Computer Networks Tutorial

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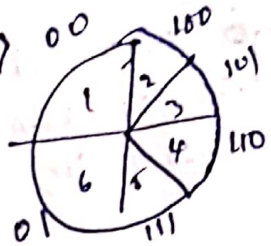
1)



1st port – 201.70.64.0 – SID
201.70.64.63 – DBA
255.255.255.192 – SM

2nd port – 201.70.64.128 – SID
201.70.64.159 – DBA
255.255.255.224 – SM

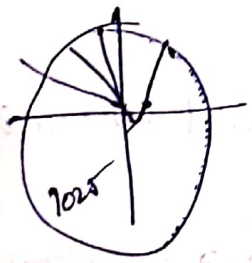
3rd port – 201.70.64.160 – SID
201.70.64.191 – DBA
255.255.255.224 – SM

4th port – 201.70.64.192 – SID
201.70.64.223 – DBA
255.255.255.224 – SM

5th port – 201.70.64.224 – SID
201.70.64.255 – DBA
255.255.255.224 – SM

6th port – 201.70.64.64 – SID
201.70.64.127 – DBA
255.255.255.192 – SM

2)



1025 ⇒ 2^{10} = 1024. so 2^{11} = 1

So it requires 11 bits for subnet ID

So there are 5 ip's in each NW. so that

130.10.0.0 → SID
130.10.0.5 → SID
130.10.255.0 → SID

130.10.8.0 → DBA
130.10.9.0 → DBA
130.10.255.5 → DBA

3) Given 5 subnets

223.55.192.0/20

20 → bits for NID. so

223.55.1100 0000.00000000

NID HID.

1st port we use 2 bits for subnet 2nd port

228.55.192.0/22 → SID
223.55.197.255/22 → DBA
255.255.252.0/22 → SM

223.55.196.0/22 → SID
223.55.199.255/22 → DBA
255.255.252.0/22 → SM

3rd port:

223.55.200.0/23 → SID
223.55.201.255/23 → DBA
255.255.254.0/23 → SM

4th port

223.55.202.0/23 → SID
223.55.203.255/23 → DBA
255.255.254.0/23 → SM

5th port

223.55.204.0/22 → SID
223.55.207.255/22 → DBA
255.255.252.0/22 → SM

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4) Given 5 ports with each port should contain 8 ip address.

1st part: 156.28.224.0/19 → SID 156.28.232.0/19 → DBA
2nd part: 156.28.233.0/19 → SID 156.28.241.0/19 → DBA
3rd part: 156.28.242.0/19 → SID 156.28.250.0/19 → DBA
4th part: 156.28.251.0/19 → SID 156.28.255.0/19 → DBA
5th part: 156.28.255.5/19 → SID 156.28.255.13/19 → DBA

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5) 150.223.60.130/30

NID: 10010110.11011111.00111100.10000010

IP: 11111111.11111111.11111111.11111100

NIP: 10010110.11011111.00111100.10000000

150 223 60 128/30

So network ip is 150.223.60.128/30

6) 223.1.17.0/26 → SID 223.1.17.63/26 → DBA
223.1.17.64/25 → SID 223.1.17.191/25 → DBA
223.1.17.171/28 → SID 223.1.17.206/28 → DBA

7) Ip address to 6 subnets

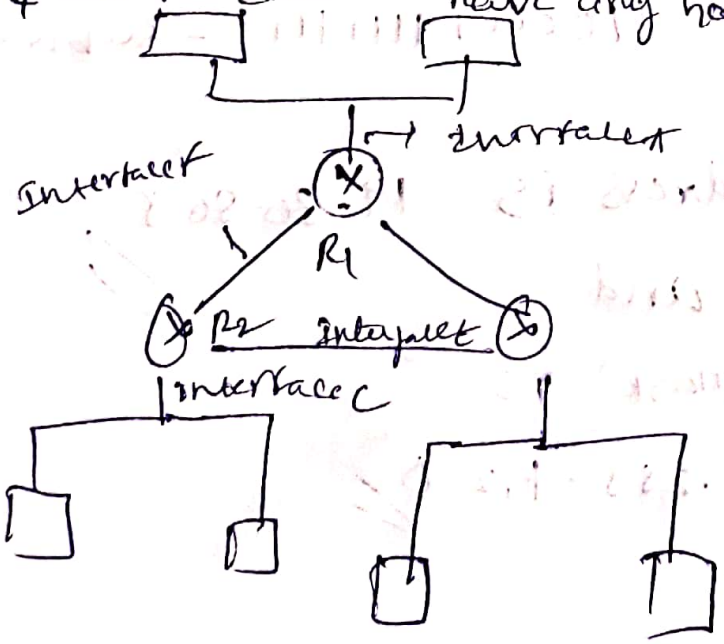
IP Adress

Subnet		
A	214.97.254.0/24	254
B	214.97.254.0/25 – 214.97.354.0/29	128-8=120
C	214.97.254.128/25	128
D	214.97.254.0/30	2
E	214.97.254.2/31	2
F	214.97.254.4/31	4

6 subnets with IP Address

A & B, C are connected with hosts.

D, E and F doesn't have any hosts.



b) Router 1

longest prefix match outgoing Interface

00001110 . 01100001 . 11111111 – Subnet A

000 1110 . 01100001 . 11111111 – Subnet B

00001110 . 01100001 . 11111111 – Subnet C

Router 2

00001110 01100001 11111111 – Subnet D

000 01110 01100001 11111111 Subnet E

0000 1110 01100001 11111111 Subnet

Router 3

00001110 0 110000 1 11111111 – Subnet

0000 1110 0 110000 1 11111111 – Subnet

00001110 0 110000 1 11111111 – Subnet

So
Ip address is 19.30.80.5

and

Subnet mask is

255.255.192.0