1. **Subnetting:**

**Consider any Class C network with default subnet mask.**

1. **What is the new subnet mask?**
2. **Divide that network into 4 equal subnets (specify range).**
3. **How many hosts can be connected in each subnet?**
4. **How many actual hosts can be connected in that network?**

Ans-> consider block in class c-

192.168.4.0 to 192.168.4.255

**First we need to find subnet mask:**

Default Mask of Class C is :=> 255.255.255.0

We need to create 4 Subnets: so 2^n=4. Here, n=2, So need to move first two bits of last octate 1.

Ie.

Initially : 11111111 . 11111111 . 11111111 . 00000000

After : 11111111 . 11111111 . 11111111 . **11**000000

**Subnet mask is**: 255.255.255.**192**

**Number of subnets= 4**

**Starting address of each Subnet:**

11000000 . 10100100 . 00000100 . **00**000000 (192.168.4.0)

11000000 . 10100100 . 00000100 . **01**000000 (192.168.4.64)

11000000 . 10100100 . 00000100 . **10**000000 (192.168.4.128)

11000000 . 10100100 . 00000100 . **11**000000 (192.168.4.192)

**First Subnet:** 192.168.4.0 to 192.168.4.63

Network Address: 192.168.4.0

Broadcast Address: 192.168.4.63

Usable host in this subnet: 192.168.4.1 **to**  192.168.4.62 (Total 62 Hosts)

**Second Subnet:** 192.168.4.64 to 192.168.4.127

Network Address: 192.168.4.64

Broadcast Address: 192.168.4.127

Usable host in this subnet: 192.168.4.65 **to**  192.168.4.126 (Total 62 Hosts)

**Third Subnet:** 192.168.4.128 to 192.168.4.191

Network Address: 192.168.4.128

Broadcast Address: 192.168.4.191

Usable host in this subnet: 192.168.4.129 **to**  192.168.4.190 (Total 62 Hosts)

**Forth Subnet:** 192.168.4.192 to 192.168.4.255

Network Address: 192.168.4.192

Broadcast Address: 192.168.4.255

Usable host in this subnet: 192.168.4.193 **to**  192.168.4.254 (Total 62 Hosts)

1. **What is the new subnet mask?**

Ans:

**Subnet mask is**: 255.255.255.**192**

1. **Divide that network into 4 equal subnets. (specify Range of each subnet)**

**Ans:**

**First Subnet:** 192.168.4.0 to 192.168.4.63

**Second Subnet:** 192.168.4.64 to 192.168.4.127

**Third Subnet:** 192.168.4.128 to 192.168.4.191

**Forth Subnet:** 192.168.4.192 to 192.168.4.255

1. **How many hosts can be connected in each subnet?**

**Ans:**

**In each subnet 62 hosts can be connected (64 – 2 = 62)**

1. **How many actual hosts can be connected in that network?**

**Ans:**

**Total 248 Hosts ( 62+62+62+62=248)**

**Simulation on Packet Tracer:**

