Lab Practical-9

study of IP Addressing and sub-netting

1. Find default subnet marks, network bits, host bits, hosts per subnet, no of subnets, subnet number, 1st valid IP address, last valid IP address and broadcast address.

i) 8.1.4.5/16
- Default subnet mask : 255.0.0.0
- Network bits : 16
- Host bits : 16
- Hosts per subnet : 65534
- No. of Subnets : 1
- Subnet number : 8.1.0.0/16
- 1st valid IP address : 8.1.0.1
- Last valid IP address : 8.1.255.254
- Broadcast address : 8.1.255.255

ii) 130.4.102.1/24
- Default subnet mask : 255.255.255.0
- Network bits : 24
- Host bits : 8
- Hosts per subnet : 254
- No. of Subnets : 1
- Subnet number : 130.4.102.0/24
- 1st valid IP address : 130.4.102.1
- Last valid IP address : 130.4.102.254
- Broadcast address : 130.4.102.255

iii) 199.1.1.1/24
- Default subnet mask : 255.255.255.0
- Network bits : 24
- Host bits : 8

- Hosts per subnet : 254
- No. of Subnets : 1
- Subnet number : 199.1.1.0/24
- 1st valid IP address : 199.1.1.1
- Last valid IP address : 199.1.1.254
- Broadcast address : 199.1.1.255

iv) 130.4.102.1 / 22
   - Default Subnet mask : 255.255.252.0
   - Network bits : 22
   - Host bits : 10
   - Hosts Per subnet : 1022
   - No. of Subnets : 4
   - Subnet number : 130.4.100.0/22
   - 1st valid IP address : 130.4.100.1
   - Last valid IP address : 130.4.103.254
   - Broadcast address : 130.4.103.255

v) 199.1.1.100 /27
   - Default Subnet mask : 255.255.255.224
   - Network bits : 27
   - Host bits : 5
   - Hosts per subnet : 30
   - No. of subnets : 8
   - Subnet number : 199.1.1.96 /27
   - 1st valid IP address : 199.1.1.97
   - Last valid IP address : 199.1.1.126
   - Broadcast address : 199.1.1.127

2. A host in a class C network has been assigned an IP address 192.168.17.9. Find the number of addresses in the block, the first address, and the last address.

- No. of addresses : 256
- First address : 192.168.17.0
- Last address : 192.168.17.255

3. An address in a block is given as 185.28.17.9. Find the number of addresses in the block, the first address, and the last address.

- No. of addresses : 65536
- First address : 185.28.0.0
- Last address : 185.28.255.255

4. A block of addresses is granted to a small organization. We know that one of the addresses is 205.16.37.39/28. What is the first address, last address, number of addresses in a block.

- No. of addresses : 16
- First address : 205.16.37.33
- Last address : 205.16.37.46

5. Subnet the IP address 216.21.5.0 into 30 hosts in each subnet. Find class, Default mask, Bit Borrowed, New subnet mask, No. of Hosts & subnet, Network Ranges (subnets).

- class : c
- Default subnet mask : 255.255.255.0
- Bitss borrowed : 3
- New subnet mask : 255.255.255.224
- No. of Subnets : 8
- No. of hosts per subnet : 30
- Subnets : 32

6. Subnet the IP address 192.10.20.0 into 52 hosts in each subnet. Find class, Default mask, Bit Borrowed, New Subnet mask, No. of Hosts & subnet, Network Ranges (subnets).

- class : C
- Default Subnet mask : 255.255.255.0
- Bits borrowed : 2
- New subnet mask : 255.255.255.192
- No. of subnets : 4
- No. of hosts per subnet : 62
- Subnets : 64