The University of Jordan, Comp. Eng. Dept.
Spring 2023: Networks lab: Experiment 1
Network Cabling and Devices and Packet Tracer
(Problem Sheet)

Problem 1: Examining network setting:

Based on the network troubleshooting section discussed in the handout of this experiment.

1) Fill the following table with the correct values using the correct commands in the command prompt of your PC.

Field	Address
MAC Address	
IPv4 Address	
Subnet Mask	
Default Gateway	
DNS Server	
DHCP Server	

2) Use the appropriate commands to fill the following table with IP address and the status of ICMP messages.

URL	IP address	The status of ICMP messages
www.cisco.com		
www.google.com		
www.ju.edu.jo		

3) Display all entries in ARP cache, what is the command used to accomplish this task, and show the results to your lab supervisor. Delete the content of ARP cache. What was the command that you used?

4) Ping you partner's PC, check his/her IP address in your ARP cache, also maintain his/her MAC address, and discuss with the lab supervisor the process of ARP mapping.

Field	address
IP address	
MAC address	

5) Ping the default gateway of you PC, and fill the IP and MAC addresses of the default gateway.

Field	address
IP address	
MAC address	

Problem 2: Building network topology using Packet Tracer:

In this problem you are asked to build the network topology as shown in the figure below. The following are the procedure that you must follow to do this.

1) Use the components located in the network component box to select the PCs, router, switches, and the appropriate cables to connect different devices. Note: select router 1941 and switch 2960.
2) Use the addressing table shown below to assign the IP addresses, subnet masks of PC A and PC B.

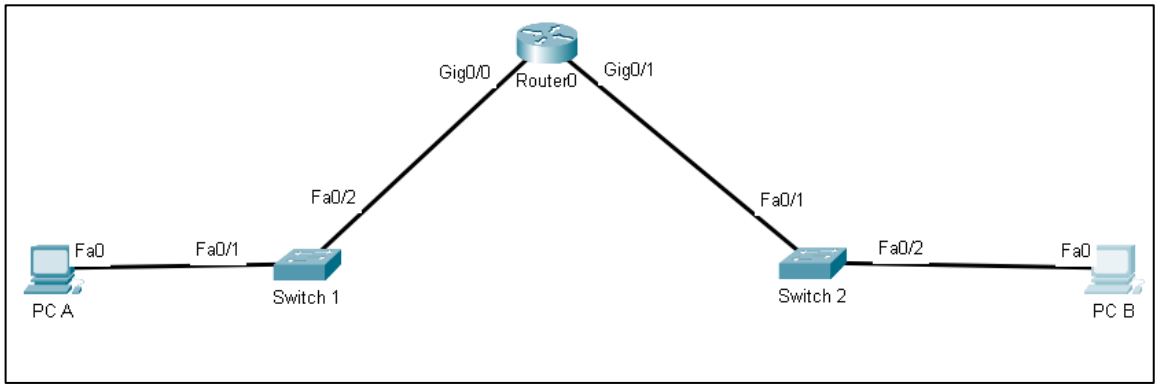


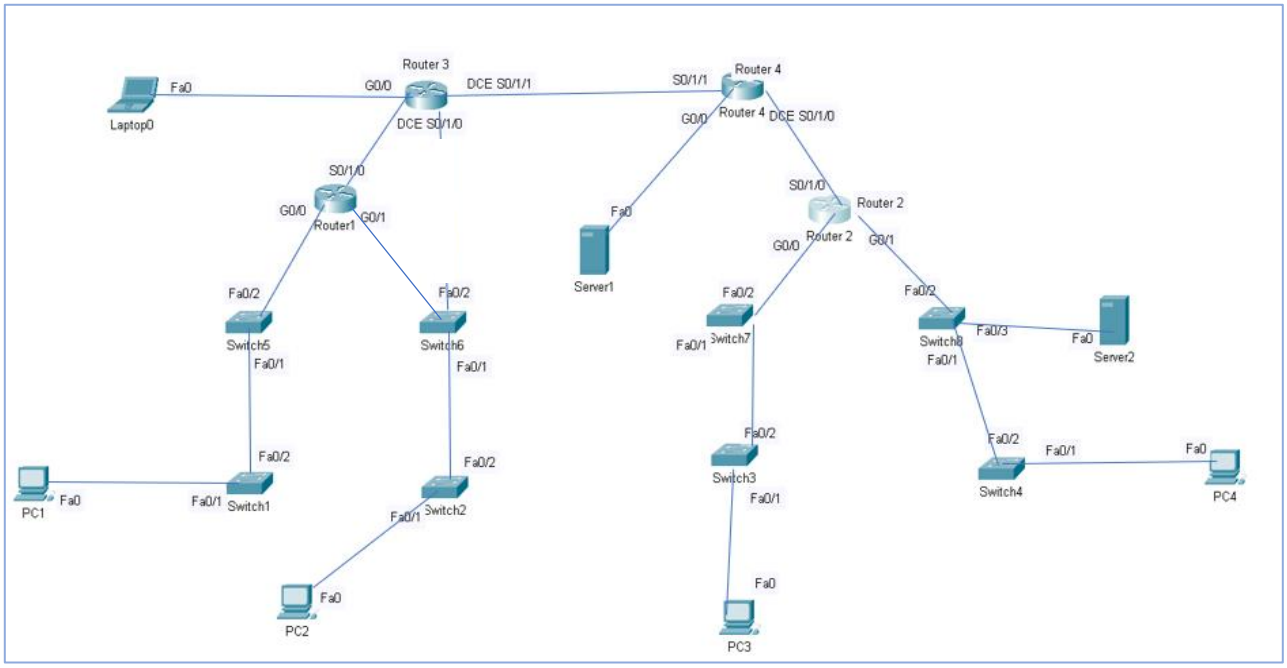
Table 1: Addressing table for the network topology.

Device	Interface	IPv4 address	Subnet Mask	Default Gateway
Router 0	**G0/0**	**172.16.0.1**	**255.255.0.0**	**-**
	G0/1	**172.17.0.1**	**255.255.0.0**	**-**
PC A	**Fa 0**	**172.16.0.2**	**255.255.0.0**	**172.16.0.1**
PC B	**Fa 0**	**172.17.1.2**	**255.255.0.0**	**172.17.0.1**

3) After you do that, you must verify the connectivity:
   - 3.1. Try to ping the default gateway of PC A (you may ping from command prompt of PC A or using the PDU message).
   - 3.2. Try to ping the default gateway of PC B (you may ping from command prompt of PC A or using the PDU message).
   - 3.3. Try to ping PC A on PC B command prompt. Was the ping successful? If not, why?
4) Now configure the default gateways of the PC's and router interfaces.
5) After you do that, you must verify the connectivity:
   - 5.1. Try to ping the default gateway of PC A (you may ping from command prompt of PC A or using the PDU message).
   - 5.2. Try to ping the default gateway of PC B (you may ping from command prompt of PC A or using the PDU message).
   - 5.3. Try to ping PC A from PC B command prompt. Was the ping successful? If not, why?

Problem 3: Connecting devices with the appropriate link type:

Open the "Exp_1_Problem_3.pka" file. In this activity, you are given a network topology with different kinds of devices (PCs, servers, switches, and routers), as shown in the figure below. In this activity, you will be asked to connect the devices using the appropriate link types and turn on the router interfaces and other turned-off devices so you can get a 100% completion rate.

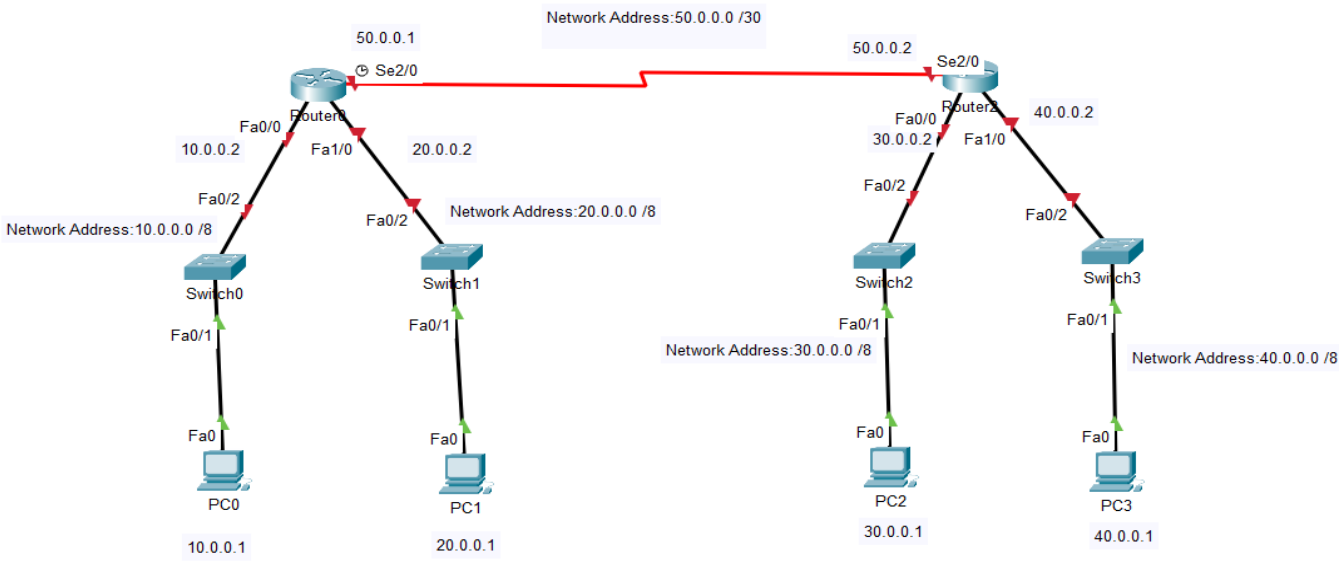


Problem 4: Connecting devices, configuring IP addresses and routing protocols:

Open “Exp_1_Problem_4. pka” file using the Packet Tracer, which contains the following network topology. Then you are required to do the following tasks.

- Check the addressing table below to perform the tasks.

Device	Interface	IP address	Subnet mask	Default gateway
Router 0	Fa0/0	10.0.0.2	255.0.0.0	-
	Fa1/0	20.0.0.2	255.0.0.0	-
	Se2/0	50.0.0.1	255.255.255.252	-
Router 2	Fa0/0	30.0.0.2	255.0.0.0	-
	Fa1/0	40.0.0.2	255.0.0.0	-
	Se2/0	50.0.0.2	255.255.255.252	-
PC0	Fa0	10.0.0.1	255.0.0.0	10.0.0.2
PC1	Fa0	20.0.0.1	255.0.0.0	20.0.0.2
PC2	Fa0	30.0.0.1	255.0.0.0	30.0.0.2
PC3	Fa0	40.0.0.1	255.0.0.0	40.0.0.2



- Configure the IP address, subnet mask, and default gateway settings on PC0, PC1, PC2, and PC3.
- Configure and activate the interfaces on **Router 0 using CLI.**
- Configure the **clock rate with the value 64000** on the DCE serial of Router 0, using the following command:

```
Router0>enable
Router0#
Router0#configure terminal
Enter configuration commands, one per line.  End with
CNTL/Z.
Router0(config)#interface Serial2/0
Router0(config-if)#clock rate 64000
Router0(config-if)#
```

- Configure and activate the RIP on **Router 0 using the CLI,** use the following commands.

```
Router(config)#router rip
Router(config-router)#network [network address]
Router(config-router)#
```

- Configure and activate the interfaces on **Router 2 using the Wizard.**
- Configure and activate the RIP on **Router 2 using the Wizard.**
- Ping PC2 from a command prompt window on PC0. Were the pings successful?
- Ping PC0 from a command prompt window on PC3. Were the pings successful?
- After completing the work, check the completion rate. It should be 100%.