COMPUTER NETWORKS TUTORIAL

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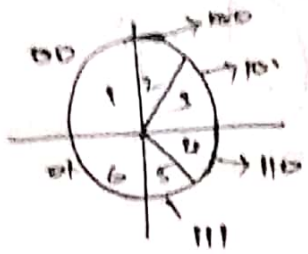
1)



Given that network ID belongs to class C 120.70.64.0. So in class C first 24 bits are NID so in part-1 only two 00 is used in host ID.

1st part — 201.70.64.0 — SID
201.70.64.63 — DBA
255.255.255.192 — SM

2nd part — 201.70.64.128 — SID
201.70.64.159 — DBA
255.255.255.224 — SM

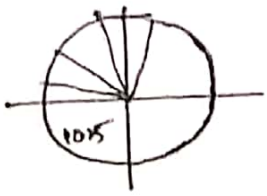
3rd part — 201.70.64.160 — SID
201.70.64.191 — DBA
255.255.255.224 — SM

4th part — 201.70.64.192 — SID
201.70.64.223 — DBA
255.255.255.224 — SM

5th part — 201.70.64.224 — SID
201.70.64.255 — DBA
255.255.255.224 — SM

6th part — 201.70.64.64 — SID
201.70.64.127 — DBA
255.255.255.192 — SM

2)



1025 → 2^{10} = 1024 30 2^{11} > 1

So, it requires 11 bits for subnet ID

So, there are 5 ip's in each Network so

IP's.

130.10.0.0 → SID
130.10.5.0 → SID
⋮
130.10.255.0 → SID
⋮
130.10.255

130.10.4.0 → DBA
130.10.9.0 → DBA
⋮
130.10.255.5 → DBA

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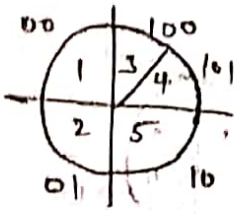
3) Given 5 subnets

223.55.192.0/20

20 → bits for NID so

223.55.1100	0000.0000.0000
NID	HID



1st part: we use 2bits for subnet ID so

223.55.192.0/22 → SID
223.55.195.255/22 → DBA
255.255.252.0/22 → SM

2nd part: 223.55.196.0/22 → SID
223.55.199.255/22 → DBA
255.255.252.0/22 → SM

3rd part: Here we use 3bits for subnet ID

223.55.200.0/23 → SID
223.55.201-255/23 → DBA
255.255.254.0/23 → SM

4th part: 223.55.22.0/23 → SID
223.55.203.255/23 → DBA
255.255.254.0/23 → SM

5th part: Here we use 2bits for SID

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

4) Given 5 parts which each part 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 156.28.255.4/19 → DBA
5th part: 156.28.255.5/19 → SID 156.28.255.13/19 → DBA

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5.) 150.233.60.130/20

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150.223.60.100000	10
NID	

NID: 10010110 . 11011111 . 00111100 . 10000010

SID: 11111111 . 11111111 . 11111111 . 11111100

NID: 10010110 . 11011111 . 00111100 . 10000000

150 . 223 . 60 . 128/30

So Network IP is 150.223.60.128/30

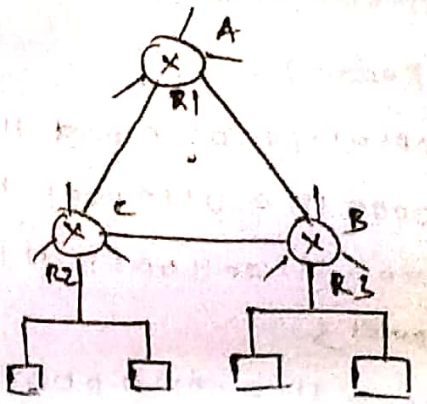
6.) 223.1.17.0/26 → SID 223.1.17.63/26 → DBA

223.1.17.64/25 → SID 223.1.17.191/25 → DBA

223.1.17.191/28 → SID 223.1.17.206/28 → DBA

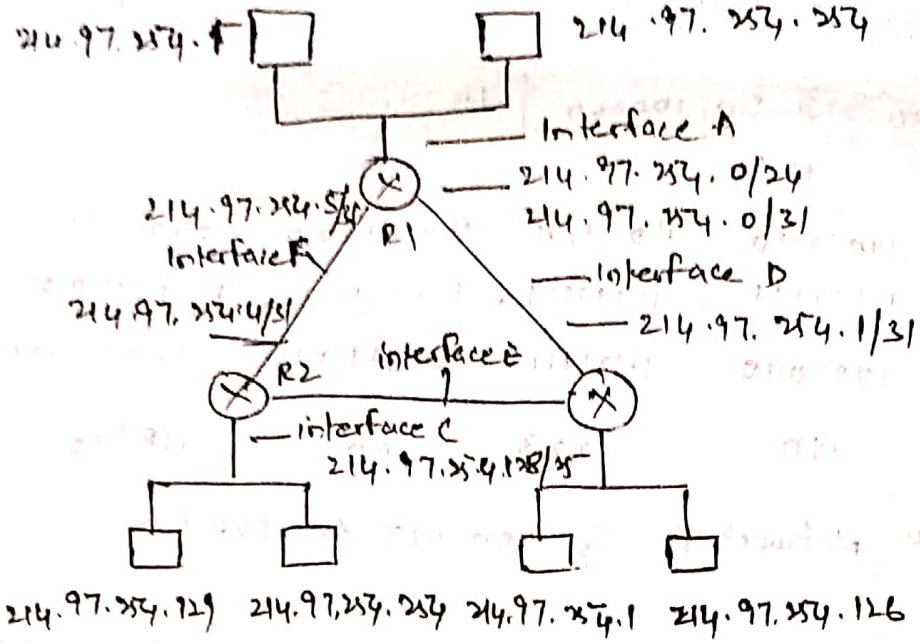
7.) IP address to 6 subnets

Subnet	IP address	Available IP
A	214.97.254.0/24	254
B	214.97.254.0/25	128-2=120
	214.97.354.0/29	
C	214.97.354.128/25	128
D	214.97.254.6/30	2
E	214.97.254.2/31	2
F	214.97.154.4/31	4



6 subnets with IP address

A and B, C are connected with hosts but D, E & F doesn't have any hosts. so



b) Router1

longest prefix match outgoing interface

00001110 . 01100001 . 11111111 — subnet A

00001110 01100000 11111111 — subnet D

00001110 01100001 11111111 — subnet F

Router2

00001110 01100001 11111111 — subnet D

00001110 01100001 11111111 — subnet B

00001110 01100000 11111111 — subnet E

Router3

00001110 01100001 11111111 — subnet F

00001110 01100000 11111111 — subnet E

00001110 01100001 11111111 — subnet C

So Ip address is 19.30.80.5 and subnet mask is 255.255.192.0

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