**IP address**

**2 ways to assign**

1. **DHCP – Dynamic Host Configuration Protocol**
2. **Static – manually assigning**

**32 bits**

**10.10.10.10**

**00001010.00001010.00001010.00001010**

**A 0-127 – 255.0.0.0**

**/8**

**11111111.00000000.00000000.00000000**

**B 128-191- 255.255.0.0**

**/16**

**11111111.11111111.00000000.00000000**

**C 192-223- 255.255.255.0**

**/24**

**11111111.11111111.11111111.00000000**

**1 1 1 1 1 1 1 1**

**2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0**

**128x1 + 64x1 + 32x1 + 16x1+8x1+4x1+2x1 = 128+64+32+16+8+4+1 = 255**

**Classful – 255.0.0.0 - A /8**

**255.255.0.0 B /16**

**255.255.255.0 C /24**

**classless**

**1-31**

**/ prefix length**

**/20**

**11111111.11111111.11110000.00000000**

**255.255.240.0**

* **Subnet mask is used to calculate network number from given IP address**

**IP address 192.168.10.10**

**Subnet mask 255.255.255.0**

**11000000.10101000.00001010.00001010**

**11111111.11111111.11111111.00000000**

**11000000.10101000.00001010.00000000**

**Network number**

**192.168.10.0**

**192.168.10.10**

**IP address – network number + host number**