Assignment 01

Q1

Network address 192.168.20.0

192.168.20.156

11000000.10101000.00010100.10011100

11111111.11111111.11111111.11000000

Subnet Mark

255.255.255.0

Broadcast Address

192.168.20.255

Number of Hosts

256 - 2 = 254

Q2

Network address = 192.168.30.0

192.168.30.134

11000000.10101000.00011110.10000110

Subnet mark

255.255.255.0

Broadcast Address

192.168.30.255

Number of Hosts

256 - 2 = 254

Q3

(a) 192.160.20.0/22

(i) Network Address

11000000.10100000.00010100.00000000

192.160.20.0

(ii) Broadcast Address

11000000.10100000.00010111.11111111

192.160.23.255

(iii) No of Hosts

$2^{10} - 2 = 1024 - 2$

$= \underline{1022}$

(iv) Ip address range

192.160.20.0 - 192.160.23.255

(v) Subnet Mask

11111111.11111111.11111100.00000000

255.255.252.0

(b) Subnet for the 500 Hosts

$2^9 - 2 = 512 - 2$

$= 510$ Hosts

(iii) Broadcast Address

11000000.10100000.00010101.11111111

192.160.21.255

(i) Subnet mask

11111111.11111111.11111110.00000000

255.255.254.0

(ii) Network address

11000000.10100000.00010101.11111111

192.160.21.255

Subnet for the 200 Hosts

$2^8 - 2 = 256 - 2$

$= 254$ Hosts

(i) subnet mask

11111111.11111111.11111111.00000000

255.255.255.0

(ii) Network address

11000000.10100000.00010110.00000000

192.160.22.0

(iii) Broadcast Address

11000000.10100000.00010110.11111111

192.160.22.255

Subnet for 120 Hosts

$2^7 - 2 = 128 - 2$

$= 126$ Hosts

(i) Subnet mask

11111111.11111111.11111111.10000000

255.255.255.128

(ii) Network address

11000000.10100000.00010111.00000000

192.160.23.0

(iii) Broadcast Address

11000000.10100000.00010111.01111111

192.160.23.127

(c) Subnet A

192.160.20.1 to 192.160.21.254

Subnet B

192.160.22.1 to 192.160.22.254

Subnet C

192.160.23.1 to 192.160.23.126

(d) Remaining address space

192.160.23.128/25

Brodcast Address

192.160.23.255

Subnet mask

255.255.255.128

subnet size

128 IP address

Next Largest subnet

192.160.22.128/25

Network address

192.160.23.128

(e) Total used addresser = 510 + 254 + 126

= 890

Remaining IP addresse = 1022 - 890

= 134