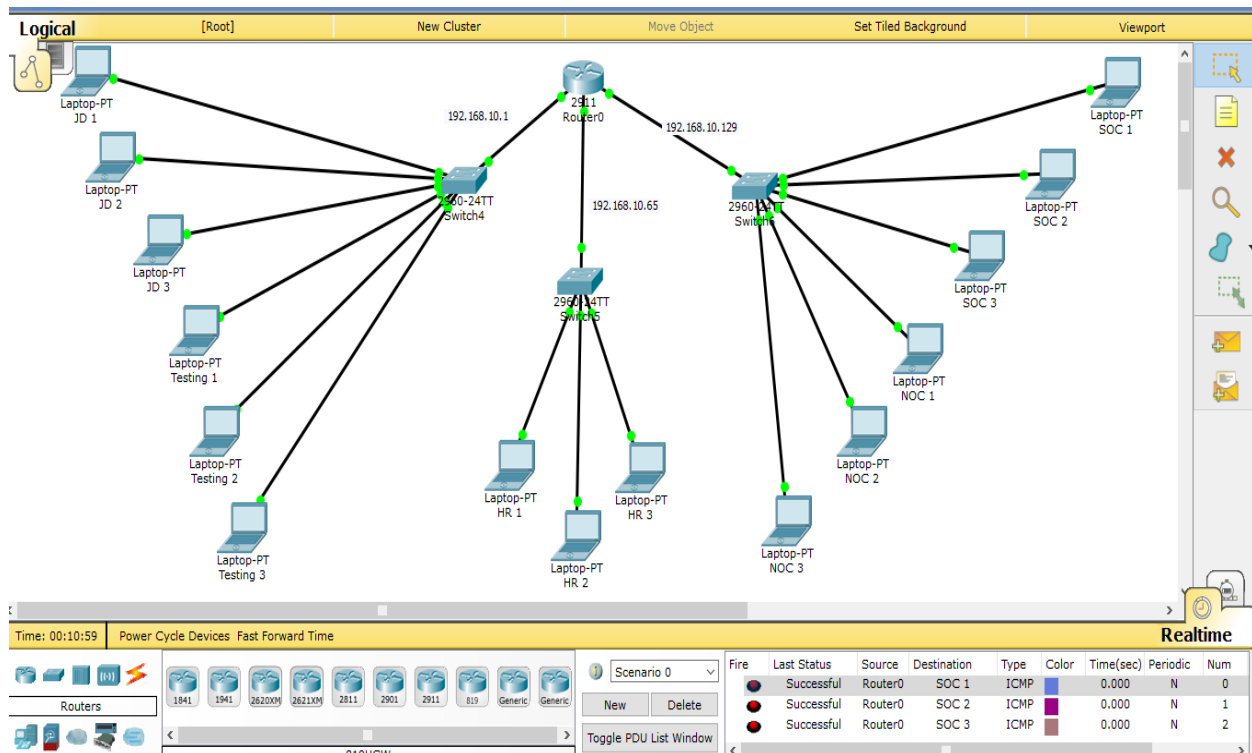## NAME :: IBRAR BABAR

ROLL NO. :: 19P-0104

CN LAB WORK :: 12

SECTION (B)

1 ROUTER SUBNETTING

IOS Command Line Interface

```
Press RETURN to get started!


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

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


R1>
R1>en
R1#conf ter
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#hostname R1
R1(config)#ip add 192.168.10.1 255.255.255.192
                   ^
% Invalid input detected at '^' marker.

R1(config)#int g0/0
R1(config-if)#ip add 192.168.10.1 255.255.255.192
R1(config-if)#no shut
R1(config-if)#ex
R1(config)#ip dhcp pool net1
R1(dhcp-config)#network 192.168.10.0 255.255.255.192
R1(dhcp-config)#dns-server 192.168.10.1
R1(dhcp-config)#default-router 192.168.10.1
R1(dhcp-config)#ex
R1(config)#
R1(config)#
```

Copy   Paste

NOTE : SELECT DHCP FOR ALL LAPTOPS OF JD AND TESTING PC'S

Router0

IOS Command Line Interface

```
R1(config)#hostname R1
R1(config)#ip add 192.168.10.1 255.255.255.192
                  ^
% Invalid input detected at '^' marker.

R1(config)#int g0/0
R1(config-if)#ip add 192.168.10.1 255.255.255.192
R1(config-if)#no shut
R1(config-if)#ex
R1(config)#ip dhcp pool net1
R1(dhcp-config)#network 192.168.10.0 255.255.255.192
R1(dhcp-config)#dns-server 192.168.10.1
R1(dhcp-config)#default-router 192.168.10.1
R1(dhcp-config)#ex
R1(config)#
R1(config)#int g0/1
R1(config-if)#ip add 192.168.10.65 255.255.255.192
R1(config-if)#no shut
R1(config-if)#ex
R1(config)#ip dhcp pool net2
R1(dhcp-config)#network 192.168.10.64 255.255.255.192
R1(dhcp-config)#dns-server 192.168.10.65
R1(dhcp-config)#default-router 192.168.10.65
R1(dhcp-config)#ex
R1(config)#
R1(config)#
R1(config)#
R1(config)#
R1(config)#
R1(config)#
```
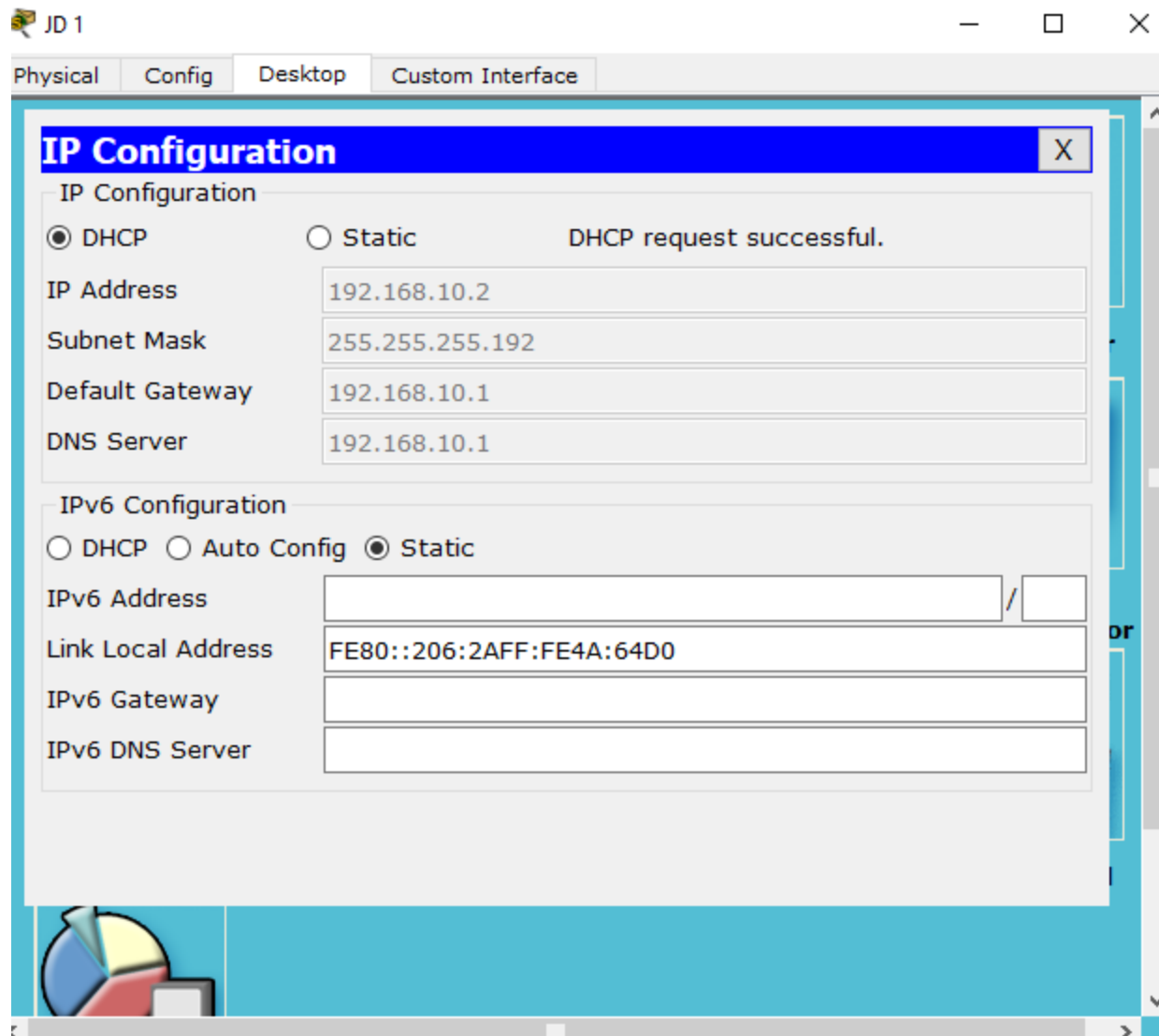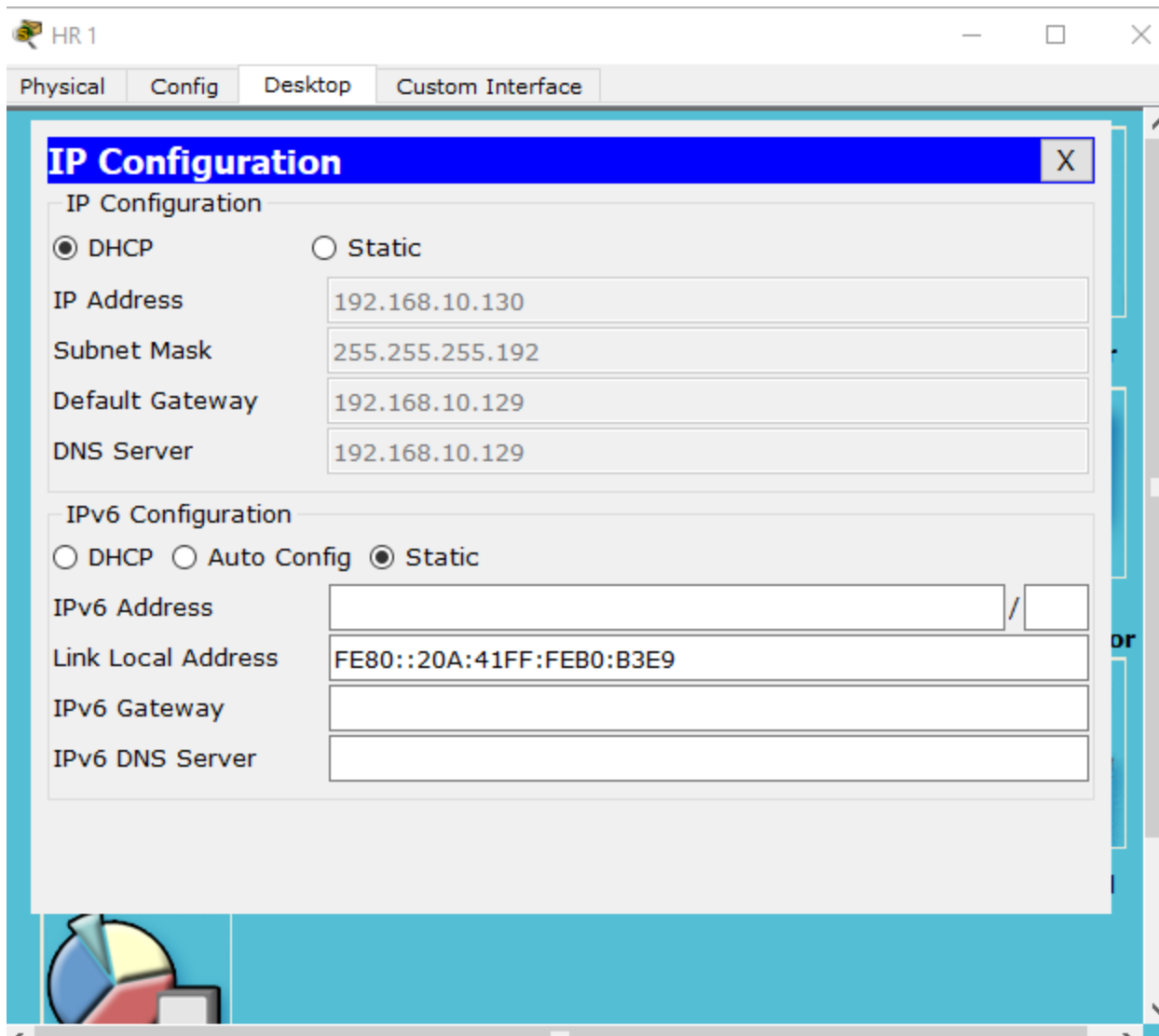
NOTE : SELECT DHCP FOR ALL LAPTOPS OF HR

IOS Command Line Interface

```
R1(dhcp-config)#ex
R1(config)#
R1(config)#
R1(config)#
R1(config)#
R1(config)#
R1(config)#int g0/2
R1(config-if)#ip add 192.168.10.129 255.255.255.192
R1(config-if)#no shut

R1(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

R1(config-if)#ex
R1(config)#ip dhcp pool net3
R1(dhcp-config)#network 191.68.10.128 255.255.255.192
R1(dhcp-config)#ex
R1(config)#ip dhcp pool net3
R1(dhcp-config)#network 192.168.10.128 255.255.255.192
R1(dhcp-config)#default-router 192.168.10.129
R1(dhcp-config)#dns-server 192.168.10.129
R1(dhcp-config)#ex
R1(config)#
R1(config)#%DHCPD-4-PING_CONFLICT: DHCP address conflict:  server pinged
192.168.10.129.

R1(config)#
```
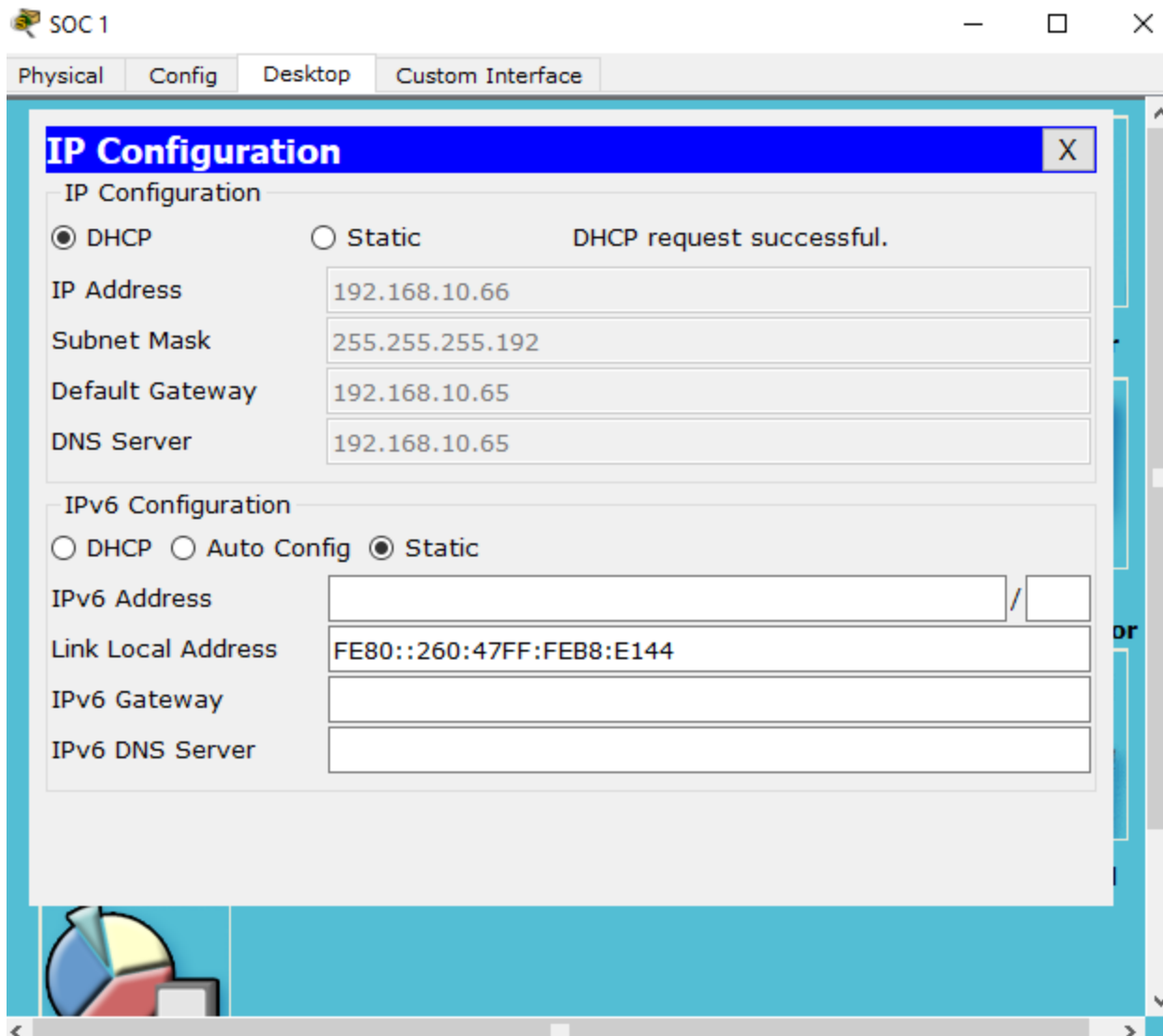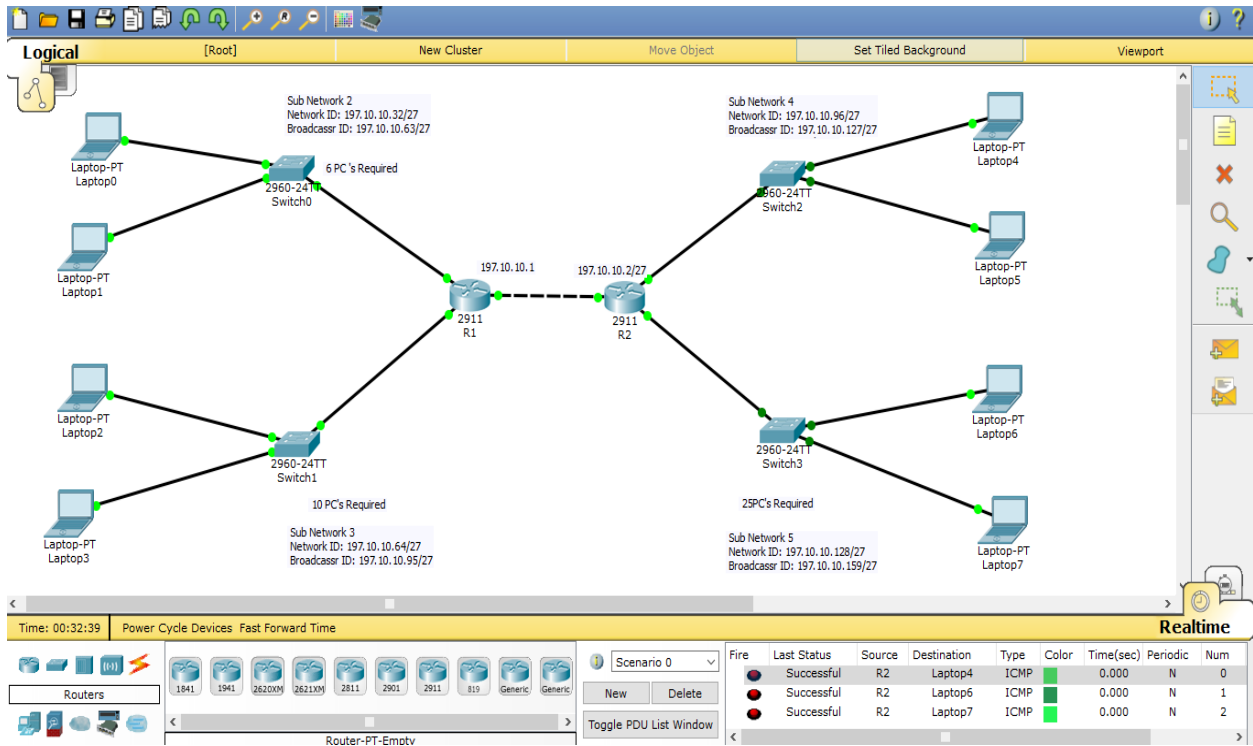
Copy   Paste

NOTE : SELECT DHCP FOR ALL LAPTOPS OF SOC AND NOC.

TWO ROUTERS SUBNETTING

IOS Command Line Interface

```
R1>
R1>en
R1#conf ter
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#int g0/0
R1(config-if)#ip add 197.10.10.1 255.255.255.224
R1(config-if)#no shut
R1(config-if)#ex
R1(config)#
R1(config)#int g0/1
R1(config-if)#ip add 197.10.10.33 255.255.225.224
Bad mask 0xFFFFE1E0 for address 197.10.10.33
R1(config-if)#no shut
R1(config-if)#ex
R1(config)#ip dhcp pool net1
R1(dhcp-config)#network 197.10.10.32 255.255.255.224
R1(dhcp-config)#default-router 197.10.10.33
R1(dhcp-config)#dns-server 197.10.10.33
R1(dhcp-config)#ex
R1(config)#
R1(config)#int g0/2
R1(config-if)#ip add 197.10.10.65 255.255.255.224
R1(config-if)#no shut
R1(config-if)#ex
R1(config)#ip dhcp pool net2
R1(dhcp-config)#197.10.10.64 255.255.255.224
                  ^
% Invalid input detected at '^' marker.

R1(dhcp-config)#network 197.10.10.64 255.255.255.224
```

IOS Command Line Interface

```
R1(config)#int g0/2
R1(config-if)#ip add 197.10.10.65 255.255.255.224
R1(config-if)#no shut
R1(config-if)#ex
R1(config)#ip dhcp pool net2
R1(dhcp-config)#197.10.10.64 255.255.255.224
                      ^
% Invalid input detected at '^' marker.

R1(dhcp-config)#network 197.10.10.64 255.255.255.224
R1(dhcp-config)#default-router 197.10.10.65
R1(dhcp-config)#dns-server 197.10.10.65
R1(dhcp-config)#ex
R1(config)#
R1(config)#
R1(config)#
R1(config)#
R1(config)#
R1(config)#
R1(config)#
R1(config)#
R1(config)#
R1(config)#
R1(config)#
R1(config)#
R1(config)#
R1(config)#
R1(config)#
R1(config)#
R1(config)#
```

Copy   Paste

IOS Command Line Interface

```
Router>en
Router#conf ter
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname R2
R2(config)#int g0/0
R2(config-if)#ip add 197.10.10.2 255.255.255.224
R2(config-if)#no shut

R2(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
ex
R2(config)#ex
R2#
%SYS-5-CONFIG_I: Configured from console by console

R2#conf ter
Enter configuration commands, one per line.  End with CNTL/Z.
R2(config)#int g0/1
R2(config-if)#ip add 197.10.10.97 255.255.255.224
R2(config-if)#no shut

R2(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up

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

Copy   Paste

IOS Command Line Interface

```
Enter configuration commands, one per line.  End with CNTL/Z.
R2(config)#int g0/1
R2(config-if)#ip add 197.10.10.97 255.255.255.224
R2(config-if)#no shut

R2(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up

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

R2(config-if)#ex
R2(config)#
R2(config)#ip dhcp pool net3
R2(dhcp-config)#network 197.10.10.96 255.255.255.224
R2(dhcp-config)#default-router 197.10.10.97
R2(dhcp-config)#dns-server 197.10.10.97
R2(dhcp-config)#ex
R2(config)#
R2(config)#int g0/2
R2(config-if)#ip add 197.10.10.129 255.255.255.224
R2(config-if)#no shut

R2(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
ex
R2(config)#
```

Copy   Paste

IOS Command Line Interface

```
R2(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up

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

R2(config-if)#ex
R2(config)#
R2(config)#ip dhcp pool net3
R2(dhcp-config)#network 197.10.10.96 255.255.255.224
R2(dhcp-config)#default-router 197.10.10.97
R2(dhcp-config)#dns-server 197.10.10.97
R2(dhcp-config)#ex
R2(config)#
R2(config)#int g0/2
R2(config-if)#ip add 197.10.10.129 255.255.255.224
R2(config-if)#no shut

R2(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
ex
R2(config)#ip dhcp pool net4
R2(dhcp-config)#network 197.10.10.128 255.255.255.224
R2(dhcp-config)#default-router 197.10.10.129
R2(dhcp-config)#dns-server 197.10.10.129
R2(dhcp-config)#ex
R2(config)#
```

Copy   Paste

R1

Physical | **Config** | _CLI_

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 `0001.64D5.5E01`

IP Configuration

IP Address `197.10.10.1`

Subnet Mask `255.255.255.224`

Tx Ring Limit `10`

Equivalent IOS Commands

```
R1(config-if)#exit
R1(config)#interface GigabitEthernet0/1
R1(config-if)#
R1(config-if)#exit
R1(config)#interface GigabitEthernet0/2
R1(config-if)#
R1(config-if)#exit
R1(config)#interface GigabitEthernet0/0
R1(config-if)#
```

Physical | Config | CLI

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   0001.64D5.5E02

IP Configuration

IP Address   197.10.10.33

Subnet Mask   255.255.255.224

Tx Ring Limit   10

Equivalent IOS Commands

```
R1(config-if)#exit
R1(config)#interface GigabitEthernet0/2
R1(config-if)#
R1(config-if)#exit
R1(config)#interface GigabitEthernet0/0
R1(config-if)#
R1(config-if)#exit
R1(config)#interface GigabitEthernet0/1
R1(config-if)#
```

R1

Physical | Config | CLI

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 0001.64D5.5E03

IP Configuration
IP Address 197.10.10.65
Subnet Mask 255.255.255.224

Tx Ring Limit 10

Equivalent IOS Commands

```
R1(config-if)#exit
R1(config)#interface GigabitEthernet0/0
R1(config-if)#
R1(config-if)#exit
R1(config)#interface GigabitEthernet0/1
R1(config-if)#
R1(config-if)#exit
R1(config)#interface GigabitEthernet0/2
R1(config-if)#
```

R2 — □ ✕

Physical | **Config** | **CLI**

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 `00D0.973D.1E01`

IP Configuration

IP Address `197.10.10.2`

Subnet Mask `255.255.255.224`

Tx Ring Limit `10`

Equivalent IOS Commands

```
ex
R2(config)#ip dhcp pool net4
R2(dhcp-config)#network 197.10.10.128 255.255.255.224
R2(dhcp-config)#default-router 197.10.10.129
R2(dhcp-config)#dns-server 197.10.10.129
R2(dhcp-config)#ex
R2(config)#
R2(config)#interface GigabitEthernet0/0
R2(config-if)#
```

R2

Physical | Config | CLI

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   00D0.973D.1E02

IP Configuration

IP Address   197.10.10.97

Subnet Mask   255.255.255.224

Tx Ring Limit   10

Equivalent IOS Commands

```
R2(dhcp-config)#default-router 197.10.10.129
R2(dhcp-config)#dns-server 197.10.10.129
R2(dhcp-config)#ex
R2(config)#
R2(config)#interface GigabitEthernet0/0
R2(config-if)#
R2(config-if)#exit
R2(config)#interface GigabitEthernet0/1
R2(config-if)#
```

R2

Physical | **Config** | **CLI**

GigabitEthernet0/2

Port Status ☑ On

Bandwidth ○ 1000 Mbps ◉ 100 Mbps ○ 10 Mbps ☑ Auto

Duplex ○ Half Duplex ◉ Full Duplex ☑ Auto

MAC Address `00D0.973D.1E03`

IP Configuration

IP Address `197.10.10.129`

Subnet Mask `255.255.255.224`

Tx Ring Limit `10`

Equivalent IOS Commands

```
R2(config)#
R2(config)#interface GigabitEthernet0/0
R2(config-if)#
R2(config-if)#exit
R2(config)#interface GigabitEthernet0/1
R2(config-if)#
R2(config-if)#exit
R2(config)#interface GigabitEthernet0/2
R2(config-if)#
```

Laptop0 — □ ✕

Physical | Config | Desktop | Custom Interface

IP Configuration   X

IP Configuration

◉ DHCP   ○ Static   DHCP request successful.

IP Address   197.10.10.35

Subnet Mask   255.255.255.224

Default Gateway   197.10.10.33

DNS Server   197.10.10.33

IPv6 Configuration

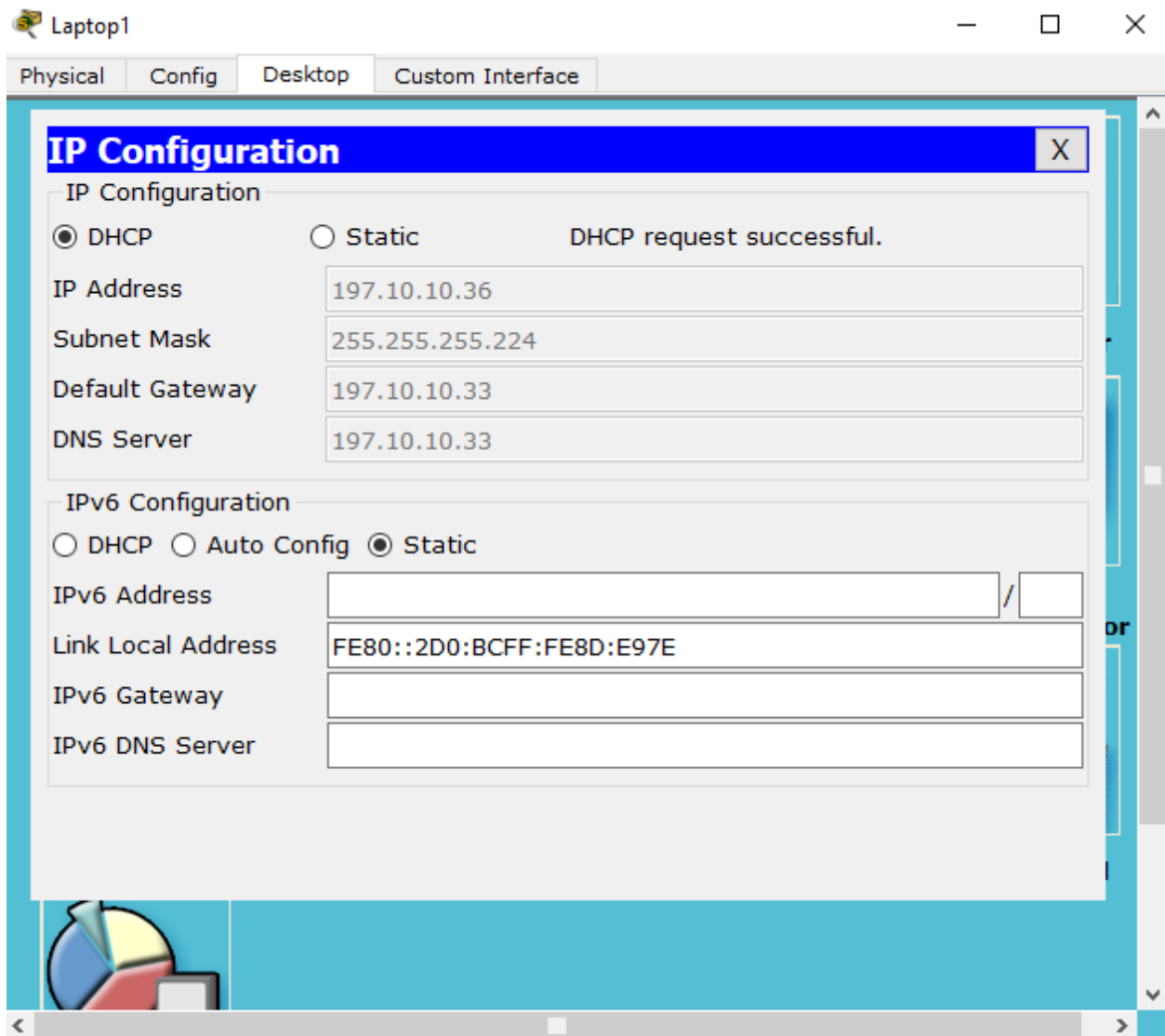○ DHCP   ○ Auto Config   ◉ Static

IPv6 Address   [   ] / [   ]

Link Local Address   FE80::20B:BEFF:FE2B:5E2C

IPv6 Gateway   [   ]

IPv6 DNS Server   [   ]

Laptop1

— ☐ ✕

| Physical | Config | Desktop | Custom Interface |

IP Configuration ✕

IP Configuration

◉ DHCP   ○ Static   DHCP request successful.

IP Address	197.10.10.36
Subnet Mask	255.255.255.224
Default Gateway	197.10.10.33
DNS Server	197.10.10.33

IPv6 Configuration

○ DHCP   ○ Auto Config   ◉ Static

IPv6 Address		/
Link Local Address	FE80::2D0:BCFF:FE8D:E97E
IPv6 Gateway	
IPv6 DNS Server	

Note : Select {DHCP} for all Laptops And PC'.