Lab Sheet – 05

Title: Internet Protocol version 4 (IPv4) Subnet

Aim:

- IP addressing scheme.
- Getting familiar with IPv4 subnets
- Configure devices with IPv4 after subnetting.

Task:

- Design an IP scheme.
- Subnet the IPv4 address
- Assign IP addresses to Network devices and verify connectivity.

Use "NST21022 Labsheet 05.pka" file

Activities

Exercise 01: Subnet the 192.168.1.0/24 network to the appropriate number of subnets.

1. Based on the topology, how many subnets were needed?
2. How many bits must be borrowed to support the number of subnets in the topology table?
3. How many subnets does this create?

Exercise 02: Fill the subnet table.

Subnet Number	Network Address	First Usable Host Address	Last Usable Host Address	Broadcast Address
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Exercise 03: Configure IP address according to following criteria.

1. Assign the subnets to the network shown in the topology.
    a. Assign Subnet 1 to the LAN connected to the GigabitEthernet 0/0/0 interface of R1:

b. Assign Subnet 2 to the LAN connected to the GigabitEthernet 0/0/1 interface of R1:
c. Assign Subnet 3 to the LAN connected to the GigabitEthernet 0/0/0 interface of R2:
d. Assign Subnet 4 to the LAN connected to the GigabitEthernet 0/0/1 interface of R2:
e. Assign Subnet 5 to the WAN ling between R1 to R2:

2. Fill the addressing table using following guidelines:
   a. Assign the first usable IP addresses in each subnet to R1 for the two LAN link and WAN link.
   b. Assign the first usable IP addresses in each subnet to R2 for the LAN links, assign the last usable IP address for the WAN link.
   c. Assign the second usable IP address in the attached subnets to the switches.
   d. Assign the last usable IP address to the PCs in each subnet.

Addressing Table

Devices	Interfaces	IP Addresses	Subnet Mask	Default Gateway
R1	G0/0/0			
	G0/0/1			
	S0/1/1			
R1	G0/0/0			
	G0/0/1			
	S0/1/1			
S1	VLAN1			
S2	VLAN1			
S3	VLAN1			
S4	VLAN1			
PC-A	NIC			
PC-B	NIC			
PC-C	NIC			
PC-D	NIC			

3. Assign IP addresses to network devices and verify connectivity.