

LATS - PRAC - 10

① (i) IP : 8.1.4.5 / 16
class - A [0 - 127]
Default subnet Mask \rightarrow 255.0.0.0
Subnet Mask \rightarrow 255.255.0.0
Network bit \rightarrow 16
Host bit \rightarrow 16
host per subnet $\rightarrow 2^{\text{host bit}} - 2 = 2^{16} - 2 = 65534$
subnet no. / borrowed bit \rightarrow 8
total no. of subnet $\rightarrow 2^8 = 256$
Block size $= 256 - 255 = 1$
1st valid IP add. \rightarrow 8.1.0.1
last valid IP add. \rightarrow 8.1.255.254
Broadcast add. \rightarrow 8.1.255.255

(ii) IP : 130.4.102.1 / 24
class - B [128 - 191]
Default subnet mask \rightarrow 255.255.0.0
Subnet mask \rightarrow 255.255.255.0
Network bit \rightarrow 24
Host bit \rightarrow 8
host per subnet $\rightarrow 2^8 - 2 = 254$
subnet no. \rightarrow 8
total no. of subnet $\rightarrow 2^8 = 256$
1st valid IP add. \rightarrow 130.4.102.1
last valid IP add. \rightarrow 130.4.102.254
Broadcast add. \rightarrow 130.4.102.255

(iii) IP : 130.4.102.1 /~~24~~ 22

class - B

default subnet mask \rightarrow 255.255.0.0

subnet mask \rightarrow 255.255.252.0

Network bit \rightarrow 22

Host bit \rightarrow 10

Host per subnet $\rightarrow 2^{10} - 2 = 1022$

subnet no. \rightarrow 6

total no. of subnet $\rightarrow 2^6 = 64$

1st valid IP add. \rightarrow 130.4.100.1

last valid IP add. \rightarrow 130.4.103.254

broadcast add. \rightarrow 130.4.103.255

Block size $\rightarrow 256 - 252 = 4$

(iv) IP : 199.1.1.100 /~~24~~ 24

class - C [192-223]

default subnet mask \rightarrow 255.255.255.0

subnet mask \rightarrow 255.255.255.0

Network bit \rightarrow 24

Host bit \rightarrow 8

Host per subnet $\rightarrow 2^8 - 2 = 254$

subnet no. \rightarrow 0

total no. of subnet $\rightarrow 2^0 = 1$

1st valid IP add. \rightarrow 199.1.1.1

last valid IP add. \rightarrow 199.1.1.254

Broadcast add. \rightarrow 199.1.1.255

① class - C

Default subnet mask $\rightarrow 255.255.255.0/24$

Given IP add. $\rightarrow 192.168.17.9$

No. of add. $\rightarrow 2^{\text{host bit}} = 2^8 = 256$

1st add. $\rightarrow 192.168.17.1$

last add. $\rightarrow 192.168.17.254$

② Given IP add. $\rightarrow 185.28.17.9$ (classful)

class - B

subnet Mask $\rightarrow 255.255.0.0$

No. of add. $\rightarrow 2^{16} = 65536$

1st add. $\rightarrow 185.28.1.1$

last add. $\rightarrow 185.28.255.254$

④ class - C

Given IP add. $\rightarrow 205.16.37.39/28$

Default subnet mask $\rightarrow 255.255.255.0$

subnet mask $\rightarrow 255.255.255.240$

subnet no. / subnet mask $\rightarrow 4$

Total no. of subnet $\rightarrow 2^4 = 16$ (No. of add. in block)

Block size $\rightarrow 256 - 240 = 16$

1st add. $\rightarrow 205.16.37.33$

last add. $\rightarrow 205.16.37.46$

⑤ IP : 216.21.5.0

class - C [192 - 223]

Default subnet mask \rightarrow 255.255.255.0

subnet mask \rightarrow 255.255.255.284

No. of host per subnet $\rightarrow 30 = 2^{\text{host bit}} - 2$

Network bit $\rightarrow 27$ host bit $\rightarrow 5$

bit borrowed / subnet no. $\rightarrow 3$

Total no. of subnet $\rightarrow 2^3 = 8$

Block size $\rightarrow 256 - 224 = 32$

Network ranges \rightarrow : 216.21.5.0 \rightarrow 216.21.5.31

216.21.5.32 \rightarrow 216.21.5.63

216.21.5.64 \rightarrow 216.21.5.95

216.21.5.96 \rightarrow 216.21.5.127

216.21.5.128 \rightarrow 216.21.5.159

216.21.5.160 \rightarrow 216.21.5.191

216.21.5.192 \rightarrow 216.21.5.223

216.21.5.224 \rightarrow 216.21.5.255.

⑥ IP : 192.10.20.0

class - C

Default subnet mask \rightarrow 255.255.255.0

subnet mask : 255.255.255.192

No. of host per subnet = 52 = $2^{\text{host bit}} - 2$

($2^6 = 64$) \therefore host bit = 6

Network bit : 26

Bit borrowed / subnet no. $\rightarrow 2$

Total no. of subnet $\rightarrow 2^2 = 4$

Block size $\rightarrow 256 - 192 = 64$

Network ranges : 192.10.20.0 → 192.10.20.63
192.10.20.64 → 192.10.20.127
192.10.20.128 → 192.10.20.191
192.10.20.192 → 192.10.20.255

⑦ Device A : 172.16.17.30 / 20
Device B : 172.16.28.15 / 20

/20 : 255.255.240.0

$$\text{Block size} = 2^{(32-20)} = 2^{12} = 4096$$

Device A :

Subnet : 172.16.16.0

Range : 172.16.16.0 — 172.16.31.255

Subnet mask : 255.255.240.0

Device B :

Subnet : 172.16.16.0

Range : 172.16.16.0 — 172.16.31.255

Subnet mask : 255.255.240.0