Yenglong
Sayaovong

IFT 259 Introduction to Internet Networking

Lab 10

Classless Subnetting

1. Which of the following is the subnet broadcast address for the subnet in which IP address 172.31.77.201/27 resides?

   a. 172.31.201.255

   b. 172.31.255.255

   c. 172.31.77.223

   d. 172.31.77.207

2. Represent /26 in dotted decimal format.

   a. 255.0.0.0

   b. 255.255.255.192

   c. 255.255.255.0

   d. 255.255.255.128

3. What valid host range is the IP address 172.21.149.224/23 a part of?

   172.21.148.1 - 172.21.149.254

4. What is the first valid host on the subnetwork that the node 192.168.247.251/26 belongs to?

   192.168.247.193

5. When calculating usable hosts per subnet, the following formula is used 2^bits - 2. For what reason are two addresses subtracted? (Select Two)

a. Broadcast

b. Multicast

c. Unicast

d. Network

6. What is the first valid host on the subnetwork that the node 172.25.130.178/25 belongs to?

172.25.130.129

7. Find the Broadcast Address of the following Subnet ID.

	Subnet ID	Subnet Mask	Broadcast Add
1	10.72.0.0	255.248.0.0	10.79.255.255
2	172.30.64.0	255.255.192.0	172.30.127.255
3	192.168.6.52	255.255.255.252	192.168.6.55
4	172.22.54.0	255.255.254.0	172.22.55.255
5	10.77.3.14	255.255.128.0	10.77.127.255

8. How many subnets and hosts per subnet can you get from the network 192.168.98.0 255.255.255.252?

4 host and 64 subnets

9. Number of hosts located on a network, where the IPv4 where subnet make is /27

   a. 27

   b. 30

   c. 32

   d. 5

10. How many subnets and hosts per subnet can you get from the network 192.168.116.0/28?

    202

11. What is the first valid host on the subnetwork that the node 172.18.232.94 255.255.252.0 belongs to?

    172.18.232.1

12. Two ways to represent the network mask that would allow 14 hosts would be:

    a. /14

    b. 255.255.255.240

    c. 255.255.14.0

    d. /28

13. What valid host range is the IP address 192.168.254.181 255.255.255.192 a part of?

    192.168.254.129 - 192.168.254.190

14. How many subnets and hosts per subnet can you get from the network 192.168.29.0 255.255.255.240?

    16 host and 16 Subnet

15. Which subnet does host 172.25.245.73/24 belong to?

172.25.245.64

16. What is the first valid host on the subnetwork that the node 192.168.247.66/29 belongs to?

192.168.247.193

17. What valid host range is the IP address 172.22.78.202/28 a part of?

172.22.78.193 - 172.22.78.206

18. What valid host range is the IP address 192.168.44.139/28 a part of?a

192.163.44.129 - 192.163.44.142

19. What are the assignable addresses for the 12th subnet with the network address of 220.100.100.0 and the number of needed subnets is 45?

    a. 220.100.100.42 to 220.100.100.51

    b. 220.100.100.52 to 220.100.100.55

    c. 220.100.100.45 to 220.100.100.46

    d. 220.100.100.40 to 220.100.100.44

20. You have a network address of 200.138.1.0 with a subnet mask of 255.255.255.252. Please list the following: number of networks, number of hosts per network, the full range of the first three networks, and the usable address range from those first three networks. Additionally, identify the broadcast addresses for each network.

a. Number of networks = 64

b. Number of hosts = 2

c. Full Range for first three networks:

i. 200.138.1.0 - 200.138.1.3

ii. 200.138.1.4 - 200.138.1.7

iii. 200.138.1.8 - 200.138.1.11

d. Usable Range for first three networks:

i. 200.138.1.1 - 200.138.1.2

ii. 200.138.1.5 - 200.138.1.6

iii. 200.138.1.9 - 200.138.1.10

e. Broadcast Addresses for first three networks:

i. 200.138.1.3

ii. 200.138.1.7

iii. 200.138.1.11