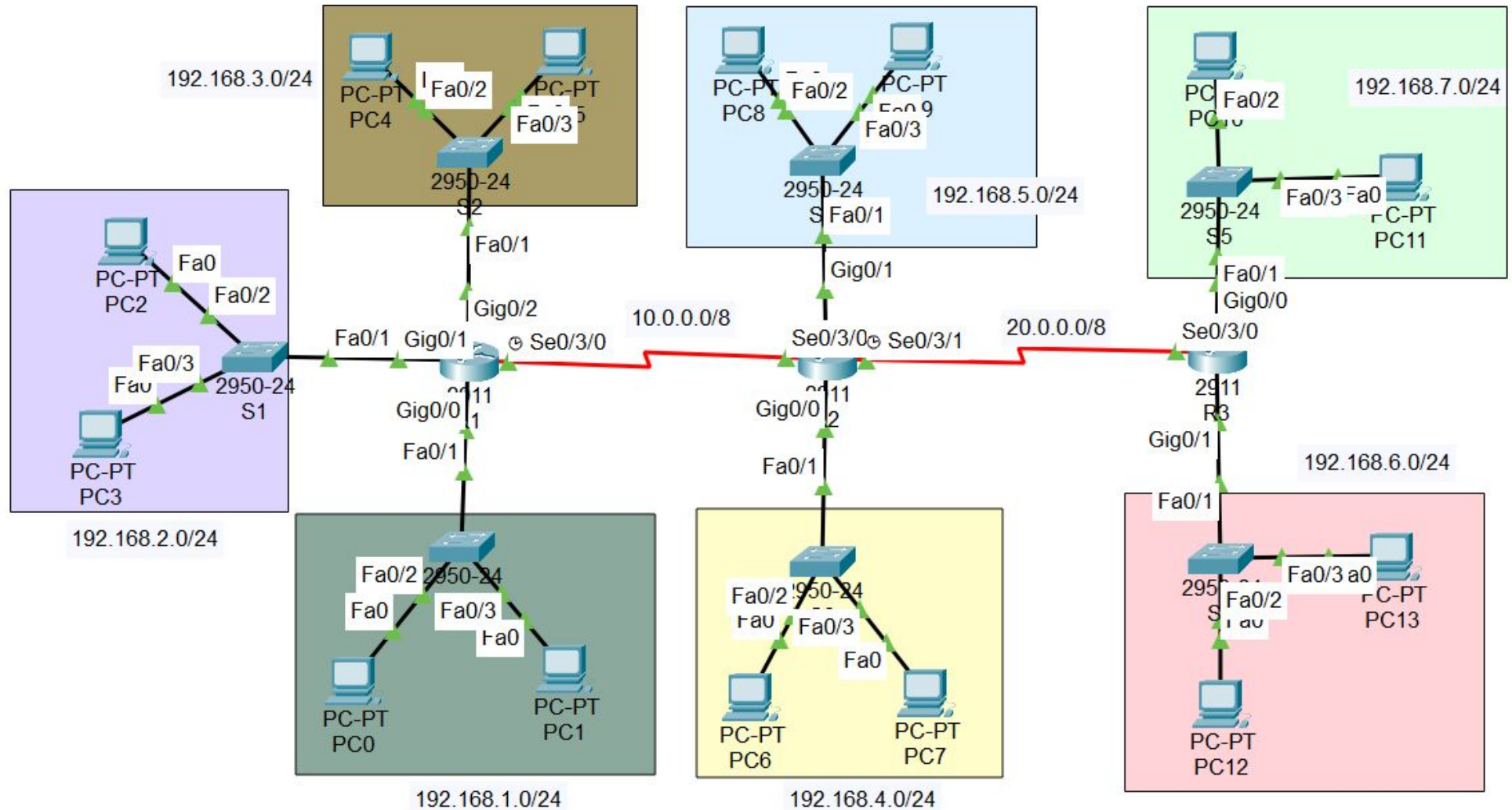COS5025-B: Computer Communications and Networks

Computer Communications and Networks
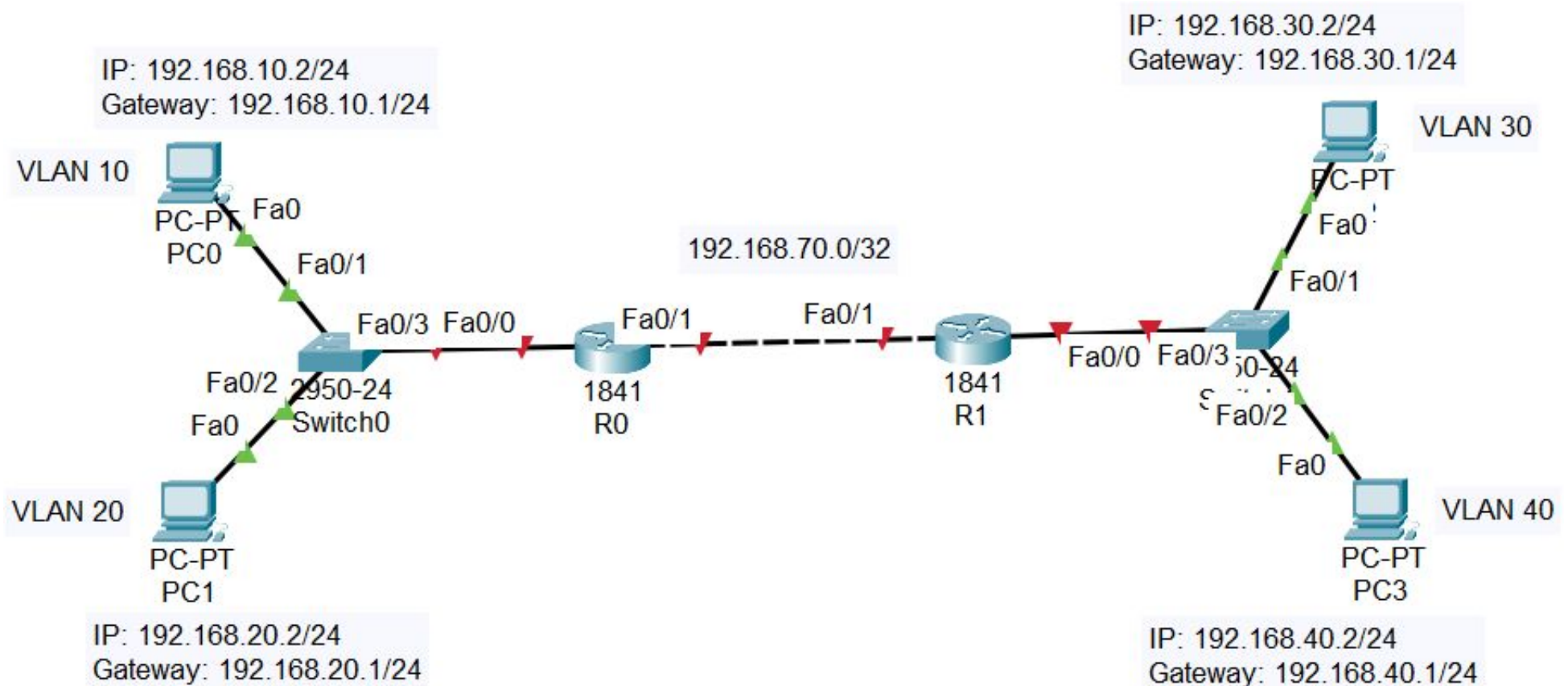
Static Routing

UNIVERSITY of BRADFORD

Create the following network topology and configure the routers with static routing information so that all PCs can communicate with each other.

192.168.3.0/24
PC-PT PC4 Fa0/2
PC-PT Fa0/3
2950-24 S2
Fa0/1

PC-PT PC8 Fa0/2
PC-PT Fa0/3
2950-24 S Fa0/1
192.168.5.0/24

PC Fa0/2
PC 192.168.7.0/24
2950-24 S5
Fa0/3 Fa0
C-PT PC11
Fa0/1

PC-PT PC2 Fa0
Fa0/2
Fa0/3
Fa0 2950-24 S1
PC-PT PC3
192.168.2.0/24

Fa0/1 Gig0/1 Se0/3/0
Gig0/2
Gig0/0 1
2911 1
Fa0/1

Gig0/1
Se0/3/0 Se0/3/1
10.0.0.0/8
Gig0/0 2
2911 2
Fa0/1

20.0.0.0/8
Se0/3/0
2911 R3
Gig0/1
192.168.6.0/24
Fa0/1

Fa0/2 2950-24
Fa0 Fa0/3
Fa0
PC-PT PC0
PC-PT PC1
192.168.1.0/24

Fa0/2 2950-24
Fa0 Fa0/3
Fa0
PC-PT PC6
PC-PT PC7
192.168.4.0/24

295 S Fa0/2
Fa0/3 a0
C-PT PC13
PC-PT PC12

COS5025-B: Computer Communications and Networks

Create the following network topology, define four VLANs as instructed, configure sub-interfaces on the routers, and set up static routing to ensure seamless communication between all PCs across different VLANs.

IP: 192.168.30.2/24
Gateway: 192.168.30.1/24

IP: 192.168.10.2/24
Gateway: 192.168.10.1/24

VLAN 30

VLAN 10

PC-PT
PC0
Fa0
Fa0/1

Fa0

192.168.70.0/32

Fa0/1

Fa0/3 Fa0/0
Fa0/1
Fa0/1

Fa0/2 2950-24
Fa0 Switch0

1841
R0

1841
R1

Fa0/0 Fa0/3 50-24
Fa0/2

Fa0

VLAN 20

VLAN 40

PC-PT
PC1

PC-PT
PC3

IP: 192.168.20.2/24
Gateway: 192.168.20.1/24

IP: 192.168.40.2/24
Gateway: 192.168.40.1/24

Exercise 2-Week 6

Building on the previous exercise, add one Ethernet port to each router (R0 and R1). Connect PC4 and PC5 to R0 using a switch and PC6 and PC7 to R1 using another switch. These newly added PCs will operate outside of any VLAN. Configure the routers to enable seamless communication between all PCs, regardless of VLAN membership.

IP: 192.168.60.3/24
Gateway: 192.168.60.1/24
PC-PT
PC7

IP: 192.168.60.2/24
Gateway: 192.168.60.1/24

IP: 192.168.30.2/24
Gateway: 192.168.30.1/24

Fa0 Fa0/2 Fa0/3

PC-PT
PC6

VLAN 30

IP: 192.168.10.2/24
Gateway: 192.168.10.1/24

2950-24
Switch Fa0/1
Eth0/0/0

PC-PT
Fa0

VLAN 10

Fa0
PC-PT
PC0

Fa0/1

192.168.70.0/32

Fa0/1

Fa0/3 Fa0/0   Fa0/1   Fa0/1

Fa0/2 2950-24   1841   1841
Fa0 Switch0   R0   R1

Fa0/0 Fa0/3 50-24
Fa0/2

Eth0/1/0

VLAN 20

Fa0

VLAN 40

PC-PT
PC1

PC-PT
PC3

IP: 192.168.20.2/24
Gateway: 192.168.20.1/24

Fa0/2 950-24

Fa0/3

Fa0

IP: 192.168.40.2/24
Gateway: 192.168.40.1/24

Fa0

PC-PT
PC4

PC-PT
PC5

IP: 192.168.50.2/24
Gateway: 192.168.50.1/24

IP: 192.168.50.3/24
Gateway: 192.168.50.1/24