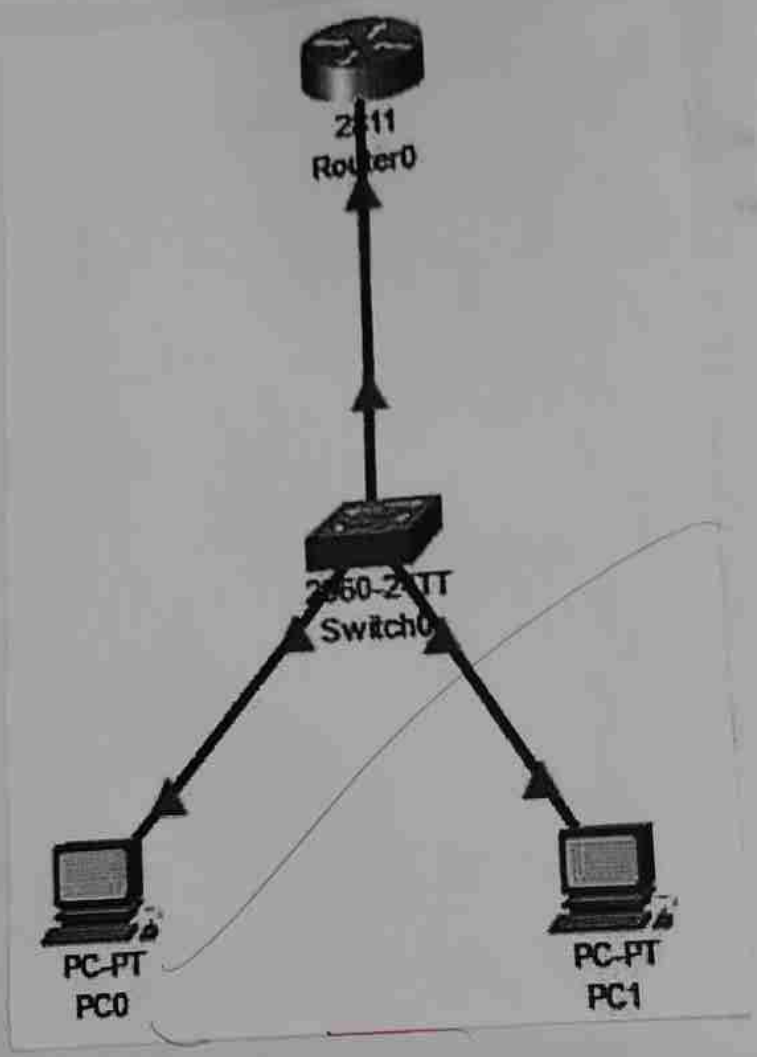
IP configuration:-

Router 0
config → serial I/O
Port status On
Ip Address: 10.0.0.1
Subnet Mask: 255.0.0.0

Router 1
config → serial I/O
Port status On
IP address: 10.0.0.2
subnet mask: 255.0.0.0

Note:- For router to router connection we need serial DTE wire and for serial DTE we need serial port NM-4A/S

Use simple PDU (Protocol Data Unit) to send the message from one device to another



Aim:-
Create
using

Connect

IP co

Router
config
Port s
IP ad
Subnet

PC0
Desktop
IP a
Subnet

PC1
DeskTop
IP a
Subnet

Use si
message

Aim:- Static IP Allocation
Create Basic network of two computer using appropriate network wire.

Connect the devices as per topology

IP configuration

Router 0
config → Fast Ethernet 0/0
Port status on
IP address : 192.168.01
Subnet mask : 255.255.255.0

PC0
Desktop → IP configuration → Static
IP address : 198.168.0.2
Subnet mask : 255.255.255.0

PC1
DeskTop → IP configuration → Static
IP address : 192.168.0.3
Subnet mask : 255.255.255.0

Use simple PDV (Protocol data unit) to send the message from one device to other

6

Physical Config Desktop Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

DHCP Static

IP Address 10.0.0.4

Subnet Mask 255.0.0.0

Default Gateway 10.0.0.2

DNS Server 10.0.0.1

IPv6 Configuration

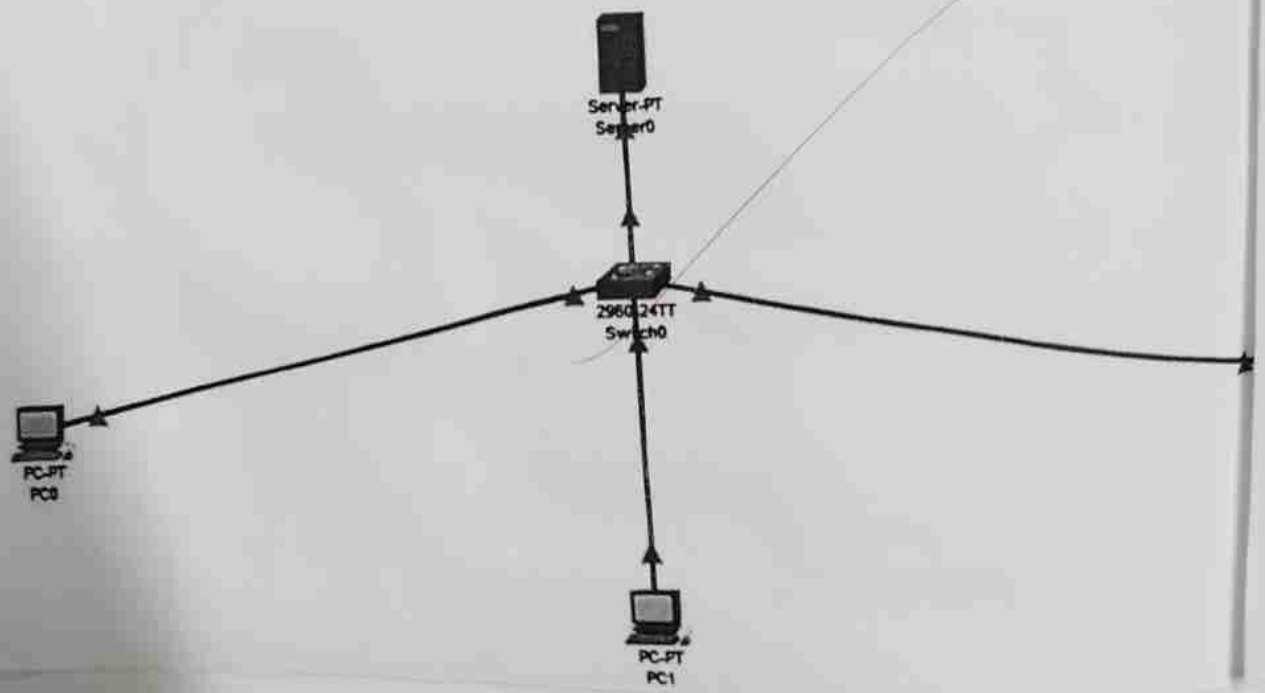
DHCP Auto Config Static

IPv6 Address

Link Local Address FE80::2E0:8FFF:FEE0:7120

IPv6 Gateway

IPv6 DNS Server



Pratical No: 2

Aim: Create a basic network of one server and PC's using appropriate network i.e Use dynamic IP address allocation.

Connect the devices as topology

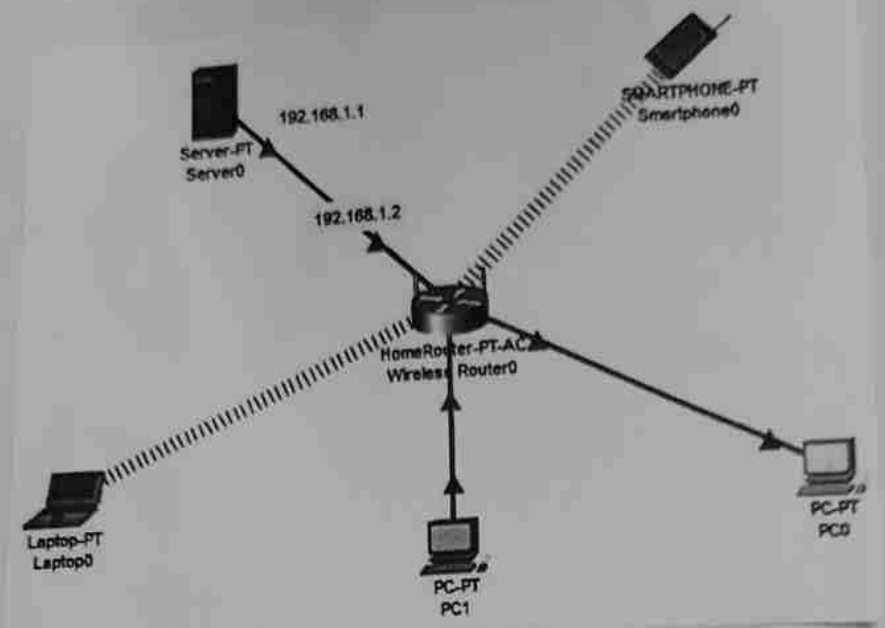
Server 0 → Desktop → IP configuration → static
IP address: 10.0.0.1
subnet mask: 255.0.0.0
Default Gateway: 10.0.0.2
DNS server: 10.0.0.

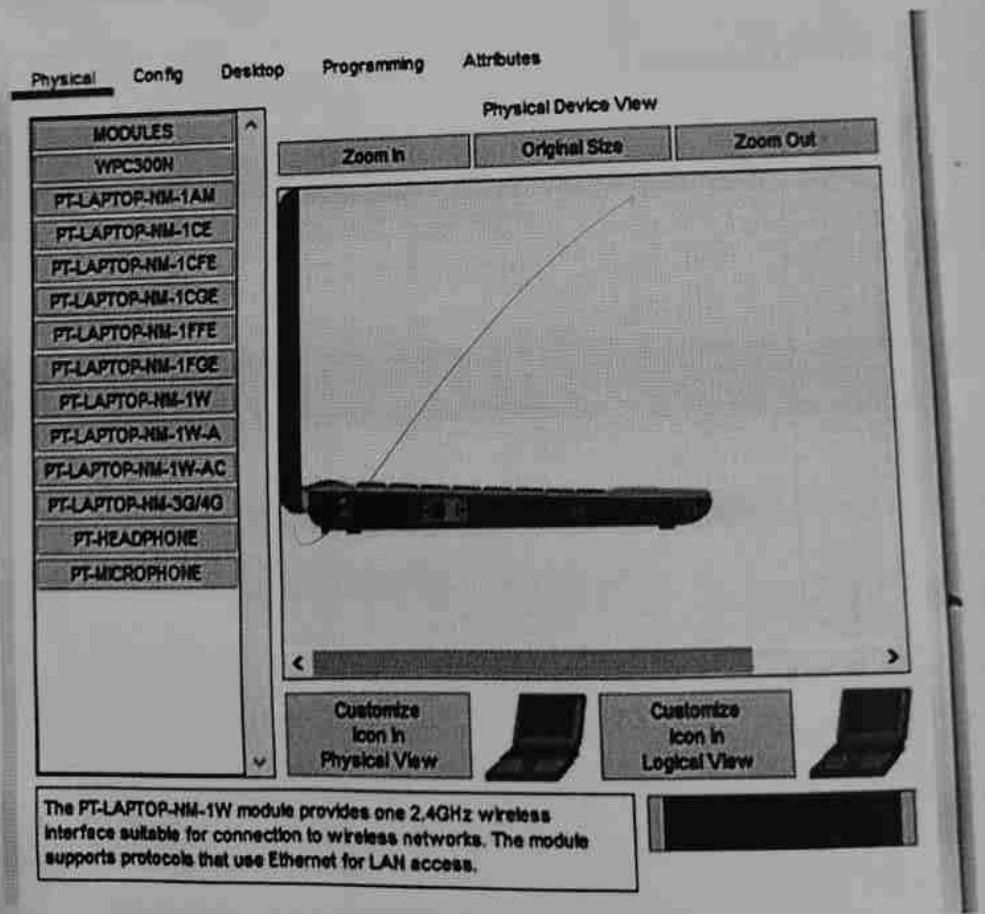
Server 0 → services → DHCP
Services . On
Default gateway : 10.0.0.2
DNS server : 10.0.0.1
Start IP address : 10.0.0.4
Save / Add

PC0
Desktop → IP configuration → DHCP
you will see that DHCP is successful on IP address will be generated from 10.0.0.4

Same Changes for all the P/S.

8





Aim: Create a
2 mobile / M
wire.

- Connect the

We need to
Wireless port
- IP configurat
Server 0 → D

IP Address:
Subnet Mask
Default gate

Smartphone 0
IP Address
Subnet mas
Default Gat

Same IP c
for
PC0 → 192.
Laptop →

Practical Number 3

Aim:- Create a basic network of 1 server, 2PC's and 2 mobile / Moveable devices using appropriate network wire.

- Connect the devices as per topology

We need to change the port of laptop to wireless Port
Wireless port → PT - Laptop → NM - 1W

- IP configuration

Server 0 → Desktop → IP configuration → static

IP Address : 192 . 198 . 1 . 1
Subnet Mask : 255 . 255 . 255 . 0
Default gateway : 192 . 198 . 1 . 2

Smartphone 0 → Desktop → IP config → Static
IP Address : 192 . 198 . 1 . 5
Subnet mask : 255 . 255 . 255 . 0
Default Gateway : 192 . 198 . 1 . 2

Same IP configuration for all the devices but for
PC0 → 192 . 168 . 1 . 4 , PC1 → 192 . 168 . 1 . 3
Laptop → 192 . 168 . 1 . 6

Aim:- Cr
CRouting
network
Connect
port i
Note: I
Network
Router
Port
IP a
Subnet
Same
IP
Network
Router
Port
IP
Subnet
Same
IP

Practical Number 4

Aim:- Create a network with routers with RIPv1 (Routing Information Protocol) each router associated network will have three PC's

Connect the devices for all topology. Change the port in router are shown in pictures
Note:- For router to router connection we need serial DTE and for serial DTE we need serial Port NM-4NS

Network: 10.0.0.0
Router 0 → IP config → serial 1/0.
Port status on
IP address: 10.0.0.1
Subnet Mask: 255.0.0.0

Same for Router 1 but
IP Address: 10.0.0.2

Network: 20.0.0.0
Router 1: → IP config → Serial 1/1
Port status: On
IP Address: 20.0.0.1
Subnet Mask: 255.0.0.0

Same for router 2 but,
IP address: 20.0.0.2

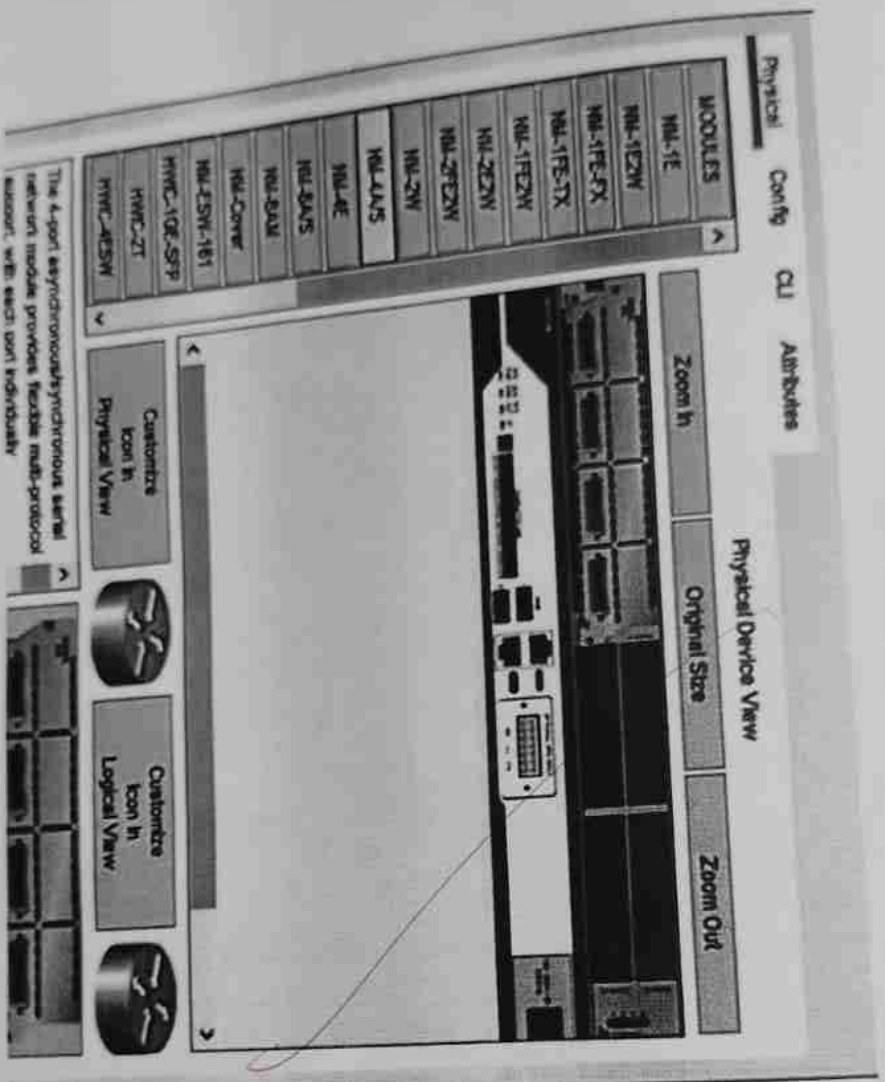
Network : 192.168.1.0
Router 0
IP configuration → Fast Ethernet 0/0
Port status on
IP Address : 192.168.1.1

PC0
Desktop → IP config → Static
IP address : 192.168.1.2
Subnet mask : 255.255.255.0
Default gateway : 192.168.1.1

Same for PC1 and PC2 but PC1:
IP address : 192.168.1.3
PC2 → IP address → 192.168.1.4

Network : 192.168.2.0
Router 1
IP configuration → Fast Ethernet 0/0
Port status On
IP Address : 192.168.2.1

PC0
Desktop → IP configuration → Static
IP address : 192.168.2.2
Subnet mask : 255.255.255.0
Default gateway : 192.188.2.1



Same diagram for Router1
→ We have to do the same setting that Router 0 has

Same diagram for Router2
→ We have to do same setting that Router 0 and Router 1 has.

Same for PC1 and PC2 but,
PC1 → IP address : 192.168.2.3
PC2 → IP address: 192.168.2.4

Network : 192.168.3.0

Router 2
IP configuration → Fast Ethernet 0/0
Port status on
IP address = 192.168.3.1

PC0
Desktop → IP configuration → static
IP Address: 192.168.3.2
Subnet Mask: 255.255.255.0
Default Gateway: 192.168.3.1

Same for PC1 and PC2 but,
PC1 → IP Address: 192.168.3.3
PC2 → IP Address: 192.168.3.4

RIP settings
Router 0 → IP config → RIP
Network: 10.0.0.0 → Add
Network: 192.168.1.0 → Add
Router1

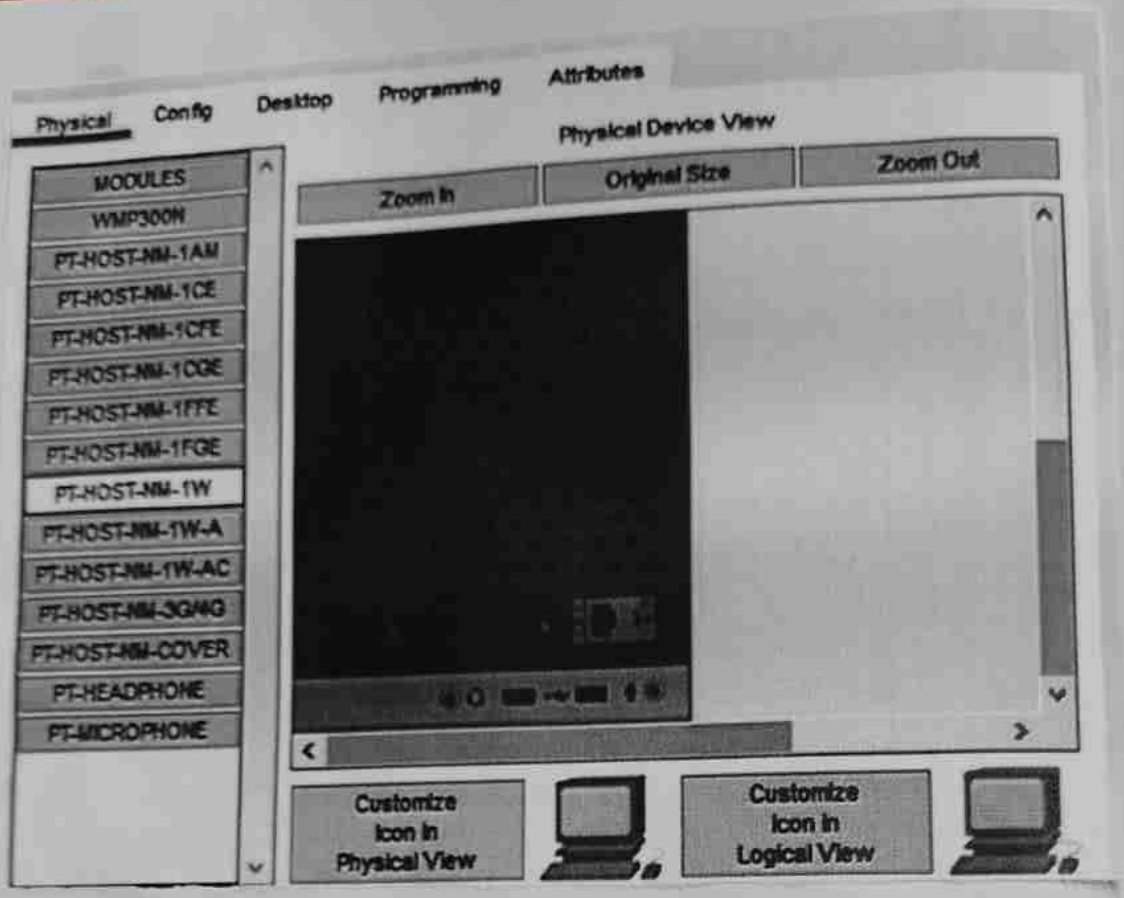
Router1
Network : 10.0.0.0 → Add
Network: 20.0.0.0 → Add
Network: 192.168.2.0 → Add

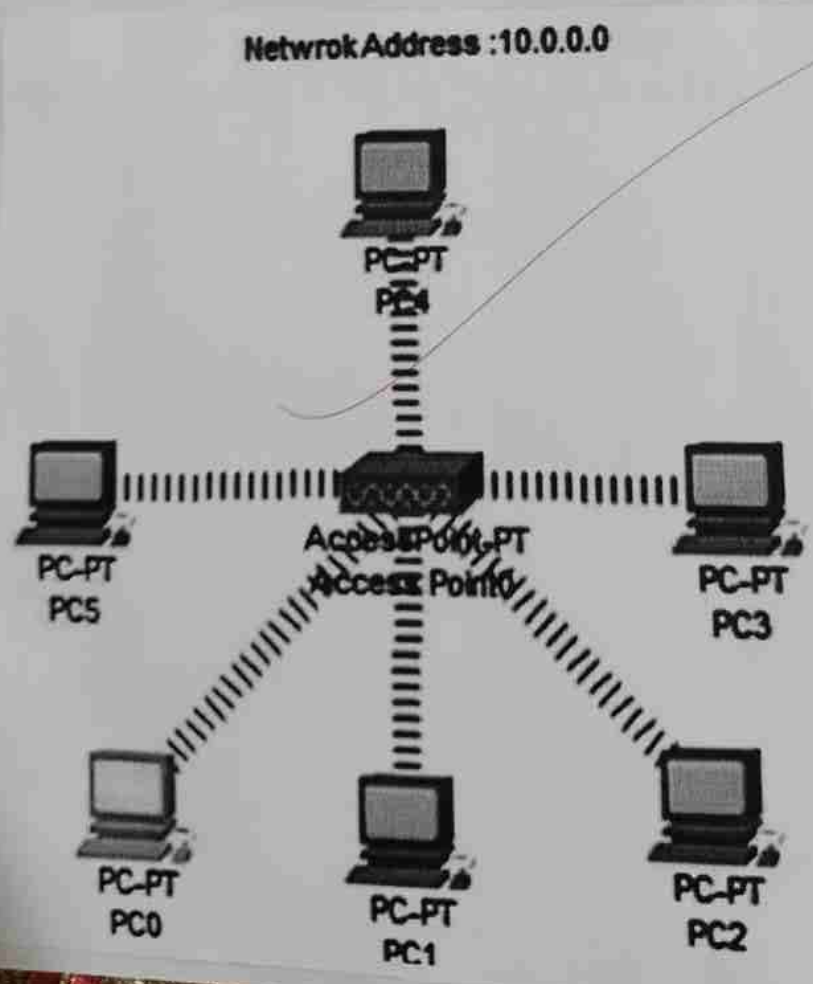
Router 2
Network : 20.0.0.0 → Add
Network: 192.168.3.0 → Add

Try
Pining from PC0 to PC1 or PC8

PC0
Desktop → Command Prompt
C:\> ping 192.168.3.2

Reply from 192.168.3.2


Physical
Config
Desktop
Programming
Attributes
Physical Device View
MODULES
WMP300N
PT-HOST-NM-1AM
PT-HOST-NM-1CE
PT-HOST-NM-1CFE
PT-HOST-NM-1CGE
PT-HOST-NM-1FFE
PT-HOST-NM-1FGE
PT-HOST-NM-1W
PT-HOST-NM-1W-A
PT-HOST-NM-1W-AC
PT-HOST-NM-3G4G
PT-HOST-NM-COVER
PT-HEADPHONE
PT-MICROPHONE
Zoom In
Original Size
Zoom Out
Customize Icon in Physical View
Customize Icon in Logical View


Netwrok Address :10.0.0.0
PC-PT PC4
PC-PT PC5
Access Point-PT Access Point0
PC-PT PC3
PC-PT PC0
PC-PT PC1
PC-PT PC2

Practical Number: 5

Aim: Connecting wireless network multiple PC using access point.

- Connect the devices as per topology
- Change the port in PC as shown pic
  Port name PT-host-NM-1W (for All PC's)

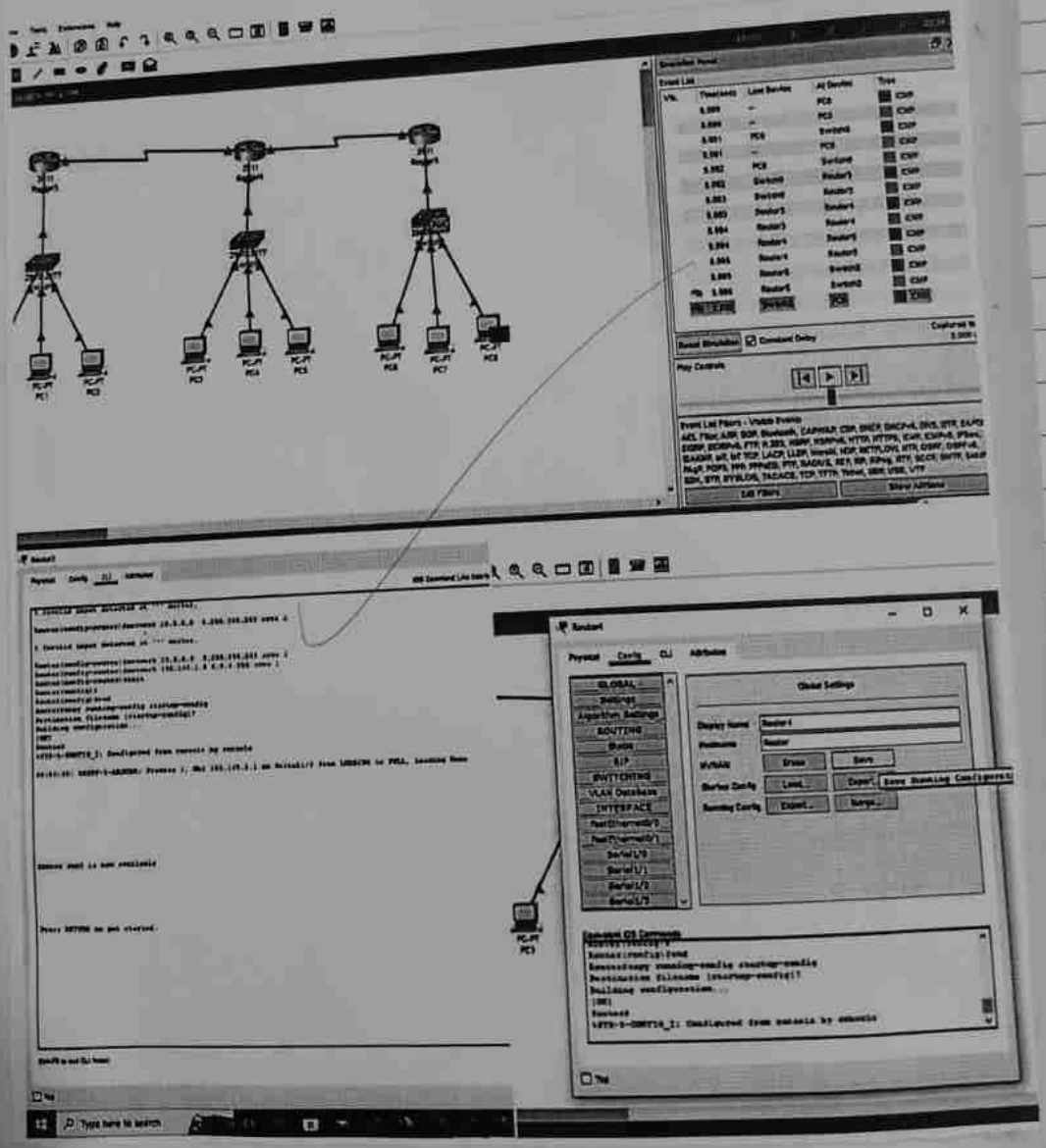
Ip configuration
PC 0
Desktop → IP configuration → static
IP address: 10.0.0.1
Subnet mask: 255.0.0.0

Same for all the PC's but IP address from
PC1 → Ip address: 10.0.0.2
PC2 → IP address: 10.0.0.3
PC3 → IP address: 10.0.0.4
PC4 → IP address: 10.0.0.5
PC5 → IP address: 10.0.0.6

Try
~~Pinging~~ Pinging from PC1 to PC7

~~PC0~~ PC0
Desktop → Command Prompt
Ping 10.0.0.6

Practical 6



Aim: Create
OSPF Conf
router as
minimum

Connect the
port in

Note: For
serial D
Port N
Router:-
Network
Router 0
Port sta
IP addr
subnet

Some po
IP Add

Network
Router 1
Port s
IP ad
Subnet

Practical number: 6

Aim: Create a network with three router with OSPF (open standard path first) and each router associated network will have minimum three PC's.

Connect the devices of all topology change the port in router.

Note: For router to router connecting we need serial DTE and for serial DTE we need serial Port WIC-4A/S

Router:-

Network: 10.0.0.0

Router 0 → IP configuration → serial 1/0

Port status: on

IP address: 10.0.0.1

subnet Mask: 255.0.0.0

Same for Router1 but,

IP Address: 10.0.0.2

Network: 20.0.0.0

Router 1 → IP configuration → serial 1/1

Port status on

IP address: 20.0.0.1

Subnet Mask: 255.0.0.0.

Same for Router 2 but,
IP address: 20.0.0.2

(Server)
Network : 192.168.1.0
Router 0
IP configuration → Fast Ethernet 0/0
Port status : On
IP address: 192.168.1.1

PC 0
Desktop → IP configuration → Static
IP Address : 192.168.1.2
Subnet Mask : 255.255.255.0
Default Gateway: 192.168.1.1

Same for PC1 and PC2 but
PC1 → IP address: 192.168.1.3
PC2 → IP address: 192.168.1.4

Network : 192.168.2.0
Router1
IP configuration → Fast Ethernet: 0/0
Port status on
IP Address: 192.168.2.1

PC0
Desktop → IP configuration → Static

IP Address : 192.168.2.2
Subnet Mask : 255.255.255.0
Default gateway : 192.168.2.1

Same for PC1 and PC2 but,
PC1 → IP Address : 192.168.2.3
PC2 → IP Address : 192.168.2.4

Network : 192.168.3.0
Router 2
IP Configuration → Fast Ethernet 0/0
Port status : on
IP Address : 192.168.3.1

PC0
Desktop → IP configuration → static
IP Address : 192.168.3.2
Subnet Mask : 255.255.255.0
Default Gateway : 192.168.3.1

Same for PC1 and PC2 but
PC1 → IP address : 192.168.3.3
PC2 → IP address : 192.168.3.4

Router 0 → C/L
Router > on
Router# configure terminal
Router (config)# router ospf 1

Router (config-router)# network 10.0.0.0 0.255.255.255 area 1

Router (config-router)# network 192.168.1.0 0.0.0.255 area 1

Router (config)# exit

Router (config)# end.

Router 1 → CLI

Same for router 1

Router (config-router)# network 10.0.0.0 0.255.255.255 area 1

Router (config-router)# network 20.0.0.0 0.255.255.255 area 1

Router (config-router)# network 192.168.1.1 0.0.0.255 area 1

Router (config-router)# exit

Router 2 → CLI

Same for router 2

Router (config)# router ospf 1

Router (config-router)# network 20.0.0.0 0.255.255.255 area 1

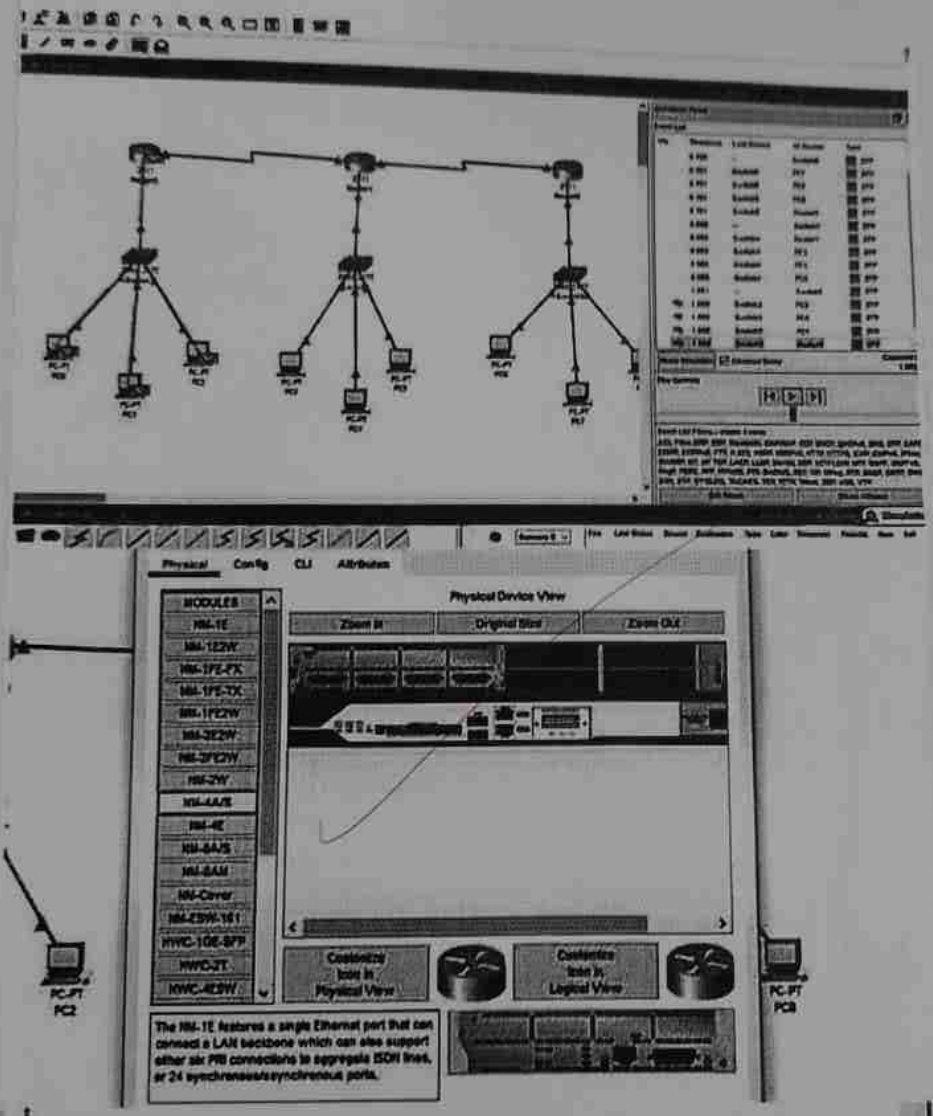
Router (config-router)# network 192.168.0.0 0.0.0.255 area 1

Router (config-router)# exit

Router (config)# end.

28

Practical 7




```
Router>en
Router$configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)$router bgp 3000
Router(config-router)$network 192.168.3.0
Router(config-router)$network 20.0.0.1
Router(config-router)$neighbor 20.0.0.0 remote-as 3000
Router(config-router)$
%Packet Tracer does not support internal BGP in this version. Only
external neighbors are supported.

neighbor 20.0.0.1 remote-as 2000
Router(config-router)$%BGP-5-ADJCHANGE: neighbor 20.0.0.1 Up
```

Ctrl+F6 to exit CLI focus

Copy Paste

Top

Aim:-
with
rou
three

Route
Rou
Rou
Rou
Rou
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Sam
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Route

Route
Same
Rou
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Rou

Practical - 7

Aim:- using packet tracer, create a network with three routers with BGP and each router associated network will have minimum three PC. show connectivity.

Router 0 → CLI
Router > en
Router # configure terminal
Router (config) # router bgp 1000
Router (config-router) # network 192.168.1.0
Router (config-router) # network 10.0.0.0
Router (config-router) # neighbor 10.0.0.2 remote-as 2000

Router 1 → CLI
Same as for router 1
Router (config) # router bgp 2000
Router (config-router) # network 192.168.2.0
Router (config-router) # network 10.0.0.1
Router (config-router) # network 20.0.0.0
Router (config-router) # neighbor 10.0.0.1 remote-as 1000
Router (config-router) # neighbor 20.0.0.2 remote-as 3000

Router 2 → CLI
Same for router 2
Router (config) # router bgp 3000
Router (config-router) # network 20.0.0.0
Router (config-router) # network 192.168.3.0
Router (config-router) # neighbor 20.0.0.1 remote-as 2000

Ping:

PC0

Desktop - command prompt

Packet tracer PC. command line 1.0

C:\> ping 192.168.2.4

Pinging 192.168.2.4 with 32 bytes of data

Reply from 192.168.0.1: Destination host unreachable

Reply From 192.168.0.1: Destination host unreachable

Reply from 192.168.0.1: Destination host unreachable.

Reply from 192.168.0.1: Destination host unreachable.

ping statistics for 192.168.2.4

packets: Sent = 4, Recived = 0, Lost = 4 (100% Loss)

Aim:- To implement commands like ping, ipconfig, tracert, arp, net stat.

c:\windows\system32> hostname
PC

c:\windows\system32> arp

Display and modifier the IP-to-physical address translation tables used by address resolution protocol (ARP)

c:\windows\system32> arp -a

Interface : 192.168.10.163 --- 0x8
Internet Address Physical Address Type
192.168.8.30 6c-4b-90-0a-e1-ec dynamic
192.168.8.33 6c-4b-90-65-df-c4

c:\windows\system32> ipconfig

Windows IP configuration
Ethernet Adapter Ethernet4
Media state. . . . Media disconnected
Connection - specify DNS suffix:

Ethernet Adapter Ethernet 2:

Connection - Specify DNS suffix :
Link - local . IPV6 Address : fe80::e540:729c:ac82:197%8
IPV4 Address : 192.168.10.163
Subnet Mask : 255.255.255.0
Default Gateway : 192.168.10.1

C: window - system 32> ping 192.168.8.110

Ping 192.168.8.110 with 32 byte of data
Reply from 192.168.8.110 : byte = 32 time1 <ms TTL=128

C: windows1 system 32> tracert 192.168.8.110

Tracing route to 192.168.8.110 over a minimum of 30 hops
1 <1ms <1ms <1ms 192.168.8.110
Tracert complete.

C: Windows1 System 32> tracert www.google.com
Tracing route to www.google.com [142.250.182.228]
Over a maximum of 20 hops:
1) 1ms 1ms <1ms fa-3-99-195-99-131-61
2) 4ms 4ms 4ms 192.160.151.197

C: windows1 system> netstert
Active connections.

Proto	Local Address	Foreign Address	State
TCP	127.0.0.1:49685	DESKTOP-TH47463 49686	Established
TCP	127.0.0.1:49686	DESKTOP-TH47463: 49665	ESTADISHED

Nala.
01/03/23