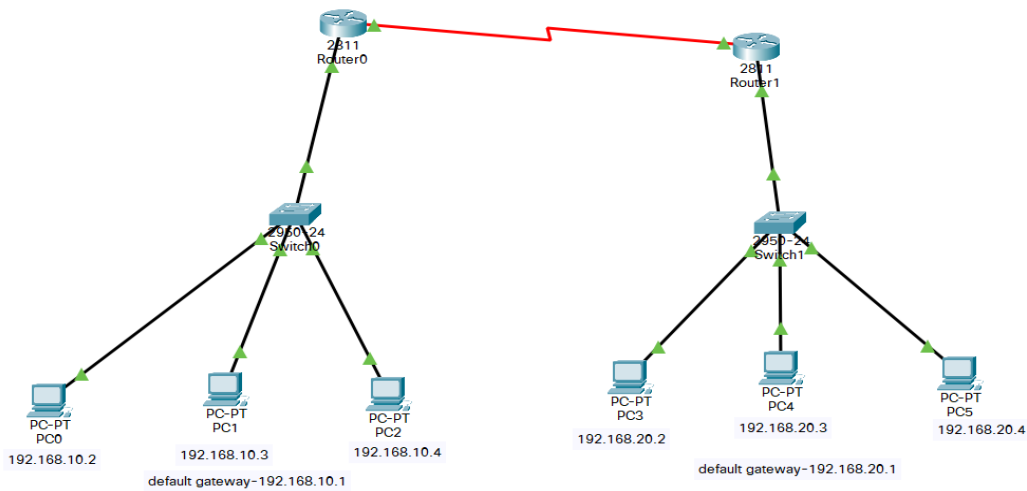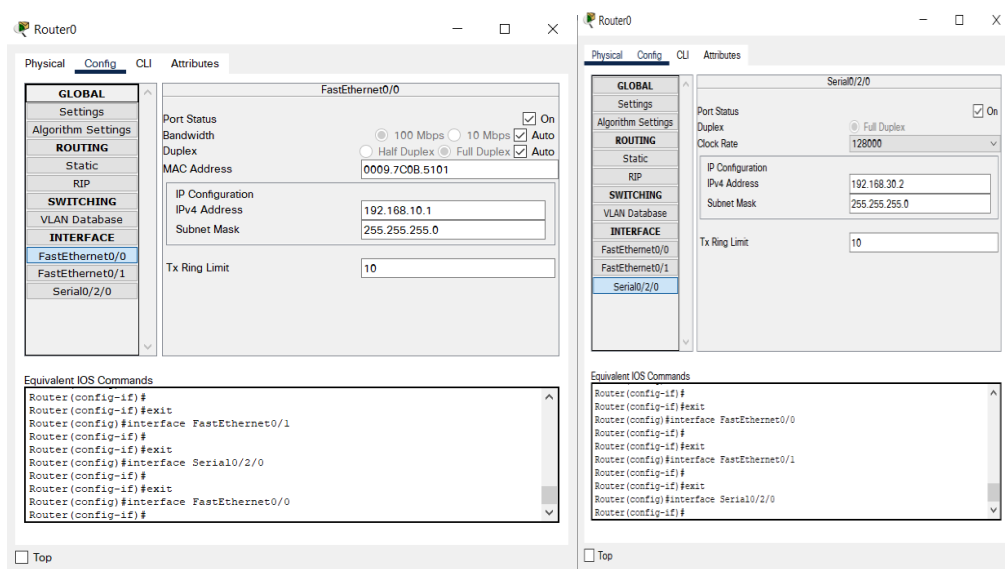# ARYAMAN MISHRA

19BCE1027

LAB 1

1.Create topology with 2 switches,2 routers and 6 PC Devices.

2.Insert IPv4 Address in the config menu of the routers and turn them on.

Router1

Physical | Config | CLI | Attributes

FastEthernet0/0

Port Status	☑ On
Bandwidth	◉ 100 Mbps ○ 10 Mbps ☑ Auto
Duplex	○ Half Duplex ○ Full Duplex ☑ Auto
MAC Address	0090.0C45.3B01

IP Configuration

IPv4 Address	192.168.20.1
Subnet Mask	255.255.255.0

Tx Ring Limit | 10

GLOBAL
Settings
Algorithm Settings
ROUTING
Static
RIP
SWITCHING
VLAN Database
INTERFACE
FastEthernet0/0
FastEthernet0/1
Serial0/0/0

Equivalent IOS Commands

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial10/0/0, changed state to
up


Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
```

☐ Top

Router1

Physical | Config | CLI | Attributes

Serial0/0/0

Port Status	☑ On
Duplex	◉ Full Duplex
Clock Rate	2000000 ∨

IP Configuration

IPv4 Address	192.168.30.3
Subnet Mask	255.255.255.0

Tx Ring Limit | 10

GLOBAL
Settings
Algorithm Settings
ROUTING
Static
RIP
SWITCHING
VLAN Database
INTERFACE
FastEthernet0/0
FastEthernet0/1
Serial0/0/0

Equivalent IOS Commands

```
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial0/0/0
Router(config-if)#clock rate 128000
This command applies only to DCE interfaces
Router(config-if)#clock rate 2000000
This command applies only to DCE interfaces
Router(config-if)#
```

☐ Top

3.Enter IPv4 Address and Default gateway in the config menus of the PCs and set their interfaces to static.

PC3

Physical | Config | Desktop | Programming | Attributes

IP Configuration   X

Interface | FastEthernet0

IP Configuration

○ DHCP   ◉ Static

IPv4 Address | 192.168.20.2
Subnet Mask | 255.255.255.0
Default Gateway | 192.168.20.1
DNS Server | 0.0.0.0

IPv6 Configuration

○ Automatic   ◉ Static

IPv6 Address | /
Link Local Address | FE80::202:16FF:FE67:1754
Default Gateway |
DNS Server |

802.1X

☐ Use 802.1X Security

Authentication | MD5
Username |
Password |

☐ Top

PC2

Physical | Config | Desktop | Programming | Attributes

IP Configuration   X

Interface | FastEthernet0

IP Configuration

○ DHCP   ◉ Static

IPv4 Address | 192.168.10.4
Subnet Mask | 255.255.255.0
Default Gateway | 192.168.10.1
DNS Server | 0.0.0.0

IPv6 Configuration

○ Automatic   ◉ Static

IPv6 Address | /
Link Local Address | FE80::2E0:F9FF:FE33:5040
Default Gateway |
DNS Server |

802.1X

☐ Use 802.1X Security

Authentication | MD5
Username |
Password |

☐ Top

PC4

Physical | Config | Desktop | Programming | Attributes

IP Configuration   X

Interface: FastEthernet0

IP Configuration

○ DHCP   ● Static

IPv4 Address   192.168.20.3
Subnet Mask   255.255.255.0
Default Gateway   192.168.20.1
DNS Server   0.0.0.0

IPv6 Configuration

○ Automatic   ● Static

IPv6 Address   [   ] / [   ]
Link Local Address   FE80::201:96FF:FEBD:1C36
Default Gateway   [   ]
DNS Server   [   ]

802.1X

☐ Use 802.1X Security

Authentication   MD5
Username   [   ]
Password   [   ]

☐ Top

PC5

Physical | Config | Desktop | Programming | Attributes

IP Configuration   X

Interface: FastEthernet0

IP Configuration

○ DHCP   ● Static

IPv4 Address   192.168.20.4
Subnet Mask   255.255.255.0
Default Gateway   192.168.20.1
DNS Server   0.0.0.0

IPv6 Configuration

○ Automatic   ● Static

IPv6 Address   [   ] / [   ]
Link Local Address   FE80::260:5CFF:FE92:8A15
Default Gateway   [   ]
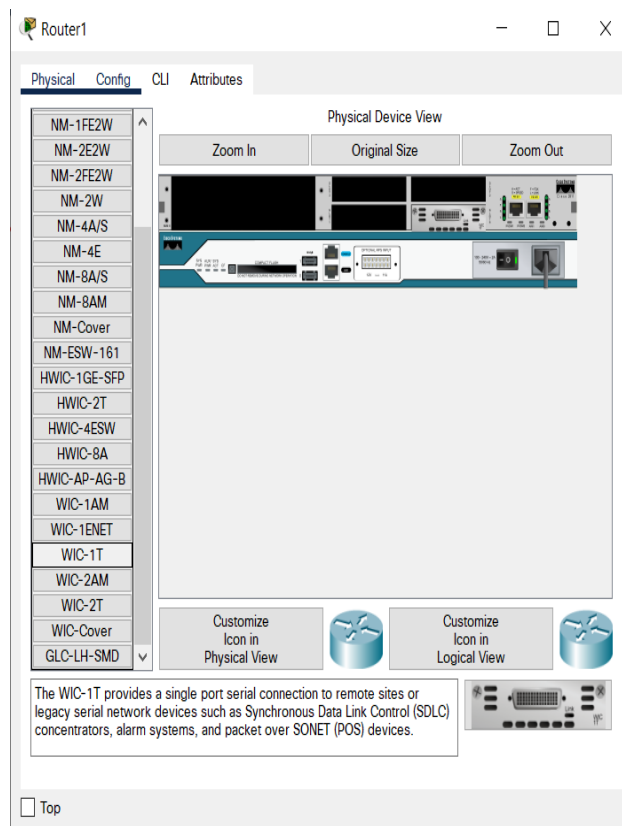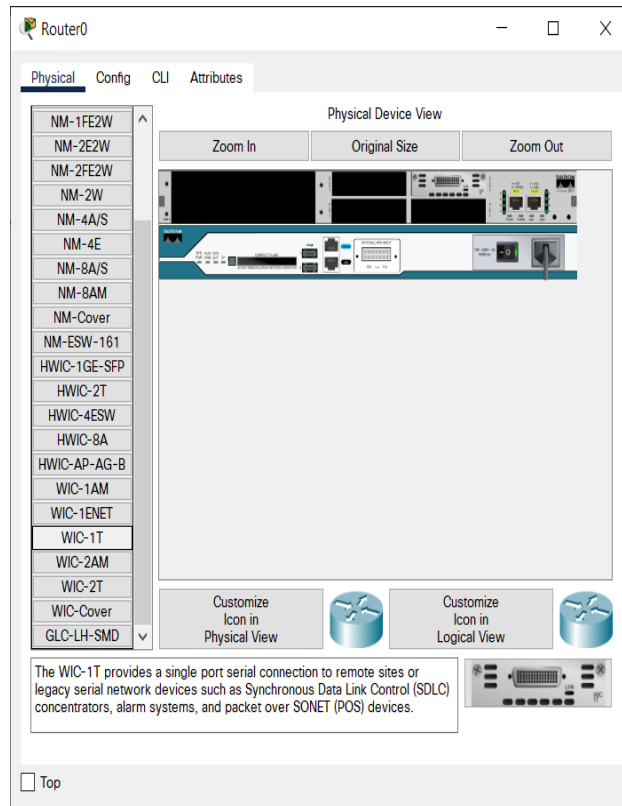DNS Server   [   ]

802.1X
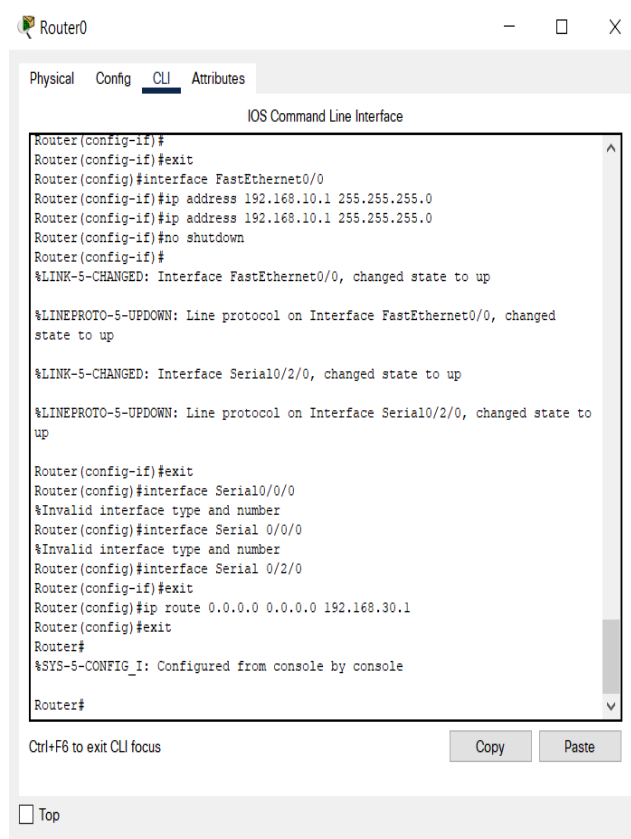
☐ Use 802.1X Security

Authentication   MD5
Username   [   ]
Password   [   ]

☐ Top

4.Add WIC-IT Port to connect the routers,and turn them on.

Router0 — Physical Device View window showing module list (NM-1FE2W, NM-2E2W, NM-2FE2W, NM-2W, NM-4A/S, NM-4E, NM-8A/S, NM-8AM, NM-Cover, NM-ESW-161, HWIC-1GE-SFP, HWIC-2T, HWIC-4ESW, HWIC-8A, HWIC-AP-AG-B, WIC-1AM, WIC-1ENET, WIC-1T, WIC-2AM, WIC-2T, WIC-Cover, GLC-LH-SMD) with WIC-1T selected.

The WIC-1T provides a single port serial connection to remote sites or legacy serial network devices such as Synchronous Data Link Control (SDLC) concentrators, alarm systems, and packet over SONET (POS) devices.

Router1 — Physical Device View window showing module list (NM-1FE2W, NM-2E2W, NM-2FE2W, NM-2W, NM-4A/S, NM-4E, NM-8A/S, NM-8AM, NM-Cover, NM-ESW-161, HWIC-1GE-SFP, HWIC-2T, HWIC-4ESW, HWIC-8A, HWIC-AP-AG-B, WIC-1AM, WIC-1ENET, WIC-1T, WIC-2AM, WIC-2T, WIC-Cover, GLC-LH-SMD) with WIC-1T selected.

The WIC-1T provides a single port serial connection to remote sites or legacy serial network devices such as Synchronous Data Link Control (SDLC) concentrators, alarm systems, and packet over SONET (POS) devices.

5.Define IP Route and Serial Port in the CLI menu of the routers.

Router0 — IOS Command Line Interface

```
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 192.168.10.1 255.255.255.0
Router(config-if)#ip address 192.168.10.1 255.255.255.0
Router(config-if)#no shutdown
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

%LINK-5-CHANGED: Interface Serial0/2/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/2/0, changed state to
up

Router(config-if)#exit
Router(config)#interface Serial0/0/0
%Invalid interface type and number
Router(config)#interface Serial 0/0/0
%Invalid interface type and number
Router(config)#interface Serial 0/2/0
Router(config-if)#exit
Router(config)#ip route 0.0.0.0 0.0.0.0 192.168.30.1
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#
```
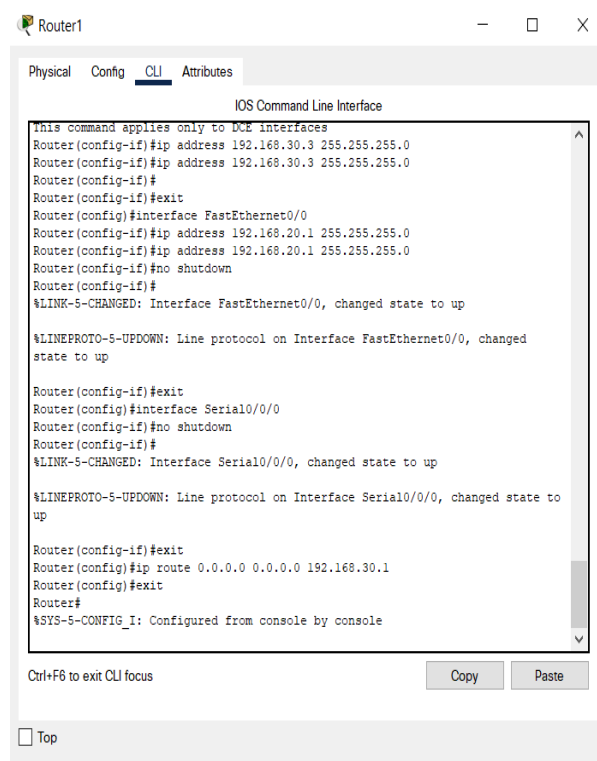

Router1 — IOS Command Line Interface

```
This command applies only to DCE interfaces
Router(config-if)#ip address 192.168.30.3 255.255.255.0
Router(config-if)#ip address 192.168.30.3 255.255.255.0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 192.168.20.1 255.255.255.0
Router(config-if)#ip address 192.168.20.1 255.255.255.0
Router(config-if)#no shutdown
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-if)#exit
Router(config)#interface Serial0/0/0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to
up

Router(config-if)#exit
Router(config)#ip route 0.0.0.0 0.0.0.0 192.168.30.1
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
```

6.Test proper connection of the PC devices using the simulation menu.

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete	
●	Successful	PC0	PC4	ICMP	■	0.000	N	7	(edit)		(delete)
●	Successful	PC0	Router0	ICMP	■	0.000	N	8	(edit)		(delete)
●	Successful	PC0	PC3	ICMP	■	0.000	N	9	(edit)		(delete)

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete	
●	Successful	PC1	PC5	ICMP	■	0.000	N	10	(edit)		(delete)
●	Successful	PC1	PC2	ICMP	■	0.000	N	11	(edit)		(delete)
●	Successful	PC2	PC3	ICMP	■	0.000	N	12	(edit)		(delete)

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete	
●	Successful	PC1	PC2	ICMP	■	0.000	N	11	(edit)		(delete)
●	Successful	PC2	PC3	ICMP	■	0.000	N	12	(edit)		(delete)

CONCLUSION:

DESIGNED TOPOLOGY HAS BEEN EXECUTED SUCCESFULLY.