EXERCISE SHEET 3 – IP and Subnetting

Task 3

b. A company has a class B IPv4 address: 164.30.0.0. The following subnets are required: one network for 60 computers, one network for 28 computers, one network for 25 computers, one network for 14 computers and 5 networks for point-to-point connections (i.e., networks with two computers each).

Create a subnet with a common subnet mask in which the number of available subnets becomes a maximum. Enter the network address and the broadcast address for each network. The first subnetwork, the bits of which are set all to zeros **should not** be used.

$2^n - 2 > 60$ (max host) => n = 6 (must be 6 for maximum subnets)

164.30.0000 0000.0000 0000 / 32 – n = 26

SN1 -> 164.30.0.64 / 26 (subnet 1 address)

164.30.0.65 / 26 (SN1, 1st Host)

164.30.0.126 / 26 (SN1, 62nd Host)

164.30.0.127 / 26 (SN1, broadcast address)

SN2 -> 164.30.0.128 / 26 (subnet 2 address)

164.30.0.129 / 26 (SN2, 1st Host)

164.30.0.190 / 26 (SN2, 62nd Host)

164.30.0.191 / 26 (SN2, broadcast address)

SN3 -> 164.30.0.192 / 26 (subnet 3 address)

164.30.0.193 / 26 (SN3, 1st Host)

164.30.0.254 / 26 (SN3, 62nd Host)

164.30.0.255 / 26 (SN3, broadcast address)

SN4 -> 164.30.1.0 / 26 (subnet 4 address)

164.30.1.1 / 26 (SN4, 1st Host)

164.30.1.62 / 26 (SN4, 62nd Host)

164.30.1.63 / 26 (SN4, broadcast address)

SN5 -> 164.30.1.64 / 26 (subnet 5 address)

164.30.1.65 / 26 (SN5, 1st Host)

164.30.1.126 / 26 (SN5, 62nd Host)

164.30.1.127 / 26 (SN5, broadcast address)

SN6 -> 164.30.1.128 / 26 (subnet 6 address)

164.30.1.129 / 26 (SN6, 1st Host)

164.30.1.190 / 26 (SN6, 62nd Host)

164.30.1.191 / 26 (SN6, broadcast address)

SN7 -> 164.30.1.192 / 26 (subnet 7 address)

164.30.1.193 / 26 (SN7, 1st Host)

164.30.1.254 / 26 (SN7, 62nd Host)

164.30.1.255 / 26 (SN7, broadcast address)

SN8 -> 164.30.2.0 / 26 (subnet 8 address)

164.30.2.1 / 26 (SN8, 1st Host)

164.30.2.62 / 26 (SN8, 62nd Host)

164.30.2.63 / 26 (SN8, broadcast address)

SN9 -> 164.30.2.64 / 26 (subnet 9 address)

164.30.2.65 / 26 (SN9, 1st Host)

164.30.2.126 / 26 (SN9, 62nd Host)

164.30.2.127 / 26 (SN9, broadcast address)