





Question 11

number of needed usable hosts $\Rightarrow 8000$

network address $\Rightarrow 135.70.0.0$

Address class $\Rightarrow B$

Default subnet mask $\Rightarrow 255.255.0.0$

custom subnet mask $\Rightarrow 255.255.31.255$

Total number of subnets $\Rightarrow 8$

Total number of host addresses $\Rightarrow ~~8192~~ 8192$

number of usable addresses $\Rightarrow ~~8190~~ 8190$

number of Bits borrowed $\Rightarrow 3$

6th subnet Range $\Rightarrow 135.70.160.0$ to
 $135.70.191.0$

7th subnet number $\Rightarrow 6$

3rd subnet Broadcast address $\Rightarrow 135.70.95.0$

5th subnet Assignable address $\Rightarrow 135.70.129.0$ to
 $135.70.158.0$

Q 6

IP address 10.0.0.0

Address class \Rightarrow A

custom subnet mask \Rightarrow 255.240.0.0

Minimum number of subnets needed \Rightarrow 7

extra subnets for 20% growth \Rightarrow 2

Total number of subnets \Rightarrow 9

IP address Range for Technology \Rightarrow 10.0.0.0 \rightarrow
10.15.0.0

IP address Range for science \Rightarrow 10.16.0.0 \rightarrow
10.31.0.0

IP address for Arts and drama \Rightarrow 10.32.0.0 \rightarrow
10.47.0.0

IP address for administration \Rightarrow 10.48.0.0 \rightarrow
10.63.0.0

IP address for Router A to Router B \Rightarrow 10.64.0.0 -
10.79.0.0

IP Address for Router A to Router C \Rightarrow 10.80.0.0 -
10.95.0.0

IP Address for Router B to router C \Rightarrow 10.96.0.0 -
10.111.0.0

Q 4

Address $\Rightarrow 135.126.0.0$

Address class $\Rightarrow B$

Customize subnet mask $\Rightarrow 255.255.240.0$

Minimum number of subnets required $\Rightarrow 5$

extra subnets for 70% growth $\Rightarrow 4$

Total number of subnets needed $\Rightarrow 9$

number of host addresses in largest subnet group
 $\Rightarrow 325$

✓ number of addresses needed for 70% growth
in largest subnet $\Rightarrow 228$

Total number of subnets needed $\Rightarrow 553$

IP address range New York $\Rightarrow 135.126.0.0$ to
 $135.126.15.0$

IP address range Washington D.C. $\Rightarrow 135.126.16.0$ to
 $135.126.31.0$

IP address range for Dallas $\Rightarrow 135.126.32.0$ to
 $135.126.47.0$

IP Address range for Router A to Router B
serial connection $\Rightarrow 135.126.48.0$ to
 $135.126.63.0$

Question 15

number of needed usable hosts \Rightarrow 50

network address 172 . 59 . 0 . 0

Address class \Rightarrow B

Default subnet mask \Rightarrow 255 . 255 . 0 . 0

custom subnet mask \Rightarrow 255 . 255 . 255 . 192

Total number of subnets \Rightarrow 1024

Total number of host addresses \Rightarrow 64

number of usable addresses \Rightarrow 62

number of bits borrowed \Rightarrow ~~8~~ 10

172 . 59 . $\begin{matrix} 128 & 64 & 32 & 16 & 8 & 4 & 2 & 1 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{matrix}$. 0000

$\begin{array}{r} 128 \\ + 64 \\ \hline 192 \end{array}$

Question 7

number of needed subnets 2000

number of usable Host 15

network Address 178.100.0.0

Address class \Rightarrow B

default subnet mask \Rightarrow 255.255.0.0

custom subnet Mask \Rightarrow 255.255.255.224

Total number of subnets \Rightarrow ~~2048~~ 2048

Total number of Host address \Rightarrow 32

number of usable addresses \Rightarrow 30

number of bits borrowed \Rightarrow 11

$$\begin{array}{r} 32 \\ 64 \\ + 128 \\ \hline 224 \end{array}$$

$$\begin{array}{r} \text{Total no} \\ 32 \text{ Hosts} \\ - 2 \text{ sub } 2 \\ \hline 30 \text{ no of} \\ \text{usable H} \end{array}$$

Question 12

number of needed usable hosts $\Rightarrow 45$

network address $\Rightarrow 198.125.50.0$

Address class $\Rightarrow C$

Default subnet mask $\Rightarrow 255.255.255.0$

custom subnet mask $\Rightarrow 255.255.255.192$

Total number of subnets $\Rightarrow 4$

Total number of host addresses $\Rightarrow 64$

number of usable addresses $\Rightarrow 62$

number of Bits borrowed $\Rightarrow 2$

2nd subnet Range $\Rightarrow 198.125.50.64$ to
 $198.125.50.127$

2nd subnet number $\Rightarrow 1$

Broadcast address for 4th subnet $\Rightarrow 198.125.50.255$

Assignable addresses for 3rd subnet $\Rightarrow 198.125.50.129$
to $198.125.50.190$