**Questions on IP addressing**

1. What is the number of addresses in an IPv4 and IPv6 address?
2. What is the network address in block of addresses?
3. What are the default masks for class A,B and C?
4. Change the following IP addresses from binary notation to dotted decimal notation.
5. 01111111 11110000 01100111 11111001
6. 10101111 11000111 11111000 00011101
7. 11011111 10110000 00011111 01011101
8. 11100000 11110111 11000111 01111101
9. Find the netid (Organization ID)and the hostid of the following IP addresses.
10. 117.34.3.8
11. 132.57.8.6
12. 207.3.54.12
13. In a block of addresses, we know the IP address of one host is 182.44.82.16/26. What are the first address and last address in the block?
14. An ISP is assigned a block of addresses starting with 120.60.4.6/22. Find the total number of addresses to be assigned. Also find the first address and last address of given block.
15. Find the class of following IP addresses.
16. 237.14.2.1
17. 208.35.54.12
18. 129.14.6.8
19. 114.34.2.8
20. 10101111 11000000 11110000 00011101
21. 10101111 11000000 11110000 00011101
22. 11011111 10110000 00011111 01011101
23. A **broadcast address** is the one that addresses to all the hosts in any network. State that to create a broadcast address, all the bits of network ID portion or all the bits of host ID portion are set to 1? Write down the broadcast addresses of the networks to which the following IP addresses belong, write network addresses and ranges of their valid IP address too. (No subnetting)
    1. 129.65.225.4 b. 211.35.20.18 c. 180.47.115.6
24. **Subnet Mask** or Custom mask tells us that how many bits are used for Subnet ID portion and how many for host ID portion. Identify how many bits are used for subnetting in the following IP address using its subnet mask:
    1. **IP Address:** 135.65.225.4 **Subnet Mask:** 255.255.240.0
    2. **IP Address:** 210.35.20.18 **Subnet Mask:** 255.255.255.248
    3. **IP Address:** 190.47.115.6 **Subnet Mask:** 255.255.254.0
25. Extract the **Network Addresses** of the given IP addresses in question number 8, using the subnet masks given with them. (Remember that ANDing the IP address with the Mask extracts the network address from the given IP address).
26. Which of the following Subnet masks would allow a class A network to allow subnets to have up to 150 hosts and allow for up to 164 subnets?
27. 255.0.0.0 b. 255.255.255.0 c. 255.255.192.0 d. 255.255.240.0 e.255.255.252.0
28. Suppose you have a **class C** Network 208.94.115.0. Your task is to design a **subnet scheme** so that we can create **16 Network segments** (subnets) within this Network. Each subnet should support **10-14 hosts**.
    1. How many bits would you use for the subnet ID?
    2. How many bits would you use for the Host ID?
    3. How many maximum possible subnets will be there?
    4. How many maximum possible hosts will be there in each subnet?
    5. Write down the Subnet Mask of your scheme.
    6. Write down **All the valid IP addresses**, the broadcast address of the **First** subnet of your scheme.
29. Suppose you have a **class C** Network 220.94.115.0. Your task is to design a **subnet scheme** so that we can create 28 **Network segments** (subnets) within this Network. Each subnet should support **hosts as given below**.

* 2 Network Segment support 30 Hosts
* 4 Network Segment support 14 Hosts
* 8 Network Segment support 6 Hosts
* 14 Network Segment support 2 Hosts