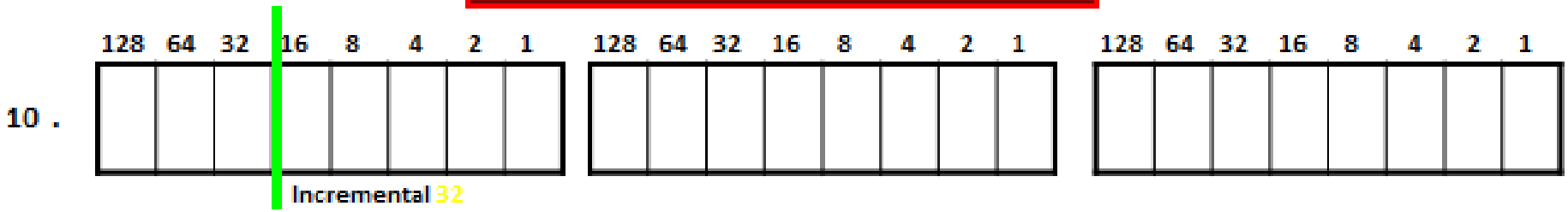
# PROBLEMS (Method 1 Class A)

## 1) M.N.I.D = 10.0.0.0 (PURCHASED BY A COMPANY), FIND 6 SUBNETS ?

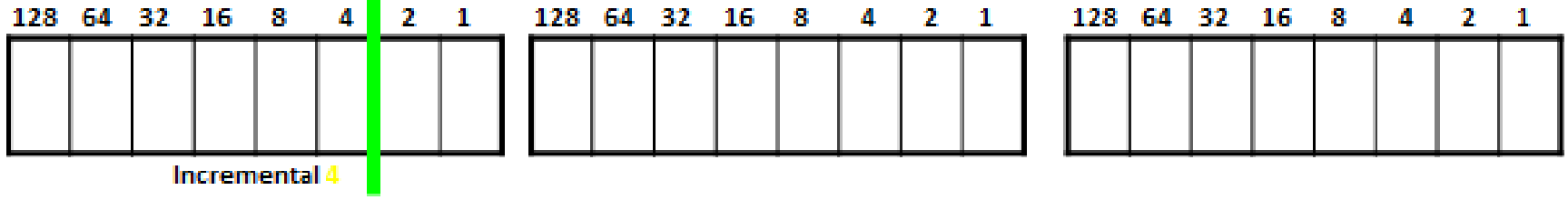
**Subnet is 6 , $2^{\wedge 3}$ - 2 = 6 , So borrow 3 bit.**




| | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NID : | 10 . | 0 | 0 | 0 | 0 | 0 | . | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | . | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FHID: | 10 . | 0 | 0 | 0 | 0 | 0 | . | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | . | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| LHID: | 10 . | 1 | 1 | 1 | 1 | 1 | . | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | . | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| BCID: | 10 . | 1 | 1 | 1 | 1 | 1 | . | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | . | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

## 2) M.N.I.D = 40.0.0.0 (PURCHASED BY A COMPANY), FIND 60 SUBNETS ?

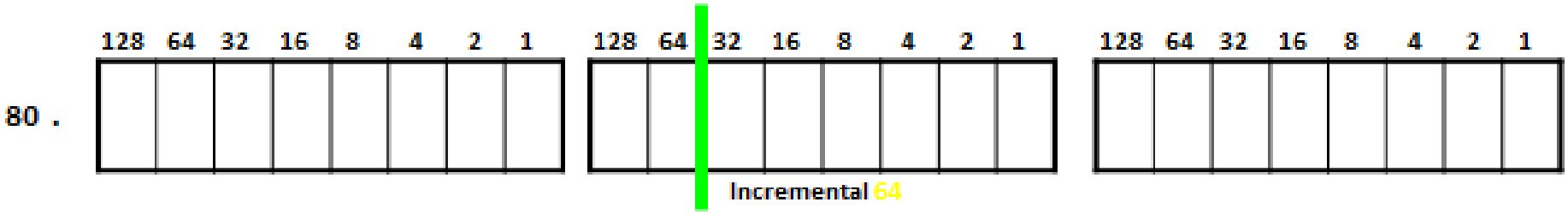
Subnet is 60 , $2^{*6}$ - 2 = 62 , So borrow 6 bit.




| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NID : | 40 . | 0 | 0 | . | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | . | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FHID: | 40 . | 0 | 0 | . | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | . | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| LHID: | 40 . | 1 | 1 | . | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | . | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| BCID: | 40 . | 1 | 1 | . | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | . | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

# 3) M.N.I.D = 80.0.0.0 (PURCHASED BY A COMPANY), FIND 1020 SUBNETS ?

Subnet is 1020 , $2^{*10}$ - 2 = 1022 , So borrow 10 bit.



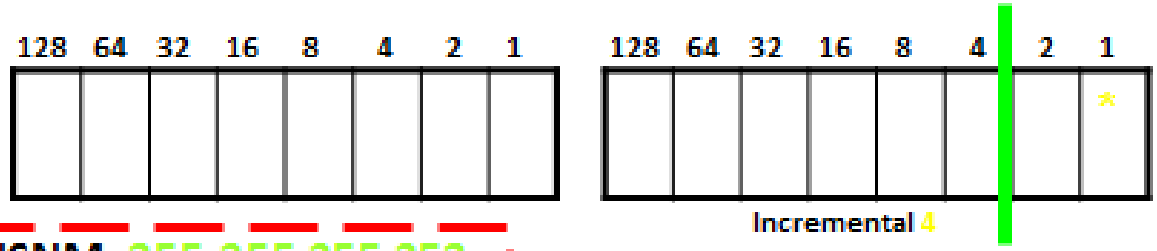

NSNM: 255.255.192.0

# PROBLEMS (Method 1 Class B)

## 4) M.N.I.D = 172.16.0.0 (PURCHASED BY A COMPANY), FIND 16380 SUBNETS ?

Subnet is 16380 , $2^{\wedge 14} - 2 = 16382$ , So borrow 14 bit.

172 . 16.

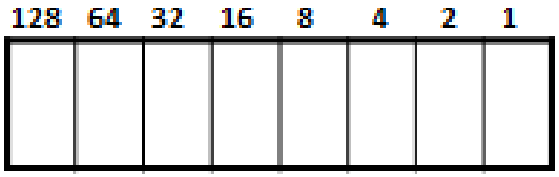


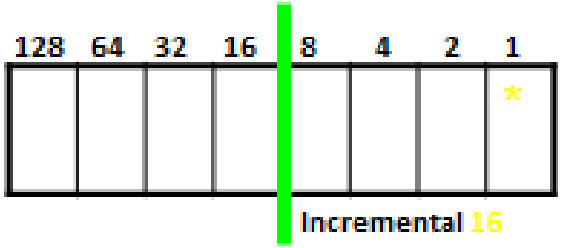

NSNM: 255.255.255.252

# 5) M.N.I.D = 130.140.0.0 (PURCHASED BY A COMPANY), FIND 4090 SUBNETS ?

Subnet is 4090 , $2^{\wedge 12}$ - 2 = 4094 , So borrow 12 bit.

130 . 140.



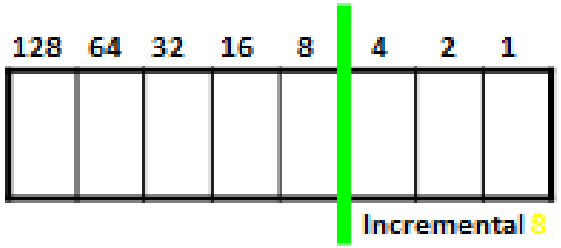

NSNM: 255.255.255.240

# PROBLEMS (Method 1 Class C)

## 6) M.N.I.D = 200.100.100.0/24, FIND 30 SUBNETS ?

Subnet is 30 , $2^{*5}$- 2 = 30 , So borrow 5 bit.

200 . 100 . 100

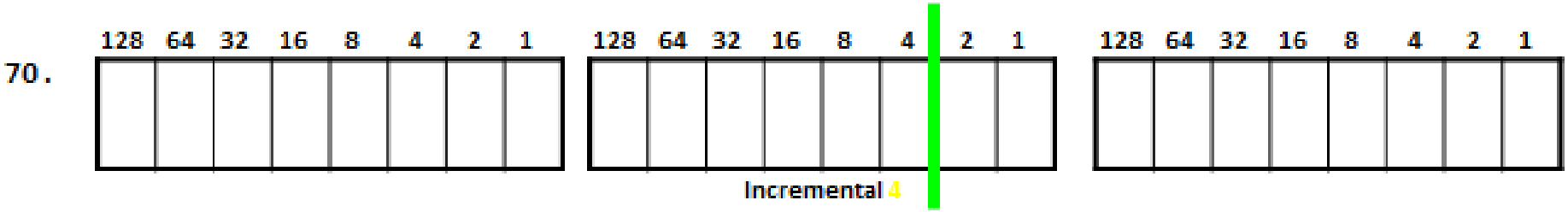



NSNM: 255.255.255.248

# PROBLEMS (Method 2 Class A)

## 7) M.N.I.D = 70.0.0.0/8 FIND 1000 host ?

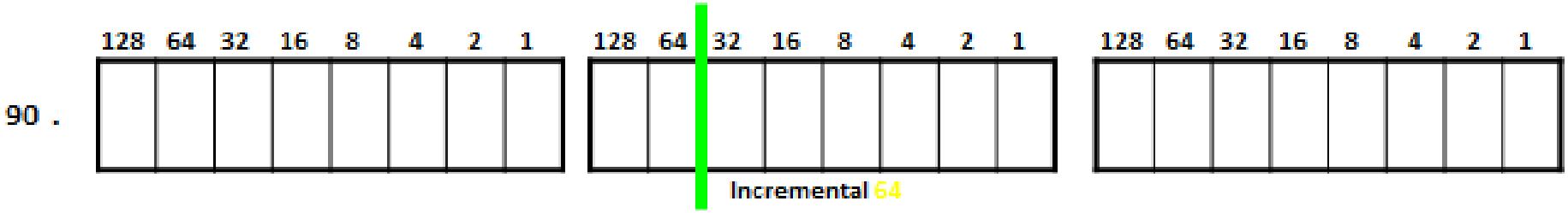
Host is 1000 , $2^{\wedge 10} - 2 = 1022$ , So borrow 10 bit from left side.




NSNM: 255.255.252.0

## 8) M.N.I.D = 90.0.0.0/8 FIND 16382 host ?

Host is 16382 , $2^{\wedge 14}$ - 2 = 16382 , So borrow 14 bit.



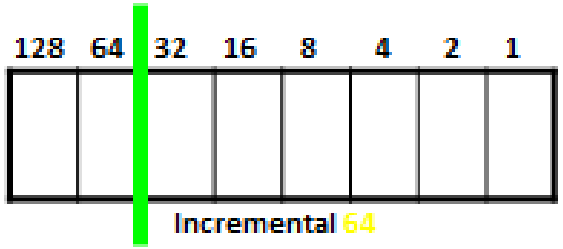

NSNM: 255.255.192.0

# PROBLEMS (Method 2 Class C)

## 9) M.N.I.D = 210.100.100.0 FIND 60 host ?

Host is 60, $2^{*6}-2 = 62$ , So borrow 6 bit.

210 . 100 . 100

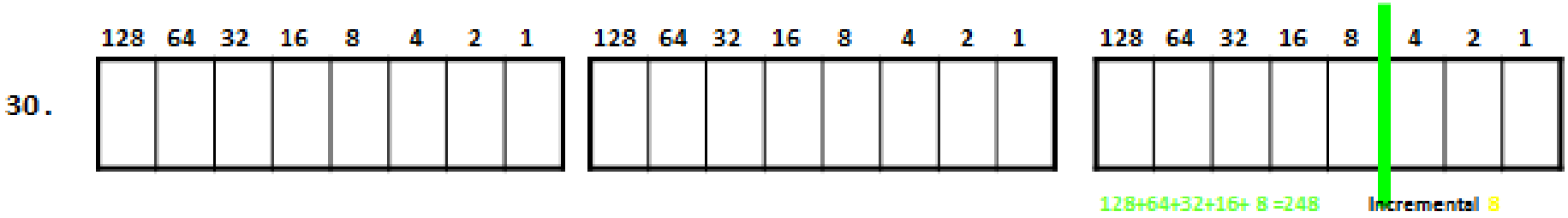



NSNM: 255.255.255.192

# PROBLEMS (Method 3 Class A)

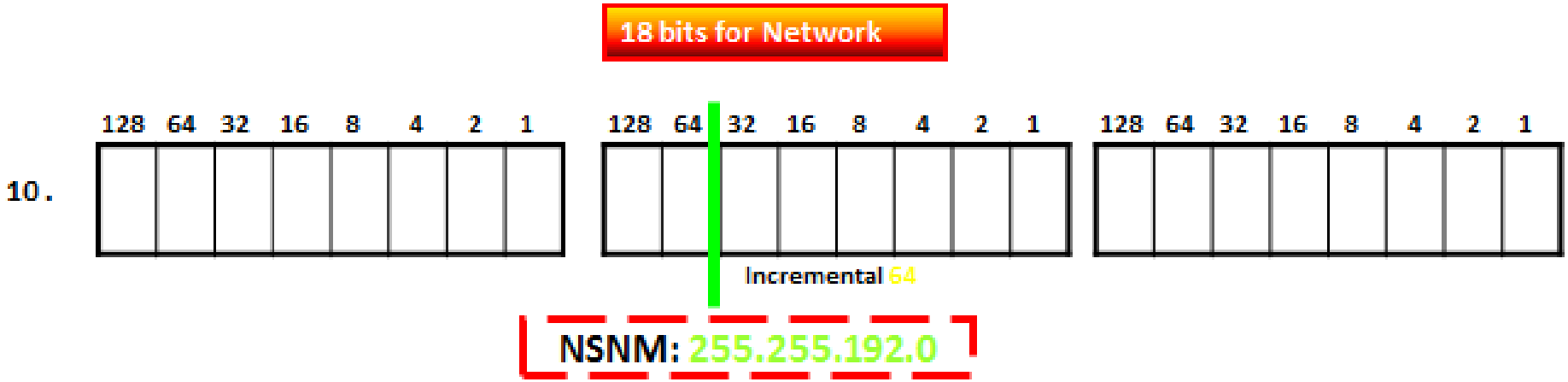
10) **M.N.I.D = 30.0.0.0 NSNM = 255.255.255.248 find incremental ?**

Changes made in 4th octet , so



# PROBLEMS (Method 4 Class A)

11) M.N.I.D = 10.0.0.0 /18 FIND NSNM , NID, FHID, LHID, BCID ,N/W & HOST?

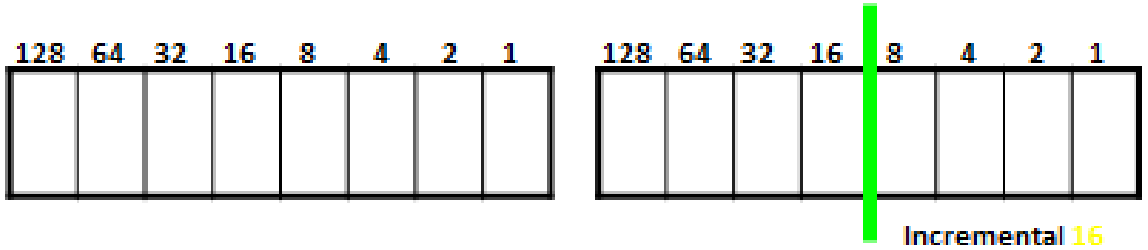


# PROBLEMS (Method 4 Class B)

## 12) M.N.I.D = 172.16.0.0 /28 FIND NSNM , NID, FHID, LHID, BCID, N/W & HOST?

28 bits for Network

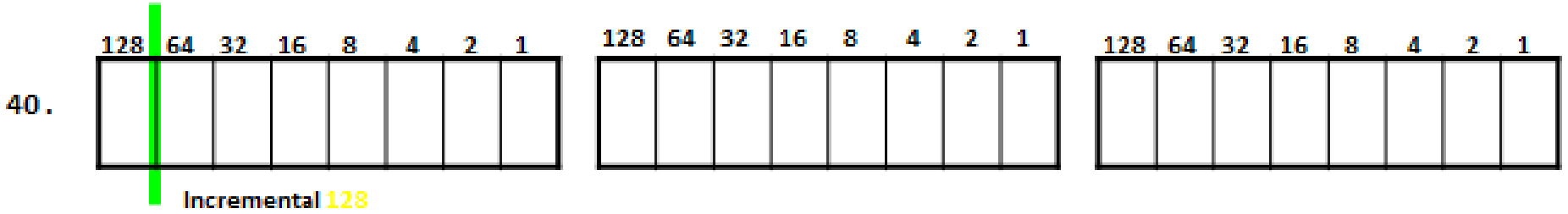
172 . 16 .




NSNM: 255.255.255.240

## 13) M.N.I.D = 40.0.0.0 /9 FIND NSNM , NID, FHID, LHID, BCID, N/W & HOST?

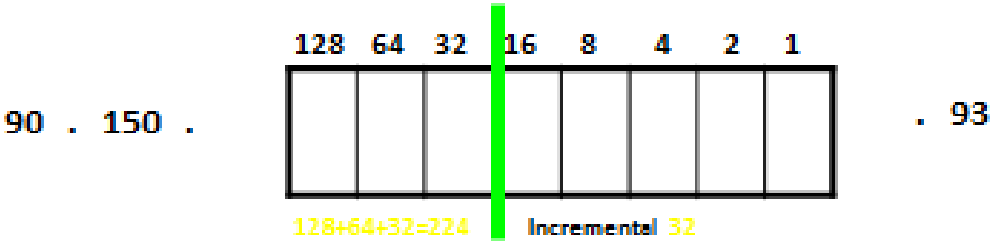
9 bits for Network




NSNM: 255.128.0.0

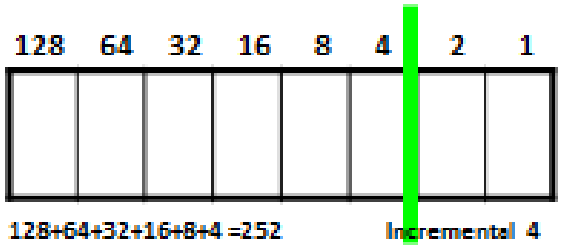
# PROBLEMS (Method 5)

1) I.P : 90.150.200.93 SNM = 255.255.224.0 Find ? FHID,LHID,BCID or Valid Host ID



2) I.P : 200.100.100.13 NSNM = 255.255.255.252 Find ? FHID,LHID,BCID or Valid Host ID

200 . 100 . 100 .



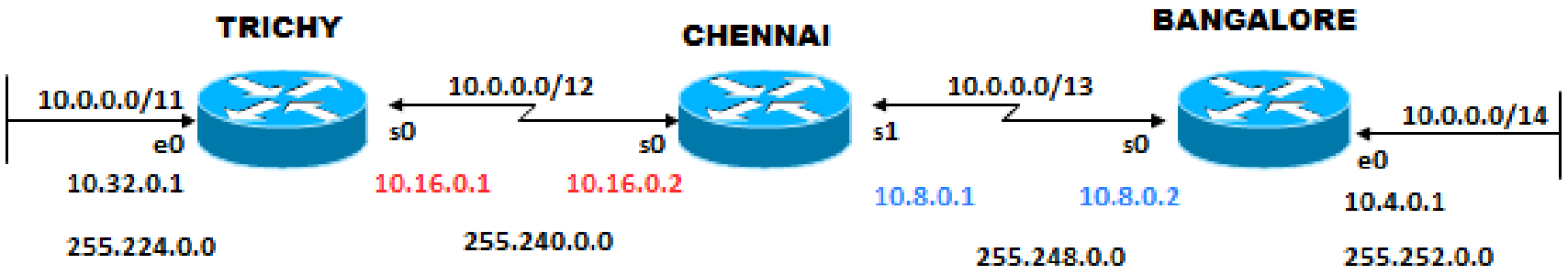
3) I.P : 132.161.150.93 NSNM = 255.255.255.252 Find ? FHID,LHID,BCID or Valid Host ID

4) I.P : 100.72.180.185 NSNM = 255.255.240.0 Find ? FHID,LHID,BCID or Valid Host ID

# RIP V2(Routing Information Protocol)

- RIPV2 is a Link State Routing Protocol.
- RIPV2 supports class less routing protocol.
- RIPV2 Administrative Distance is 120.
- RIPV2 metric is 1.
- RIPV2 maximum hop count is 15.
- RIPV2 support VLSM (variable length subnet mask) and Discontiguous network.
- RIPV2 convergence is slow.
- RIPV2 do not support APPLE TALK and IPX.
- RIPV2 Router sends periodic updates in every 30 seconds.
- RIPV2 Hold down timer is 180 seconds.
- RIPV2 flush timer is 240 seconds.

# RIP V2






Directly connected code: C  RIP Code: R  Administrative Distance: 120

## Router A

C – 10.32.0.0
C – 10.16.0.0
R – 10.8.0.0 (1)
R – 10.4.0.0 (2)

## Router B

C – 10.16.0.0
C – 10.8.0.0
R – 10.32.0.0 (1)
R – 10.4.0.0 (1)

## Router C

C – 10.8.0.0
C – 10.4.0.0
R – 10.32.0.0 (2)
R – 10.16.0.0 (1)

# Router A (Trichy)

| | |
|---|---|
| Router > | Enable |
| Router # | Configure Terminal |
| Router(config)# | Interface ethernet 0 |
| Router(config-if)# | ip address 10.32.0.1 255.224.0.0 |
| Router(config-if)# | no shutdown |
| Router(config-if)# | exit |
| Router(config)# | interface serial 0 |
| Router(config-if)# | ip address 10.16.0.1 255.240.0.0 |
| Router(config-if)# | no shutdown |
| | Ctrl Z |
| Router# | show ip interface brief |
| Router# | show ip route |



## RIP V2

| | |
|---|---|
| Router > | Enable |
| Router # | Configure Terminal |
| Router(config)# | router rip |
| Router(config-router)# | Version 2 |
| Router(config-router)# | network 10.32.0.0 |
| Router(config-router)# | network 10.16.0.0 |

# Router B (Chennai)

| | |
|---|---|
| Router > | Enable |
| Router # | Configure Terminal |
| Router(config)# | interface serial 0 |
| Router(config-if)# | ip address 10.16.0.2 255.240.0.0 |
| Router(config-if)# | no  shutdown |
| Router(config-if)# | clock rate 9600 |
| Router(config-if)# | exit |
| Router(config)# | interface serial 1 |
| Router(config-if)# | ip address 10.8.0.1 255.248.0.0 |
| Router(config-if)# | no shutdown |
| Router(config-if)# | clock rate 9600 |

Ctrl Z

| | |
|---|---|
| Router# | show ip interface brief |
| Router# | show ip route |



**RIP V2**

| | |
|---|---|
| Router > | Enable |
| Router # | Configure Terminal |
| Router(config)# | router rip |
| Router(config-router)# | Version 2 |
| Router(config-router)# | network  10.16.0.0 |
| Router(config-router)# | network  10.8.0.0 |

# Router C (Bangalore)

| | |
|---|---|
| Router > | Enable |
| Router # | Configure Terminal |
| Router(config)# | Interface ethernet 0 |
| Router(config-if)# | ip address 10.4.0.1 255.252.0.0 |
| Router(config-if)# | no shutdown |
| Router(config-if)# | exit |
| Router(config)# | interface serial 0 |
| Router(config-if)# | ip address 10.8.0.2 255.248.0.0 |
| Router(config-if)# | no  shutdown |
| Router(config-if)# | exit |
| | Ctrl Z |
| Router# | show ip interface brief |
| Router# | show ip route |



## RIP V2

| | |
|---|---|
| Router > | Enable |
| Router # | Configure Terminal |
| Router(config)# | router rip |
| Router(config-router)# | Version 2 |
| Router(config-router)# | network  10.4.0.0 |
| Router(config-router) | network  10.8.0.0 |