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Roll No: 19P-0045

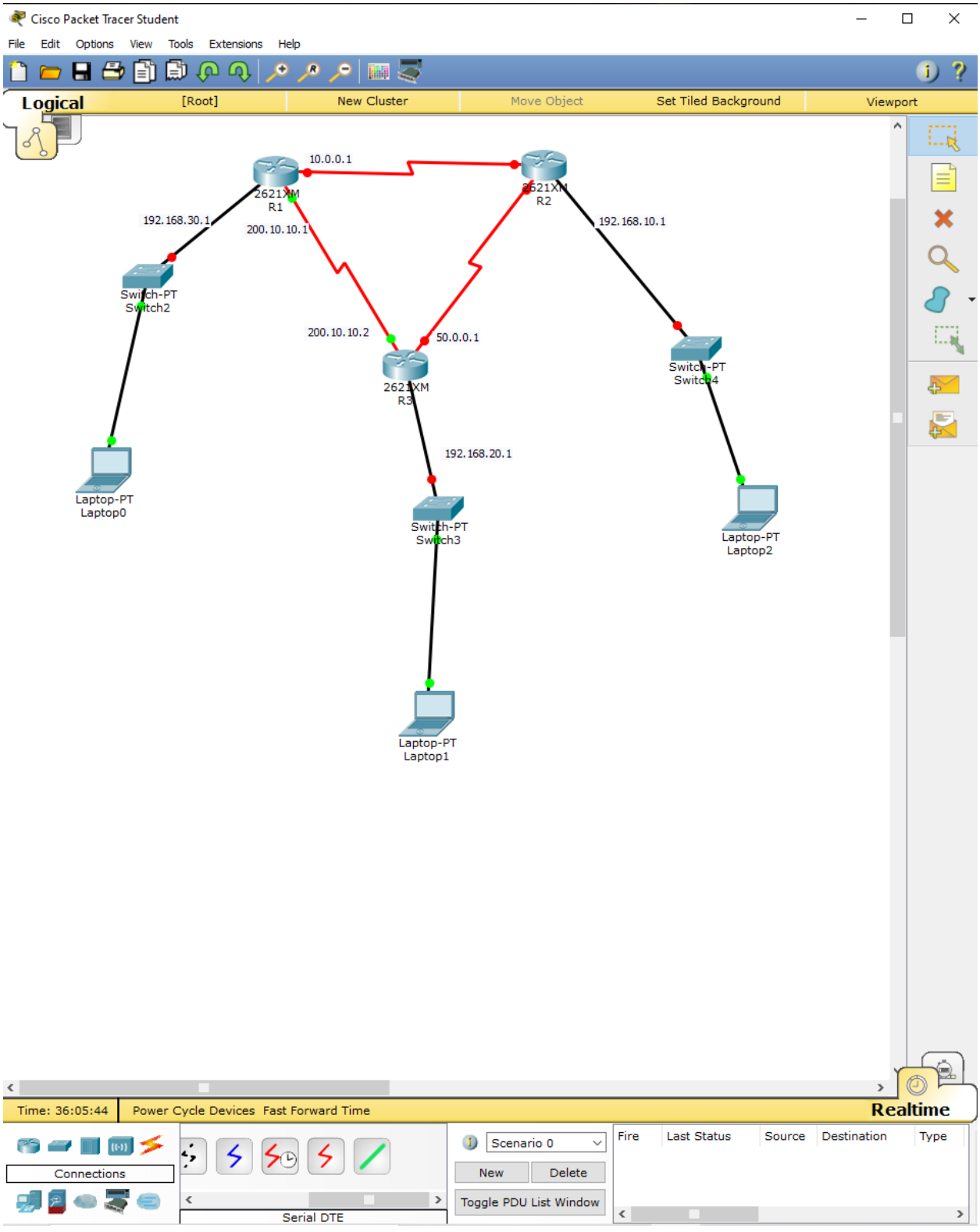
Section: BCS 5-A

Computer Networks Lab 10 – Homework

Implementation:

Topology:

b.


Cisco Packet Tracer Student
File Edit Options View Tools Extensions Help
Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
10.0.0.1
2621XM
R1
2621XM
R2
192.168.30.1
200.10.10.1
192.168.10.1
Switch-PT
Switch2
200.10.10.2
50.0.0.1
2621XM
R3
Switch-PT
Switch4
192.168.20.1
Laptop-PT
Laptop0
Switch-PT
Switch3
Laptop-PT
Laptop2
Laptop-PT
Laptop1
Time: 36:05:44
Power Cycle Devices Fast Forward Time
Realtime
Connections
Serial DTE
Scenario 0
New
Delete
Toggle PDU List Window
Fire
Last Status
Source
Destination
Type

b.

1. Setting Router Hostnames:

a. Router 1:

Renaming router 1's hostname to 'R1'.

```
Router>enable
Router#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname R1
R1(config)#
```

Router 2:

Renaming router 2's hostname to 'R2'.

```
Router>enable
Router#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname R2
R2(config)#
```

c. Router 3:

Renaming router 3's hostname to 'R3'.

```
Router>enable
Router#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname R3
R3(config)#
```

2. Adding IPs to Router Interfaces:

a. R1:

R1 has three interfaces connected to it. Hence, a different IP will be assigned to each interface.

b.

```
R1>enable
R1#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#in f0/1
R1(config-if)#ip add 192.168.30.1 255.255.255.0
R1(config-if)#no shut
R1(config-if)#ex
R1(config)#in s0/1
R1(config-if)#ip add 10.0.0.1 255.0.0.0
R1(config-if)#no shut
R1(config-if)#ex
R1(config)#in s0/0
R1(config-if)#ip add 200.10.10.1 255.255.255.252
R1(config-if)#no shut
R1(config-if)#ex
R1(config)#
```

fig 1.4

R2:

R2 also has three interfaces. A different IP will be assigned to each interface.

```
R2>enable
R2#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
R2(config)#in f0/1
R2(config-if)#ip add 192.168.10.1 255.255.255.0
R2(config-if)#no shut
R2(config-if)#ex
R2(config)#in s0/1
R2(config-if)#ip add 10.0.0.2 255.0.0.0
R2(config-if)#no shut
R2(config-if)#ex
R2(config)#in s0/0
R2(config-if)#ip add 50.0.0.2 255.0.0.0
R2(config-if)#no shut
R2(config-if)#ex
R2(config)#
```

fig 1.5

c. R3:

Same with R3 having three interfaces. A different IP will be assigned to each interface.

b.

```
R3>enable
R3#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
R3(config)#in f0/1
R3(config-if)#ip add 192.168.20.1 255.255.255.0
R3(config-if)#no shut
R3(config-if)#
R3(config-if)#ex
R3(config)#in s0/1
R3(config-if)#ip add 50.0.0.1 255.0.0.0
R3(config-if)#no shut
R3(config-if)#ex
R3(config)#in s0/0
R3(config-if)#ip add 200.10.10.2 255.255.255.252
R3(config-if)#no shut
R3(config-if)#ex
R3(config)#
```

3. Creating DHCP Pools:

The first pool will be created from R1, given the name 'p1'. Also, the default-route address will be removed from the DHCP IP pool.

```
R1>enable
R1#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#ip dhcp pool p1
R1(dhcp-config)#network 192.168.30.0 255.255.255.0
R1(dhcp-config)#default-router 192.168.30.1
R1(dhcp-config)#ex
R1(config)#ip dhcp excluded-address 192.168.30.1
R1(config)#
```

The second pool will be created using R2, given the name 'p2'. Also, the default-route address will be removed from the DHCP IP pool.

```
R2>enable
R2#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
R2(config)#ip dhcp pool p2
R2(dhcp-config)#network 192.168.10.0 255.255.255.0
R2(dhcp-config)#default-route 192.168.10.1
R2(dhcp-config)#ex
R2(config)#ip dhcp excluded-address 192.168.10.1
R2(config)#
```

The third and the final pool will be created using R3, given the name 'p3' and the default-route address will be excluded from the DHCP IP pool.

b.

```
R3>enable
R3#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
R3(config)#ip dhcp pool p3
R3(dhcp-config)#network 192.168.20.0 255.255.255.0
R3(dhcp-config)#default-route 192.168.20.1
R3(dhcp-config)#ex
R3(config)#ip dhcp excluded-address 192.168.20.1
R3(config)#
```

4. Setting up Router Routes:

a. R1:

Since R1 is connected to two end networks (one from each router). It is going to need two routing commands.

```
R1>enable
R1#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#ip route 192.168.10.0 255.255.255.0 10.0.0.2
R1(config)#ip route 192.168.20.0 255.255.255.0 200.10.10.2
```

b. R2:

Similar to R1, R2 is connected to two end networks via R1 and R3 respectively. It is going to need two routing commands.

```
R2>enable
R2#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
R2(config)#ip route 192.168.30.0 255.255.255.0 10.0.0.1
R2(config)#ip route 192.168.20.0 255.255.255.0 50.0.0.1
```

c. R3:

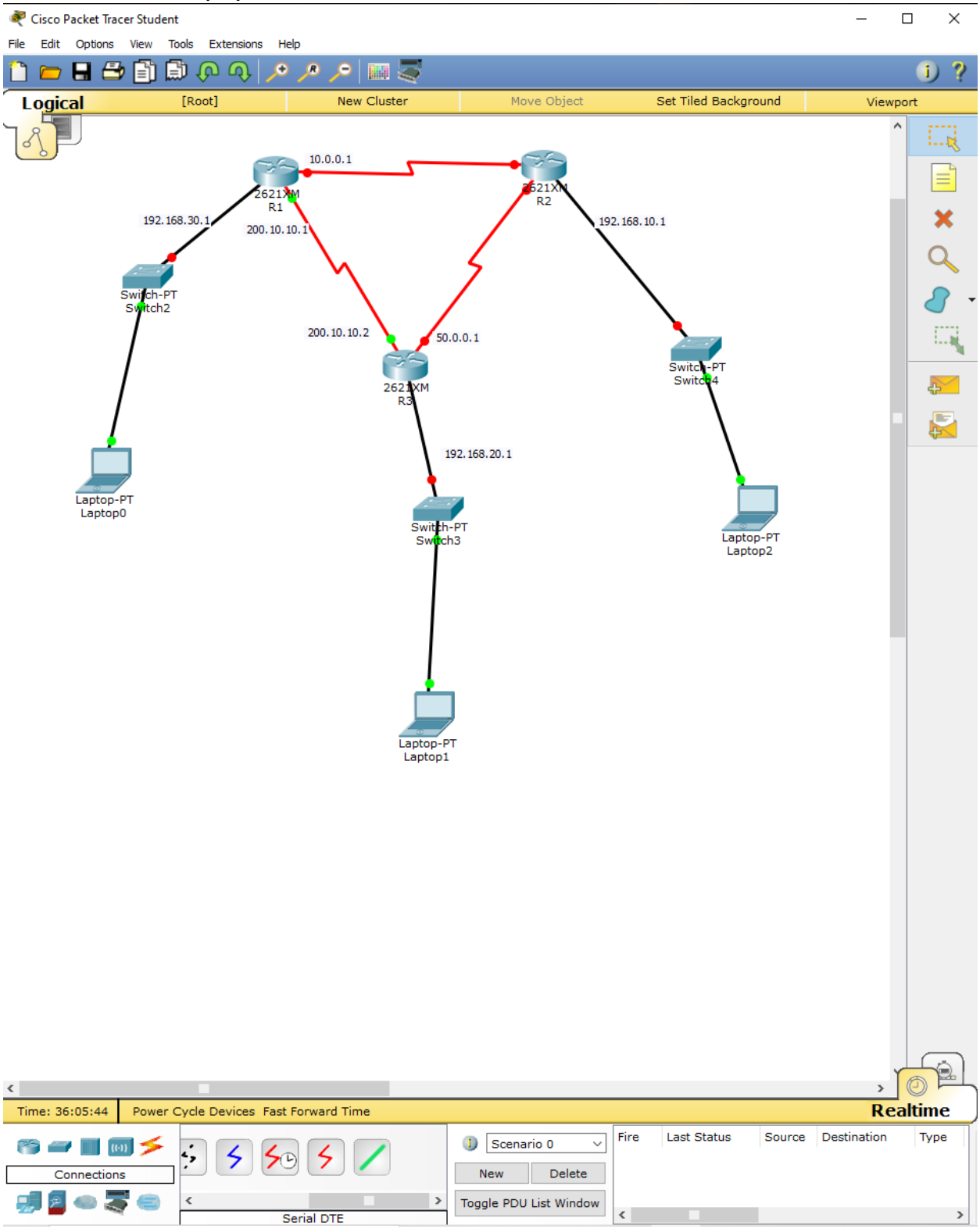
Similar to the other two routers, R3 is connected to two end networks via R1 and R2 respectively. It is going to need two routing commands.

```
R3>enable
R3#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
R3(config)#ip route 192.168.30.0 255.255.255.0 200.10.10.1
R3(config)#ip route 192.168.10.0 255.255.255.0 50.0.0.2
```

fig 2.4

How many networks are there?

There are a total of **6 (six) networks**.



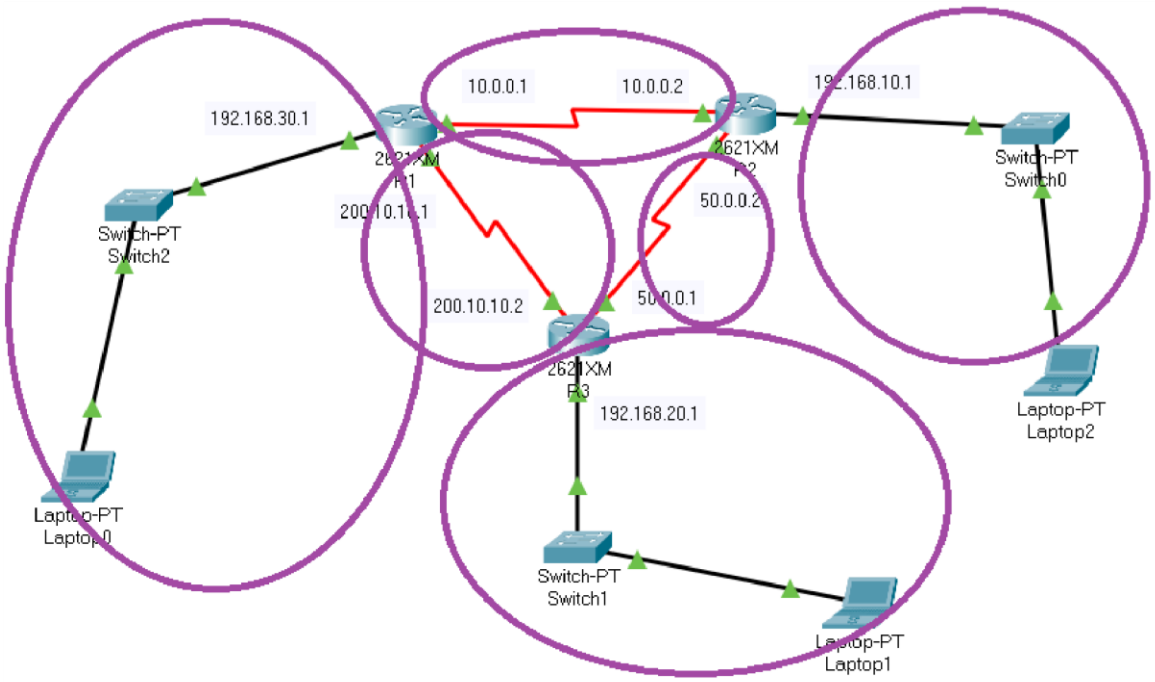

10.0.0.1
10.0.0.2
192.168.10.1
192.168.30.1
Switch-PT
Switch0
Switch-PT
Switch2
50.0.0.2
200.10.10.2
Laptop-PT
Laptop2
192.168.20.1
Switch-PT
Switch1
Laptop-PT
Laptop1

fig 2.5