CS & IT ENGINEERING

COMPUTER NETWORKS

IPv4 Addressing

Lecture No-16

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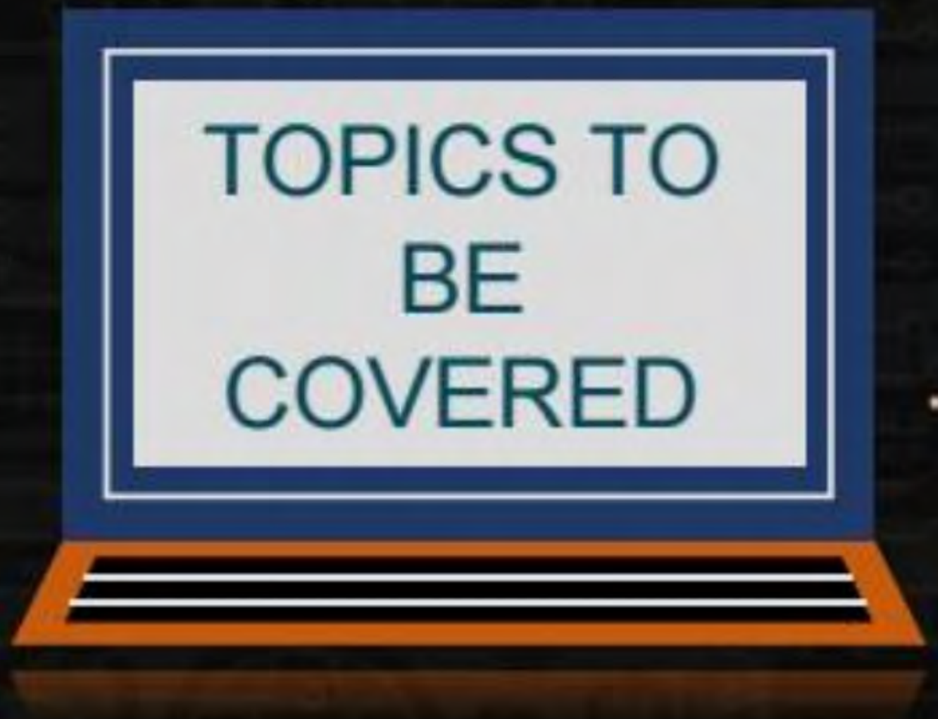

Problem Solving on Subnetting

Problem Solving on Subnetting Part – 2

Q.1 IP address in a block= 125.200.100.90 and the subnet Mask = 255.252.0.0 then Find

(i) 3rd host in 2nd Subnet _____

(ii) 4th host in 3rd Subnet _____

(iii) 1st host in 4th Subnet _____

Class-A

SM: 255 . 11111100 . 00000000 . 00000000

NID SID HID

① 2nd subnet 3rd Host

125 . ------ . -------- . --------

SID HID

125 . 00000100 . 00000000 . 00000011 → 125 . 4 . 0 . 3

21

00000011

32 16 8 4 2 1

000010

② 3rd subnet 4th Host

125 · 00001000 · 00000000 · 00000100 → 125 · 8 · 0 · 4

③ 4th subnet 1st Host

125 · 00001100 · 00000000 · 00000001 → 125 · 12 · 0 · 1

Q.2 IP address in a block= 157.157.100.90 and the subnet Mask = 255.255.224.0 then Find

→ class-B

SM = 255.255.111|00000.00000000
NID SID HID

(i) 3rd host in 2nd Subnet _____

(ii) 4th host in 3rd Subnet _____

(iii) 1st host in 4th Subnet _____

① 2nd subnet 3rd Host

157.157.00100000.00000011 → 157.157.32.3

② 3rd subnet 4th Host

157.157.01000000.00000100 → 157.157.64.4

③ 4th subnet 1st Host

157.157.01100000.00000001 → 157.157.96.1

Q.3 IP address in a block= 200.200.200.90 and the subnet Mask = 255.255.255.240 then Find

(i) 3rd host in 2nd Subnet _____

(ii) 4th host in 3rd Subnet _____

(iii) 1st host in 4th Subnet _____

↳ class-C

SM: 255.255.255.11110000
NID SID HID

① 2nd subnet 3rd Host
200.200.200.0001 001 1 → 200.200.200.19

② 200.200.200.34

③ 200.200.200.49

Q.4 Consider three machines M, N, and P with IP addresses 157.157.38.90, 157.157.48.90, and 157.157.68.90 respectively. The subnet mask is set to 255.255.192.0 for all the three machines. Which one of the following is true?

SM: 255.255.11000000.00000000
NID SID

A. M, N, and P belong to three different subnets

B. Only N and P belong to the same subnet

C. Only M and N belong to the same subnet

D. M, N, and P all belong to the same subnet

M: 38: 00100110
N: 48: 00110000
P: 68: 01000100

M & N belong to same subnet

AD Rule 2.0

	128	64
M : 38 :	0	0
N : 48 :	0	0
P : 68 :	0	1

M & N belong to same subnet

Q.5 Consider three machines M, N, and P with IP addresses 157.157.38.90, 157.157.48.90, and 157.157.68.90 respectively. The subnet mask is set to 255.255.240.0 for all the three machines. Which one of the following is true?

SM: 255.255.11110000.00000000
NID SID

A. M, N, and P belong to three different subnets

B. Only N and P belong to the same subnet

C. Only M and N belong to the same subnet

D. M, N, and P all belong to the same subnet

AD Rule ?.0
128 64 32 16
M: 38: 0 0 1 0
N: 48: 0 0 1 1
P: 68: 0 1 0 0
M, N & P belong to different subnet

Q.6 Consider three machines M, N, and P with IP addresses 100.40.38.90, 100.92.48.90, and 100.80.68.90 respectively. The subnet mask is set to 255.224.0.0 for all the three machines. Which one of the following is true?

SM: 255 . 11100000 . 00000000 . 00000000
NID SID HID

A. M, N, and P belong to three different subnets

B. Only N and P belong to the same subnet ✓

C. Only M and N belong to the same subnet

D. M, N, and P all belong to the same subnet

128 64 32

M : 40 : 0 0 1

N : 92 : 0 1 0

P : 80 : 0 1 0

N & P belong to same subnet

Q.7 Consider three machines M, N, and P with IP addresses

M = 200.40.38.50,

N = 200.92.48.40,

P = 200.80.68.60,

subnet mask = 255.255.255.224, then find which host of which subnet

sm: 255.255.255.11100000
NID SID HID

Soln M: 200.40.38.00110010
SID HID

d.val → 1 → 2nd subnet

d.val → 18 → 18th Host

N : 200 · 92 · 48 · 00101000

SID HID

d·val → 1 → 2nd subnet

d·val → 8 → 8th Host

P : 200 · 80 · 68 · 00111100

16 8 4 2 1

SID HID

d·val → 1 → 2nd subnet

d·val → 28 → 28th Host

Q.8 Consider three machines M, N, and P with IP addresses

M=157.157.40.50, (class-B)

N= 157.157.48.40,

P= 157.157.80.60,

subnet mask= 255.255.252.0, then find which host of which subnet

sm: 255.255.11111100.00000000
NID SID HID

M: 157.157.00101000.00110010 (32 16 8 4 2 1)
SID HID

d.val 10 → 11th subnet

d.val 50 → 50th Host

Q.9 Consider three machines M, N, and P with IP addresses

H.W

M =100.40.0.10,

N = 100.96.0.22,

P = 100.80.0.15,

subnet mask = 255.252.0.0, then find which host of which subnet

Q.10 Consider three machines M, N, and P with IP addresses 100.10.5.2, 100.10.5.5, and 100.10.5.6 respectively. The subnet mask is set to 255.255.255.252 for all the three machines. Which one of the following is true?

SM: 255.255.255.11111100

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(2M)

A. M, N, and P belong to three different subnets

B. Only N and P belong to the same subnet ✓

C. Only M and N belong to the same subnet

D. M, N, and P all belong to the same subnet

128 64 32 16 8 4 2 1

M: 2: 000000

N: 5: 000001

P: 6: 000001

N & P belong to same subnet


THANK YOU
GW
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