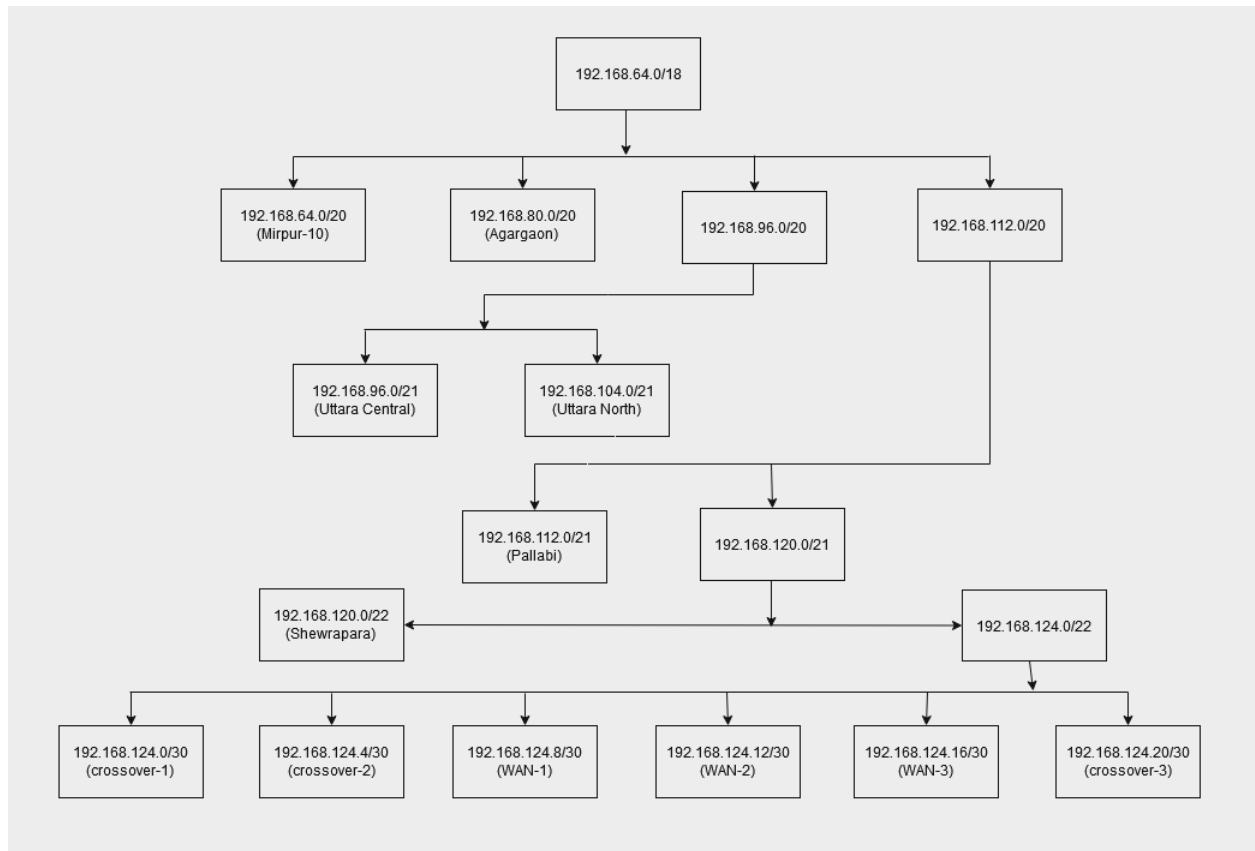


# **Lab Project CSE421: The Metro**

**Group 501**

**VLSM Tree:**



**IP Addressing Table:**

Area	Device	Interface	IPv4 Address	Subnet Mask	Default Gateway
Mirpur_10	Mirpur_10	Gig0/0	192.168.124.1	255.255.255.252	N/A
		Gig0/1	192.168.124.4	255.255.255.252	N/A
		Gig0/2	192.168.64.1	255.255.240.0	N/A
		Se0/0/1	192.168.124.8	255.255.255.252	N/A
	PC10	NIC	192.168.64.5	255.255.240.0	192.168.64.1
	PC3	NIC	192.168.64.3	255.255.240.0	192.168.64.1

	<b>Eamil_Server</b>	NIC	192.168.64.7	255.255.240.0	192.168.64.1
<b>Agargaon</b>	<b>Agargaon</b>	Gig0/0	192.168.80.1	255.255.240.0	N/A
		Se0/0/0	192.168.124.9	255.255.255.252	N/A
		Se0/0/1	192.168.124.17	255.255.255.252	N/A
		Se0/1/0	192.168.124.13	255.255.255.252	N/A
	<b>PC0</b>	NIC	DHCP Assigned	DHCP Assigned	192.168.80.1
	<b>PC7</b>	NIC	DHCP Assigned	DHCP Assigned	192.168.80.1
<b>Uttara_Center</b>	<b>Uttara_Center</b>	Gig0/0	192.168.124.21	255.255.255.252	N/A
		Gig 0/1	192.168.96.1	255.255.248.0	N/A
		Se0/0/0	192.168.124.18	255.255.255.252	N/A
	<b>Web Server</b>	NIC	192.168.96.7	255.255.248.0	192.168.96.1
	<b>DNS Server</b>	NIC	192.168.96.9	255.255.248.0	192.168.96.1
	<b>DHCP Server</b>	NIC	192.168.96.5	255.255.248.0	192.168.96.1
	<b>PC04</b>	NIC	192.168.96.3	255.255.248.0	192.168.96.1
<b>Uttara-north</b>	<b>Uttara-north</b>	Gig0/0	192.168.124.22	255.255.255.252	N/A
		Gig0/1	192.168.104.1	255.255.248.0	N/A
		S0/0/0	192.168.124.14	255.255.255.252	N/A
	<b>PC05</b>	NIC	DHCP Assigned	DHCP Assigned	192.168.104.1
	<b>PC06</b>	NIC	DHCP Assigned	DHCP Assigned	192.168.104.1
	<b>Printer</b>	NIC	DHCP Assigned	DHCP Assigned	192.168.104.1
<b>Pallabi</b>	<b>Pallabi</b>	Gig0/0	192.168.124.2	255.255.255.252	N/A
		Gig0/1	192.168.112.1	255.255.248.0	N/A
	<b>PC1</b>	NIC	DHCP Assigned	DHCP Assigned	192.168.112.1

	<b>PC8</b>	NIC	DHCP Assigned	DHCP Assigned	192.168.112.1
	<b>Printer</b>	NIC	DHCP Assigned	DHCP Assigned	192.168.112.1
<b>Shewrapara</b>	<b>Shewrapara</b>	g0/0	192.168.124.6	255.255.255.252	N/A
		g0/1	192.168.120.1	255.255.252.0	N/A
	<b>PC02</b>	NIC	DHCP Assigned	DHCP Assigned	192.168.120.1
	<b>PC09</b>	NIC	DHCP Assigned	DHCP Assigned	192.168.120.1

## Subnetting:

Network Name	Network Address	Subnet Mask	First Valid IP	Last Valid IP	Broadcast	Host Size
Mirpur_10	192.168.64.0	255.255.240.0	192.168.64.1	192.168.79.254	192.168.79.255	2500
Agargaon	192.168.80.0	255.255.240.0	192.168.80.1	192.168.95.254	192.168.95.255	2250
Uttara-Center	192.168.96.0	255.255.248.0	192.168.96.1	192.168.103.254	192.168.103.255	1700
Uttara-North	192.168.104.0	255.255.248.0	192.168.104.1	192.168.111.254	192.168.111.255	1200
Pallabi	192.168.112.0	255.255.248.0	192.168.112.1	192.168.119.254	192.168.119.255	1100
Shewrapara	192.168.120.0	255.255.252.0	192.168.120.1	192.168.123.254	192.168.123.255	700
Cross_over_1	192.168.124.0	255.255.255.252	192.168.124.1	192.168.124.4.2	192.168.124.3	2
Cross_over_2	192.168.124.4	255.255.255.252	192.168.124.5	192.168.124.6	192.168.124.7	2
WAN_1	192.168.124.8	255.255.255.	192.168.	192.168.12	192.168.127.11	2

		252	124.9	4.10		
WAN_2	192.168.124.1 2	255.255.255. 252	192.168. 124.13	192.168.12 4.14	192.168.124.15	2
WAN_3	192.168.124.1 6	255.255.255. 252	192.168. 124.17	192.168.12 4.18	192.168.124.19	2
Cross_over_ 3	192.168.124.2 0	255.255.255. 252	192.168. 124.21	192.168.12 4.22	192.168.124.23	2

## CONFIGURATION:

### Router configuration

#### Mirpur\_10

Router>enable

Router#

Router#

Router#conf t

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#

Router(config)#hostname Mirpur\_10

Mirpur\_10(config)#

Mirpur\_10(config)#

Mirpur\_10(config)#inter

Mirpur\_10(config)#interface g

Mirpur\_10(config)#interface gigabitEthernet 0/2

Mirpur\_10(config-if)#ip add

Mirpur\_10(config-if)#ip address 192.168.64.1 255.255.240.0

Mirpur\_10(config-if)#no sh

Mirpur\_10(config-if)#no shutdown

Mirpur\_10(config-if)#

%LINK-5-CHANGED: Interface GigabitEthernet0/2, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/2, changed state to up

Mirpur\_10(config-if)#exit

Mirpur\_10(config)#

Mirpur\_10(config)#

Mirpur\_10(config)#inter

```
Mirpur_10(config)#interface s
Mirpur_10(config)#interface serial 0/0/1
Mirpur_10(config-if)#ip add
Mirpur_10(config-if)#ip address 192.168.124.10 255.255.255.252
Mirpur_10(config-if)#no sh
Mirpur_10(config-if)#no shutdown
```

```
Mirpur_10(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/1, changed state to up
```

```
Mirpur_10(config-if)#cl
Mirpur_10(config-if)#clock r
Mirpur_10(config-if)#clock rate
% Incomplete command.
Mirpur_10(config-if)#
Mirpur_10(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/1, changed state to up
```

```
Mirpur_10(config-if)#clock rate 6400
Unknown clock rate
Mirpur_10(config-if)#clock rate 9600
Mirpur_10(config-if)#exit
Mirpur_10(config)#
Mirpur_10(config)#interface serial 0/0/1
Mirpur_10(config-if)#ip add
Mirpur_10(config-if)#ip address 192.168.124.10 255.255.255.252
Mirpur_10(config-if)#no shutdown
Mirpur_10(config-if)#clock rate 9600
Mirpur_10(config-if)#exit
Mirpur_10(config)#
```

```
Mirpur_10(config)#interface gig 0/0
Mirpur_10(config-if)#ip add
Mirpur_10(config-if)#ip address 192.168.124.1 255.255.255.252
Mirpur_10(config-if)#no shutdown
Mirpur_10(config-if)#clock rate 9600
Mirpur_10(config-if)#exit
Mirpur_10(config)#
```

```
Mirpur_10(config)#interface gig 0/1
Mirpur_10(config-if)#ip add
Mirpur_10(config-if)#ip address 192.168.124.5 255.255.255.252
Mirpur_10(config-if)#no shutdown
Mirpur_10(config-if)#clock rate 9600
Mirpur_10(config-if)#exit
```

```
Mirpur_10(config)#interface gig 0/2
Mirpur_10(config-if)#ip add
Mirpur_10(config-if)#ip address 192.168.64.1 255.255.240.0
Mirpur_10(config-if)#no shutdown
Mirpur_10(config-if)#clock rate 9600
```

```
Mirpur_10(config-if)#exit
Mirpur_10(config)#

Mirpur_10(config)#route rip
Mirpur_10(config-router)#v
Mirpur_10(config-router)#version 2
Mirpur_10(config-router)#no au
Mirpur_10(config-router)#no auto-summary
Mirpur_10(config-router)#net
Mirpur_10(config-router)#network 192.168.124.8
Mirpur_10(config-router)#network 192.168.64.0
Mirpur_10(config-router)#re
Mirpur_10(config-router)#redistribute s
Mirpur_10(config-router)#redistribute static
Mirpur_10(config-router)#exit
Mirpur_10(config)#
Mirpur_10(config)#route rip
Mirpur_10(config-router)#pa
Mirpur_10(config-router)#passive-interface g
Mirpur_10(config-router)#passive-interface gigabitEthernet 0/2
Mirpur_10(config-router)#
Mirpur_10(config-router)#exit
Mirpur_10(config)#
Mirpur_10(config)#
Mirpur_10(config)#exit
Mirpur_10#
%SYS-5-CONFIG_I: Configured from console by console
```

```
Mirpur_10(config)#route rip
Mirpur_10(config-router)#v
Mirpur_10(config-router)#version 2
Mirpur_10(config-router)#network 192.168.124.0
Mirpur_10(config-router)#network 192.168.124.4
Mirpur_10(config-router)#exit
Mirpur_10(config)#
Mirpur_10(config)#
Mirpur_10(config)#exit
```

## **Agargaon**

```
Router>
Router>enable
Router#conf t
```

Enter configuration commands, one per line. End with CNTL/Z.

```
Router(config)#
```

```
Router(config)#hostname Agargaon
```

```
Agargaon(config)#interf
```

```
Agargaon(config)#interface g
```

```
Agargaon(config)#interface gigabitEthernet 0/0
```

```
Agargaon(config-if)#ip add
```

```
Agargaon(config-if)#ip address 192.168.80.1 255.255.240.0
```

```
Agargaon(config-if)#no sh
```

```
Agargaon(config-if)#no shutdown
```

```
Agargaon(config-if)#
```

```
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up
```

```
Agargaon(config-if)#exit
```

```
Agargaon(config)#
```

```
Agargaon(config)#interface serial 0/0/0
```

```
Agargaon(config-if)#ip address 192.168.124.9 255.255.255.252
```

```
Agargaon(config-if)#no sh
```

```
Agargaon(config-if)#no shutdown
```

```
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to down
```

```
Agargaon(config-if)#cl
```

```
Agargaon(config-if)#clock r
```

```
Agargaon(config-if)#clock rate 64000
```

```
This command applies only to DCE interfaces
```

```
Agargaon(config-if)#clock rate 6400
```

```
Agargaon(config)#interface serial 0/1/0
```

```
Agargaon(config-if)#
```

```
Agargaon(config-if)#ip address 192.168.124.13 255.255.255.252
```

```
Agargaon(config-if)#no sh
```

```
Agargaon(config-if)#no shutdown
```

```
%LINK-5-CHANGED: Interface Serial0/1/0, changed state to down
```

```
Agargaon(config-if)#clock rate 9600
```

```
Agargaon(config-if)#exit
```

```
Agargaon(config)#interface serial 0/0/1
```

```
Agargaon(config-if)#ip address 192.168.124.17 255.255.255.252
```

```
Agargaon(config-if)#no shutdown
```



```
%LINK-5-CHANGED: Interface Serial0/0/1, changed state to down
Agargaon(config-if)#clock rate 9600
Agargaon(config-if)#exit
Agargaon(config)#
```

```
Agargaon(config)#route rip
Agargaon(config-router)#v
Agargaon(config-router)#version 2
Agargaon(config-router)#no auto-
Agargaon(config-router)#no auto-summary
Agargaon(config-router)#network 192.168.124.16
Agargaon(config-router)#network 192.168.124.12
Agargaon(config-router)#network 192.168.124.8
Agargaon(config-router)#network 192.168.80.0
Agargaon(config-router)#redistribute s
Agargaon(config-router)#redistribute static
Agargaon(config-router)#
Agargaon(config-router)#exit
Agargaon(config-router)#pa
Agargaon(config-router)#passive-interface g
Agargaon(config-router)#passive-interface gigabitEthernet 0/0
Agargaon(config-router)#exit
```

```
Agargaon(config)#ip route 192.168.96.0 255.255.248.0 192.168.124.18
Agargaon(config)#ip route 192.168.124.20 255.255.255.252 192.168.124.18
Agargaon(config)#ip route 192.168.104.0 255.255.248.0 192.168.124.18
Agargaon(config)#ip route 192.168.104.0 255.255.248.0 192.168.124.14 10
Agargaon(config)#exit
Agargaon(config)#ip route 192.168.96.0 255.255.248.0 192.168.124.18
Agargaon(config)#ip route 192.168.104.0 255.255.248.0 192.168.124.14 5
```

```
pallabi(config)#interface gigabitEthernet 0/1
pallabi(config-if)#ip helper-address 192.168.96.5
pallabi(config-if)#
pallabi(config-if)#exit
```

**Uttara\_Center**

Router>

```
Router>enable
Router#
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#
Router(config)#hostname Uttara_
Router(config)#hostname Uttara_Center
Uttara_Center(config)#
Uttara_Center(config)#int
Uttara_Center(config)#interface g
Uttara_Center(config)#interface gigabitEthernet 0/0
Uttara_Center(config-if)#
Uttara_Center(config-if)#ip add
Uttara_Center(config-if)#ip address 192.168.124.21 255.255.255.252
Uttara_Center(config-if)#no sh
Uttara_Center(config-if)#no shutdown

Uttara_Center(config)#interface gigabitEthernet 0/1
Uttara_Center(config-if)#ip address 192.168.96.1 255.255.255.248
Uttara_Center(config-if)#no shutdown

Uttara_Center(config)#interface s
Uttara_Center(config)#interface serial 0/0/0
Uttara_Center(config-if)#ip address 192.168.124.18 255.255.255.252
Uttara_Center(config-if)#no sh
Uttara_Center(config-if)#no shutdown

Uttara_Center(config)#interface gigabitEthernet 0/1
Uttara_Center(config-if)#ip address 192.168.96.1 255.255.248.0
Uttara_Center(config-if)#
Uttara_Center(config-if)#no shutdown
Uttara_Center(config-if)#exit
Uttara_Center(config)#

Uttara_Center(config)#ip route 192.168.104.0 255.255.248.0 192.168.124.22
Uttara_Center(config)#ip route 192.168.80.0 255.255.240.0 192.168.124.17

Uttara_Center(config)#exit
```

**Uttara\_North**

```
Router>
Router>enable
Router#
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#
Router(config)#Host
Router(config)#Hostname Uttara_North
Uttara_North(config)#
Uttara_North(config)#inter
Uttara_North(config)#interface g
Uttara_North(config)#interface gigabitEthernet 0/0
Uttara_North(config-if)#ip add
Uttara_North(config-if)#ip address 192.168.124.22 255.255.255.252
Uttara_North(config-if)#no sh
Uttara_North(config-if)#no shutdown
```

```
Uttara_North(config-if)#exit
Uttara_North(config)#interface gigabitEthernet 0/1
Uttara_North(config-if)#ip address 192.168.104.1 255.255.248.0
Uttara_North(config-if)#no shutdown
```

```
Uttara_North(config-if)#ip helper-address 192.168.96.5
```

```
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up
```

```
Uttara_North(config-if)#exit
Uttara_North(config)#
Uttara_North(config)#interface s
Uttara_North(config)#interface serial 0/0/0
Uttara_North(config-if)#
Uttara_North(config-if)#ip address 192.168.124.13 255.255.255.252
Uttara_North(config-if)#no sh
Uttara_North(config-if)#no shutdown
```

```
Uttara_North(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up
```

```
Uttara_North(config-if)#cl
Uttara_North(config-if)#clock r
Uttara_North(config-if)#clock rate 9600
```

This command applies only to DCE interfaces

Uttara\_North(config-if)#

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

Uttara\_North(config-if)#exit

Uttara\_North(config)#

Uttara\_North(config)#exit

Uttara\_North#

%SYS-5-CONFIG\_I: Configured from console by console

Uttara\_North(config)#interface gigabitEthernet 0/1

Uttara\_North(config-if)#ip helper-address 192.168.96.5

Uttara\_North(config-if)#ip helper-address 192.168.96.5

Uttara\_North(config-if)#exit

Uttara\_North#

Uttara\_North(config)#ip route 192.168.96.0 255.255.248.0 192.168.124.21

Uttara\_North(config)#ip route 192.168.96.0 255.255.248.0 192.168.124.13 5

Uttara\_North(config)#

Uttara\_North(config)#exit

## **Pallabi**

Pallabi

Router>

Router>enable

Router#

Router#conf t

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)#

Router(config)#Host

Router(config)#Hostname Pallabi

Pallabi(config)#

Pallabi(config)#inter

Pallabi(config)#interface g

Pallabi(config)#interface gigabitEthernet 0/0

Pallabi(config-if)#ip add

Pallabi(config-if)#ip address 192.168.124.1 255.255.255.252

Pallabi(config-if)#no sh

Pallabi(config-if)#no shutdown

```
Pallabi(config-if)#exit
Pallabi(config)#interface gigabitEthernet 0/1
Pallabi(config-if)#ip address 192.168.112.1 255.255.248.0
Pallabi(config-if)#no shutdown
```

```
Pallabi(config-if)#ip helper-address 192.168.96.5
```

```
Pallabi(config)#route rip
Pallabi(config-router)#v
Pallabi(config-router)#version 2
Pallabi(config-router)#no au
Pallabi(config-router)#no auto-summary
Pallabi(config-router)#net
Pallabi(config-router)#network 192.168.124.0
Pallabi(config-router)#network 192.168.112.0
Pallabi(config-router)#re
Pallabi(config-router)#redistribute s
Pallabi(config-router)#redistribute static
Pallabi(config-router)#exit
Pallabi(config)#
Pallabi(config)#route rip
Pallabi(config-router)#pa
Pallabi(config-router)#passive-interface g
Pallabi(config-router)#passive-interface gigabitEthernet 0/1
Pallabi(config-router)#
Pallabi(config-router)#exit
Pallabi(config)#
Pallabi(config)#
Pallabi(config)#exit
```

## **Shewrapara**

Shewrapara

```
Router>
Router>enable
Router#
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#
Router(config)#Host
Router(config)#Hostname Shewrapara
Shewrapara(config)#
```

```
Shewrapara(config)#inter
Shewrapara(config)#interface g
Shewrapara(config)#interface gigabitEthernet 0/0
Shewrapara(config-if)#ip add
Shewrapara(config-if)#ip address 192.168.124.6 255.255.255.252
Shewrapara(config-if)#no sh
Shewrapara(config-if)#no shutdown
```

```
Shewrapara(config-if)#exit
Shewrapara(config)#interface gigabitEthernet 0/1
Shewrapara(config-if)#ip address 192.168.120.1 255.255.248.0
Shewrapara(config-if)#no shutdown
```

```
Shewrapara(config-if)#ip helper-address 192.168.96.5
```

```
Shewrapara(config)#route rip
Shewrapara(config-router)#v
Shewrapara(config-router)#version 2
Shewrapara(config-router)#no au
Shewrapara(config-router)#no auto-summary
Shewrapara(config-router)#net
Shewrapara(config-router)#network 192.168.124.4
Shewrapara(config-router)#network 192.168.120.0
Shewrapara(config-router)#re
Shewrapara(config-router)#redistribute s
Shewrapara(config-router)#redistribute static
Shewrapara(config-router)#exit
Shewrapara(config)#
Shewrapara(config)#route rip
Shewrapara(config-router)#pa
Shewrapara(config-router)#passive-interface g
Shewrapara(config-router)#passive-interface gigabitEthernet 0/1
Shewrapara(config-router)#
Shewrapara(config-router)#exit
Shewrapara(config)#
Shewrapara(config)#
Shewrapara(config)#exit
```

