COMP9332 Network Routing and Switching
Solution of Self-assessed Tutorial for IPv4 Addresses

In this tutorial, you'll solve some of the questions from Forouzan (3rd Ed. Forouzan, pages 110-113 and 128-129):

A1

(a) C, (b) D, (c) A, (d) B, (e) E

A2. (a) E, (b) B, (c) C, (d) D, (e) A

A3.

(a) netid: 114.0.0.0, hostid: 34.2.8
(b) 132.56.0.0, hostid: 8.6
(c) 208.34.54.0, hostid: 12

A4. 192.44.82.0

A5. Class B. 129.94

A6.

25.34.0.0 to 25.34.255.255

A7.

182.44.82.0 to 182.44.82.63

A8.

a) 2^{13}
b) 2^{21}
c) 2^{4}
d) 0

A9.

a) 255.255.255.248
b) 8
c) 211.17.180.0 to 211.17.180.7
d) 211.17.180.248 to 211.17.180.255

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A10.

Total number of customers: 2600 (200+400+2000)
Total addresses needed by these customers are: 200x128 + 400x16 + 2000x4 = 40,000

Note that group sizes must be power of 2 before we can subdivide the allocation to different groups.

To simplify the allocations, let's assume that the ISP will reserve addresses for 256 medium size businesses, 512 small businesses, and 2048 households. We then have:

(a) 150.80.0.0/25 to 150.80.127.128/25 (of these 256, 56 blocks will still be available)
(b) 150.80.128.0/28 to 150.80.159.240/28 (of these 512, 112 blocks will still be available)
(c) 150.80.160.0/30 to 150.80.191.252/30 (of these 2048, 48 blocks will still be available)

The ISP has a total of 65,535 addresses. It allocates only 40,000 addresses. 25,535 addresses are still available (not allocated to any specific customers).

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