

*Name:*

**Dawood Sarfraz**

*Roll no:*

**20p-0153**

*Section:*

**BSCS-5B**

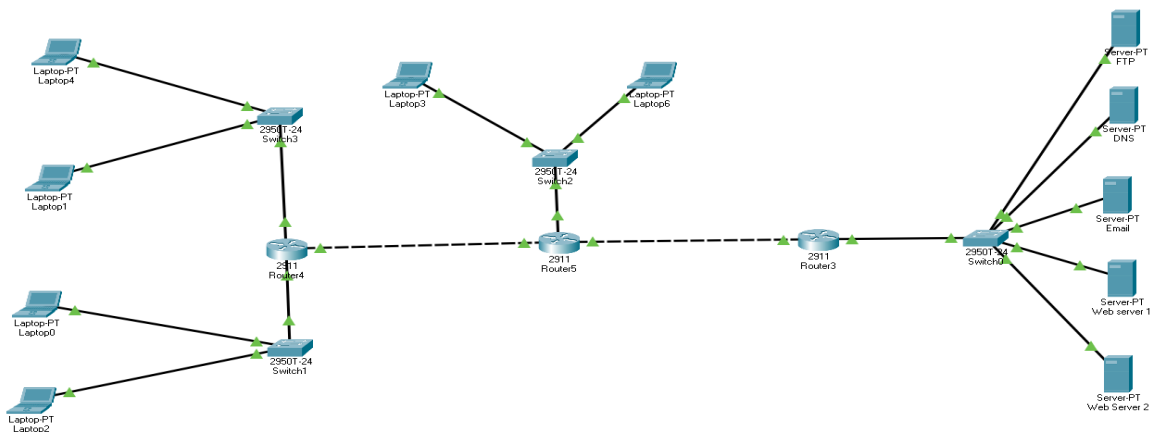
*Lab:*

**#12**

*Quiz:*

**Computer Networks**

**FAST-NUCES Peshawar Campus**



Laptop4

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface: FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address: 192.168.1.1

Subnet Mask: 255.255.255.0

Default Gateway: 0.0.0.0

DNS Server: 0.0.0.0

IPv6 Configuration

☒ Automatic ☐ Static

IPv6 Address: /

Link Local Address: FE80::2D0:FFFF:FE93:3DB6

Default Gateway:

DNS Server:

802.1X

☐ Use 802.1X Security

Authentication: MD5

Username:

Password:

☐ Top

Laptop1

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface: FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address: 192.168.1.16

Subnet Mask: 255.255.255.0

Default Gateway: 0.0.0.0

DNS Server: 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address: /

Link Local Address: FE80::201:64FF:FE2C:E3A5

Default Gateway:

DNS Server:

802.1X

☐ Use 802.1X Security

Authentication: MD5

Username:

Password:

Laptop0

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.1.21

Subnet Mask 255.255.255.0

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::2E0:A3FF:FEC4:812E

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

Laptop2

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.2.1

Subnet Mask 255.255.255.0

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::290:2BFF:FE09:85CA

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

Laptop3

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.3.1

Subnet Mask 255.255.255.0

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::230:F2FF:FE6D:85CE

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

Laptop6

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.1.10

Subnet Mask 255.255.255.0

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::209:7CFF:FE02:A514

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

Router4

Physical Config CLI Attributes

**GLOBAL**

Settings

Algorithm Settings

**ROUTING**

Static

RIP

**SWITCHING**

VLAN Database

**INTERFACE**

GigabitEthernet0/0

GigabitEthernet0/1

GigabitEthernet0/2

**GigabitEthernet0/0**

Port Status ☒ On

Bandwidth ☐ 1000 Mbps ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0030.F22E.0E01

IP Configuration

IPv4 Address 192.168.3.11

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Equivalent IOS Commands

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/0
Router(config-if)#
```

Router4

Physical Config CLI Attributes

**GLOBAL**

Settings

Algorithm Settings

**ROUTING**

Static

RIP

**SWITCHING**

VLAN Database

**INTERFACE**

GigabitEthernet0/0

GigabitEthernet0/1

GigabitEthernet0/2

**GigabitEthernet0/1**

Port Status ☒ On

Bandwidth ☒ 1000 Mbps ☐ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0030.F22E.0E02

IP Configuration

IPv4 Address 192.168.2.2

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Equivalent IOS Commands

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/1
Router(config-if)#
```

Physical Config CLI Attributes

GLOBAL	
Settings	
Algorithm Settings	
ROUTING	
Static	
RIP	
SWITCHING	
VLAN Database	
INTERFACE	
GigabitEthernet0/0	
GigabitEthernet0/1	
GigabitEthernet0/2	

GigabitEthernet0/2	
Port Status	<input checked="" type="checkbox"/> On
Bandwidth	<input type="radio"/> 1000 Mbps <input checked="" type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto
Duplex	<input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto
MAC Address	0030.F22E.0E03
IP Configuration	
IPv4 Address	192.168.1.2
Subnet Mask	255.255.255.0
Tx Ring Limit	10

## Equivalent IOS Commands

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/1
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/2
Router(config-if)#
```

Router5

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

GigabitEthernet0/0

GigabitEthernet0/1

GigabitEthernet0/2

GigabitEthernet0/0

Port Status

☒ On

Bandwidth

☒ 1000 Mbps☐ 100 Mbps☐ 10 Mbps

☒ Auto

Duplex

☐ Half Duplex☒ Full Duplex

☒ Auto

MAC Address

0002.4A99.2B01

IP Configuration

IPv4 Address

192.168.1.3

Subnet Mask

255.255.255.0

Tx Ring Limit

10

Equivalent IOS Commands

Router>enable

Router#

Router#configure terminal

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

Router(config)#interface GigabitEthernet0/0

Router(config-if)#

Router5

Physical **Config** CLI Attributes

**GLOBAL**

- Settings
- Algorithm Settings
- ROUTING**
- Static
- RIP
- SWITCHING**
- VLAN Database
- INTERFACE**
- GigabitEthernet0/0
- GigabitEthernet0/1**
- GigabitEthernet0/2

**GigabitEthernet0/1**

Port Status ☒ On

Bandwidth ☐ 1000 Mbps ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0002.4A99.2B02

IP Configuration

IPv4 Address 192.168.2.1

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Equivalent IOS Commands

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/1
Router(config-if)#
```

Router5

Physical **Config** CLI Attributes

**GLOBAL**

- Settings
- Algorithm Settings
- ROUTING**
- Static
- RIP
- SWITCHING**
- VLAN Database
- INTERFACE**
- GigabitEthernet0/0
- GigabitEthernet0/1
- GigabitEthernet0/2**

**GigabitEthernet0/2**

Port Status ☒ On

Bandwidth ☒ 1000 Mbps ☐ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0002.4A99.2B03

IP Configuration

IPv4 Address 192.168.3.1

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Equivalent IOS Commands

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/1
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/2
Router(config-if)#
```



Router3

Physical **Config** CLI Attributes

**GLOBAL**

- Settings
- Algorithm Settings
- ROUTING**
- Static
- RIP
- SWITCHING**
- VLAN Database
- INTERFACE**
- GigabitEthernet0/0
- GigabitEthernet0/1
- GigabitEthernet0/2

**GigabitEthernet0/0**

Port Status ☒ On

Bandwidth ☐ 1000 Mbps ☐ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0090.216A.0201

IP Configuration

IPv4 Address 192.168.4.1

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Equivalent IOS Commands

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/0
Router(config-if)#
```

Router3

Physical **Config** CLI Attributes

**GLOBAL**

- Settings
- Algorithm Settings
- ROUTING**
- Static
- RIP
- SWITCHING**
- VLAN Database
- INTERFACE**
- GigabitEthernet0/0
- GigabitEthernet0/1**
- GigabitEthernet0/2

**GigabitEthernet0/1**

Port Status ☒ On

Bandwidth ☐ 1000 Mbps ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0090.216A.0202

IP Configuration

IPv4 Address 192.168.1.12

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Equivalent IOS Commands

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/1
Router(config-if)#
```

Router3

Physical Config CLI Attributes

**GLOBAL**

Settings

Algorithm Settings

**ROUTING**

Static

RIP

**SWITCHING**

VLAN Database

**INTERFACE**

GigabitEthernet0/0

GigabitEthernet0/1

GigabitEthernet0/2

GigabitEthernet0/2

GigabitEthernet0/2

Port Status ☒ On

Bandwidth ☒ 1000 Mbps ☐ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☒ Half Duplex ☐ Full Duplex ☒ Auto

MAC Address 0090.216A.0203

IP Configuration

IPv4 Address 192.168.6.1

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Equivalent IOS Commands

```
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/1
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/2
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/2
Router(config-if)#
```

FTP

Physical Config Services Desktop Programming Attributes

IP Configuration

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.1.13

Subnet Mask 255.255.255.0

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

IPv6 Configuration

☒ Automatic ☐ Static

IPv6 Address /

Link Local Address FE80::209:7CFF:FEC8:58B8

Default Gateway

DNS Server


802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

 DNS

Physical

Config

Services

Desktop

Programming

Attributes

IP Configuration

IP Configuration

☐ DHCP

☒ Static

IPv4 Address

192.168.1.18

Subnet Mask

255.255.255.0

Default Gateway

0.0.0.0

DNS Server

0.0.0.0

IPv6 Configuration

☒ Automatic

☐ Static

IPv6 Address

 /

Link Local Address

FE80::209:7CFF:FE37:38E8

Default Gateway

DNS Server

802.1X


☐ Use 802.1X Security

Authentication

MD5

Username

Password

 Email

Physical

Config

Services

Desktop

Programming

Attributes

IP Configuration

IP Configuration

☐ DHCP

☒ Static

IPv4 Address

192.168.1.209

Subnet Mask

255.255.255.0

Default Gateway

0.0.0.0

DNS Server

0.0.0.0

IPv6 Configuration

☒ Automatic

☐ Static

IPv6 Address

 /

Link Local Address

FE80::2D0:97FF:FE87:16A2

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication

MD5

Username

Password

Web server 1

Physical Config Services **Desktop** Programming Attributes

IP Configuration

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.1.23

Subnet Mask 255.255.255.0

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

IPv6 Configuration

☒ Automatic ☐ Static

IPv6 Address /

Link Local Address FE80::201:64FF:FE7E:2C01

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

Web Server 2

Physical Config Services **Desktop** Programming Attributes

IP Configuration

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.1.31

Subnet Mask 255.255.255.0

Default Gateway 0.0.0.0

DNS Server 0.0.0.0

IPv6 Configuration

☒ Automatic ☐ Static

IPv6 Address /

Link Local Address FE80::201:43FF:FEA1:8C9

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

Realtime Simulation										
Scenario 0	Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit Delete
New Delete	Successful	Laptop4	Laptop1	ICMP	0.000	N	10	(edit)	(delete)	
Toggle PDU List Window	Successful	Laptop1	Laptop4	ICMP	0.000	N	11	(edit)	(delete)	
	Successful	Laptop1	Laptop4	ICMP	0.000	N	12	(edit)	(delete)	
	Successful	Laptop4	Laptop1	ICMP	0.000	N	13	(edit)	(delete)	

## Q#2

**Step 1: Subnet the 172.31.1.0/24 network based on the maximum number of hosts required by the largest subnet.**

1. Based on the topology, how many subnets are needed?

**7**

2. How many bits must be borrowed to support the number of subnets in the topology table?

**4**

3. How many subnets does this create?

**16**

**Note:** If your answer is less than the 14 maximum hosts required for the R3 LAN, then you borrowed too many bits.

4. Calculate the binary value for the first five subnets. Subnet zero is already shown.

Net 0: 172 . 31 . 1 . **0 0 0 0 0 0 0 0**

Net 1: 172 . 31 . 1 . **0 0 0 1 0 0 0 0**

Net 2: 172 . 31 . 1 . **0 0 1 0 0 0 0 0**

Net 3: 172 . 31 . 1 . **0 0 1 1 0 0 0 0**

Net 4: 172 . 31 . 1 . **0 1 0 0 0 0 0 0**

5. Calculate the binary and decimal value of the new subnet mask.

11111111.11111111.11111111. **1 1 1 1 0 0 0 0**

255 . 255 . 255 . **240**

6. Complete the Subnet Table, listing all available subnets, the first and last usable host address, and the broadcast address. The first subnet is done for you. Repeat until all addresses are listed.

### Subnet Table

0	172.31.1.0	172.31.1.1	172.31.1.14	172.31.1.15
1	172.31.1.16	172.31.1.17	172.31.1.30	172.31.1.31
2	172.31.1.32	172.31.1.33	172.31.1.46	172.31.1.47
3	172.31.1.48	172.31.1.49	172.31.1.62	172.31.1.63
4	172.31.1.64	172.31.1.65	172.31.1.78	172.31.1.79
5	172.31.1.80	172.31.1.81	172.31.1.94	172.31.1.95
6	172.31.1.96	172.31.1.97	172.31.1.110	172.31.1.111
7	172.31.1.112	172.31.1.113	172.31.1.126	172.31.1.127
8	172.31.1.128	172.31.1.129	172.31.1.142	172.31.1.143
9	172.31.1.144	172.31.1.145	172.31.1.158	172.31.1.159
10	172.31.1.160	172.31.1.161	172.31.1.174	172.31.1.175
11	172.31.1.176	172.31.1.177	172.31.1.190	172.31.1.191
12	172.31.1.192	172.31.1.193	172.31.1.206	172.31.1.207
13	172.31.1.208	172.31.1.209	172.31.1.222	172.31.1.223
14	172.31.1.224	172.31.1.225	172.31.1.238	172.31.1.239
15	172.31.1.240	172.31.1.241	172.31.1.254	172.31.1.255