Computer Networks

Lab 10

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BSSE-5A

Task 01:

Determine Network Address of the following IP Address:

IP address : 10.128.240.50/30.

Steps:

- First, we will convert IP address into binary through the table of mannual.

  00001010.10000000.11110000.00110010

- For subnet mask we will analyze “/30” at the end of IP address 11111111.11111111.11111111.11111100

- Then we will apply add operation to binary form of IP address and subnet mask. It will be,

  00001010.10000000.11110000.00110000

- For **Network Address** we have to convert it back to integer. It will be, 10.128.240.48

Task 02:

IPv4 Address/ Prefix	Network Address	Broadcast Address	Total Number of Host Bits	Total Number of Hosts
192.168.100.25 /28	192.168.100.16	192.168.100.31	4	2^4-2 = 14
172.30.10.130 /30	172.30.10.128	172.30.10.131	2	2^2-2 = 2
10.1.113.75 /19	10.1.96.0	10.1.96.3	13	2^13-2 = 8190
198.133.219.250 /24	198.113.219.0	198.113.219.3	8	2^8-2 = 254

Steps:

- The **Network Address** can be calculated as we calculate upwards.
- The broadcast address can be calculated by analyzing the last two zeros of subnet mask, and replace the same no.of zeros at the end of network address by converting them into one, then convert it into address.
- For host bits, we can see the no.of zero in the subnet mask, then subtract it from 32.
- For total no.of hosts, we have formula,
  2^(total no.of host bits) – 2

Task 03:

Step 1: Determine the number of subnets in Network Topology A.
a. How many subnets are there?
Ans: 2

b. How many bits should you borrow to create the required number of subnets?
Ans: 1 (thoough table)

c.How many usable host addresses per subnet are in this addressing scheme?
Ans: There a
254 / 2 = 127

d. What is the new subnet mask in dotted decimal format?
Ans: 255.255.255.128

e. How many subnets are available for future use?
Ans: 1 – 1 = 0

Subnet Number	Subnet Address	First Usable Host Address	Last Usable Host Address	Broadcast Address
0	192.168.10.0	192.168.10.1	192.168.10.126	192.168.10.127
1	192.168.10.128	192.168.10.129	192.168.10.254	192.168.10.255

(Taken help from friend and internet topology.)