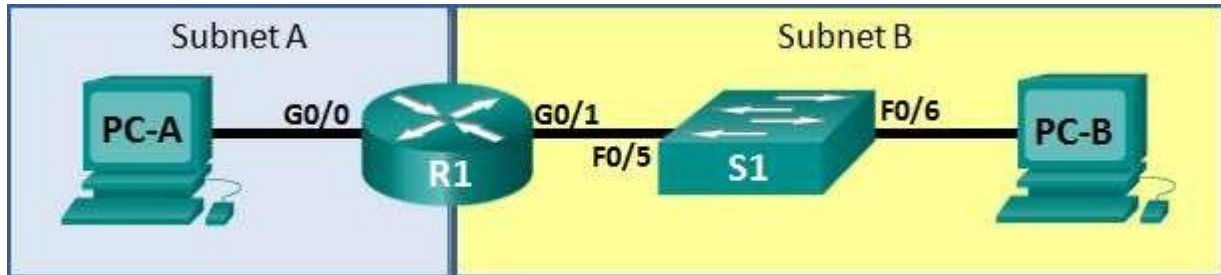# Name:

IT 140 Final Skills Assessment Fall 2018

Topology

Assessment Objectives

Part 1: Develop the IPv4 Address Scheme (20 points)

Part 2: Configure Device IPv4 and Security Settings (20 points)

Part 3: Test and Verify IPv4 End-to-End Connectivity (20 points)

Part 4: Configure IPv6 Addressing on R1 (20 points)

Part 5: Test and Verify IPv6 End-to-End Connectivity (10 points)

Part 6: Connect from PC-B to R1 ipv4 address using ssh (10 points)

Scenario

In this Skills Assessment (SA) you will configure the devices in a small network. You must configure a router, switch and PCs to support both IPv4 and IPv6 connectivity. You will configure security, including SSH, on the router.

Required Resources

- 1 Router (Cisco 1941 with Cisco IOS Release 15.2(4)M3 universal image or comparable)
- 1 Switch (Cisco 2960 with Cisco IOS Release 15.0(2) lanbasek9 image or comparable)
- 2 PCs (Windows 7, Vista, or XP with terminal emulation program, such as Tera Term)
- Console cable to configure the Cisco IOS devices via the console ports
- Ethernet cables as shown in the topology

Part 1: Develop the IPv4 Addressing Scheme

Given an IP address and mask of 192.168.10.0/255.255.255.0 (address / mask), design an IP addressing scheme that satisfies the following requirements. Network address/mask and the number of hosts for Subnets A and B is be provided below.

Subnet	Number of Hosts
Subnet A (#0)	100
Subnet B (#1)	120

Specification	Subnet A	Subnet Mask in doted decimal
Subnet # 0 address		
First IP Host address		
Last IP Host address		

Specification	Subnet B	Subnet Mask in doted decimal
Subnet #1 address		
First IP Host address		
Last IP Host address		

Host computers will use the last IP address in the subnet. The network router interface will use the first network host address. The switch will use the second network host address.

Write down the IP address information for each device:

Device	IP address	Subnet Mask	Gateway
PC-A			
R1-G0/0			N/A
R1-G0/1			N/A
S1			
PC-B			

Part 2: Configure Device IPv4 and Security Settings

Step 1: Configure host computers.

After configuring each host computer, record the host network settings with the **ipconfig /all** command.

PC-A Network Configuration	
MAC Address	
IP Address	
Subnet Mask	
Default Gateway	

PC-B Network Configuration	
MAC Address	
IP Address	
Subnet Mask	
Default Gateway	

Step 2: Configure R1.

Configuration tasks for R1 include the following:

Part 4: Configure IPv6 Addressing on R1

Task	Specification
Router name	R1
Domain name	ccna.com
Create an administrative user in the local database	username: admin password: cisco
Set login on VTY lines to use local database	
Set VTY lines to accept ssh connections only	
Interface G0/0	Set the Layer 3 IPv4 address Activate Interface
Interface G0/1	Set the Layer 3 IPv4 address Activate Interface
Generate a RSA crypto key	1024 bits modulus

Step 3: Configure S1.
Configuration tasks for R1 include the following:
Erase startup-config then reload, answer no to initial config dialog.

Task	Specification
Switch name	S1
Configure Management Interface (SVI)	Set the Layer 3 IPv4 address , activate the interface

Part 3: Test and Verify IPv4 End-to-End Connectivity

Step 1: Verify network connectivity.

Use the ping command to test connectivity between network devices.

1. ping from PC-A to PC-B (take screen shot), use 1 in the image name
2. ping from PC-A to S1 (take screenshot), use 2 in the image name

If the ping fails troubleshot and fix the problem.

Given an IPv6 network address of **2001:DB8:ACAD:A::/64 & 2001:DB8:ACAD:B::/64**, configure IPv6 addresses for the Gigabit interfaces on R1. Use **FE80::1** as the link-local address on both interfaces.

Step 1: Configure R1.

Configuration tasks for R1 include the following:

Task	Specification

Configure G0/0 to use the first address in subnet A::	Assign the IPv6 unicast address Assign the IPv6 link-local address
Configure G0/1 to use the first address in subnet B::	Assign the IPv6 unicast address Assign the IPv6 link-local address
Enable IPv6 unicast routing.	

Part 5: Test and Verify IPv6 End-to-End Connectivity

Step 1: Obtain the IPv6 address assigned by SLAAC to host PCs.

PC-A IPv6 Network Configuration	
IPv6 Address	
Default Gateway	

PC-B IPv6 Network Configuration	
IPv6 Address	
IPv6 Default Gateway	

Step 2: Use the ping command to verify network connectivity.

IPv6 network connectivity can be verified with the ping command.

3. ping from PC-A to PC-B using ipv6. Take a screenshot., use 3 in the image name

Part 6: ssh connection

From PC-B use putty or teraterm to connect to R1 ipv4 address using ssh.

4. After you connect, take a screenshot of the successful connection
5. A screen of s hip int brief & sh ipv6 int brief on R1
6. A screenshot of ipconfig on PC-A and PC-B
7. Complete the handout or word file
8. sh run | e ! for R1