Assignment # 03

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DCN (BNT)

Question no 01:-

IP = 200.25.16.0/19

Subnet Mask =

11111111.11111111.11100000.00000000

IP(200.25.16.0) to Binary

Bit	128	64	32	16	8	4	2	1
200	1	1	0	0	1	0	0	0
25	0	0	0	1	1	0	0	1
16	0	0	0	1	0	0	0	0
0	0	0	0	0	0	0	0	0

First IP :- (IP & RND Mask.)

IP :- 11001000.00011001.00010000.00000000

Subnet :- 11111111.11111111.11100000.00000000

11001000.00011001.00000000.00000000

IP :- 200.25.0.0

Last IP: (IP OR Mask')

IP. 11001000.00011001.00010000.00000000

Mask' 00000000.00000000.00011111.11111111

11001000.00011001.00011111.11111111

lastIP :- 200.25.31.255

no of Address = 31 + 255 + 1

= 287

Question no 02:-

IP. 203.2.4.23

Subnet : 255.255.255.224

Decimal to Binary (IP)

Bit	128	64	32	16	8	4	2	1
203	1	1	0	0	1	0	1	1
2	0	0	0	0	0	0	1	0
4	0	0	0	0	0	1	0	0
23	0	0	0	1	0	1	1	1

Subnet (Decimal to Binary

Bit	128	64	32	16	8	4	2	1
255	1	1	1	1	1	1	1	1
255	1	1	1	1	1	1	1	1
255	1	1	1	1	1	1	1	1
224	1	1	1	0	0	0	0	0

1st IP = IP AND Subnet

11001011.00000010.00000100.000101
11111111.111111111.111111111.111000
11001011.00000010.00000100.00100

IP = 203.2.4.0

1st IP: IP OR Subnet'

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10010111.00000010.00000100.00010111
00000000.00000000.00000000.00011111
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10010111.00000010.00000100.00011111
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last IP = 203.2.4.31

No of IPs :- Mask' + 1

= 31 + 1

= 32

Question no 03:-

IP = 200.10.17.0/23 → 3 Subnets
- ↳ 60 PCs
- ↳ 24 PCs
- ↳ 30 PCs

Subnet-1: 60 PCs

Network: 200.10.17.0/23
1st IP : 200.10.17.1/23
last IP: 200.10.17.58/23
Broddcast: 200.10.17.59/23

Subnet 2:- 24 PCs

Network : 200.10.17.60/23
200.10.17.61/23
200.10.17.82/23
200.10.17.83/23

Subnet . 3 . 30 Pcs

Network → 200.10.17.84/23

1st IP → 200.10.17.85/23

last IP → 200.10.17.112/23

Broadcast → 200.10.17.113/23

Question no 04:-

IP = 172.16.100.0/16

For 500 Pcs:-

$2^n - 2 \geq 500$; $n = 9$

$512 - 2 \geq 500$

$510 \geq 500$

Network → 172.16.100.0/23

1st IP → 172.16.100.1/23

last IP → 172.16.101.254/23

Broadcast → 172.16.101.255/23

For 400 users :-

$2^n - 2 \geq 400$; $n = 9$

$512 - 2 \geq 400$

$510 \geq 400$

Network → 172.16.102.0/23

172.16.102.1/23

172.16.103.254/23

172.16.103.255/23

For 100 users :-

$2^n - 2 \geq 100$; $n = 7$

$128 - 2 \geq 100$

$126 \geq 100$

Network → 172.16.104.0/25

1st IP → 172.16.104.1/25

last IP → 172.16.104.126/25

Broadcast → 172.16.104.127/25

For 10 users :-

Network = 172.16.104.126/28

1st IP = 172.16.104.127/28

last IP = 172.16.104.136/28

Broadcast. 172.16.104.137/28