CHAPTER 4

IP Addresses: Classful Addressing

4.1 MULTIPLE-CHOICE QUESTIONS

1. a 2. d 3. b 4. d 5. a 6. b 7. b 8. d 9. c 10. c
11. a 12. b 13. a 14. d 15. c 16. d 17. d 18. a 19. c 20. b

4.2 EXERCISES

21.

a. 256
b. 65536
c. 1.845×10^{19}

22. 10

23. $3^{10} = 59{,}049$

24.

a. 01110010 00100010 00000010 00001000
b. 10000001 00001110 00000110 00001000
c. 11010000 00100010 00110110 00001100
d. 11101110 00100010 00000010 00000001
e. 11110001 00100010 00000010 00001000

25.

a. 0x72220208
b. 0x810E0608
c. 0xD022360C
d. 0xEE220201
e. 0xF1220208

26.

a. 00010011 01000111 11111110 10101011
b. 10101011 00100011 01000001 00000010
c. 00000001 00100011 10100010 10111110
d. 00000000 00000000 00010001 00010001

27.
a. 2
b. 4
c. 6

28.
a. 127.240.103.125
b. 175.192.240.29
c. 223.176.31.93
d. 239.247.199.29
e. 247.243.135.221

29.
a. Class C
b. Class D
c. Class A
d. Class B
e. Class E

30.
a. Class E
b. Class B
c. Class C
d. Class D
e. Class A

31.
a. netid: 114 hostid: 34.2.8
b. netid: 19 hostid: 34.21.5
c. netid: 23 hostid: 67.12.1
d. This is actually a loopback address; we cannot separate netid and hostid.

32.
a. netid: 129.14 hostid: 6.8
b. netid: 132.56 hostid: 8.6
c. netid: 171.34 hostid: 14.8
d. netid: 190.12 hostid: 67.9

33.
a. netid: 192.8.56 hostid: 2
b. netid: 220.34.8 hostid: 9
c. netid: 208.34.54 hostid: 12

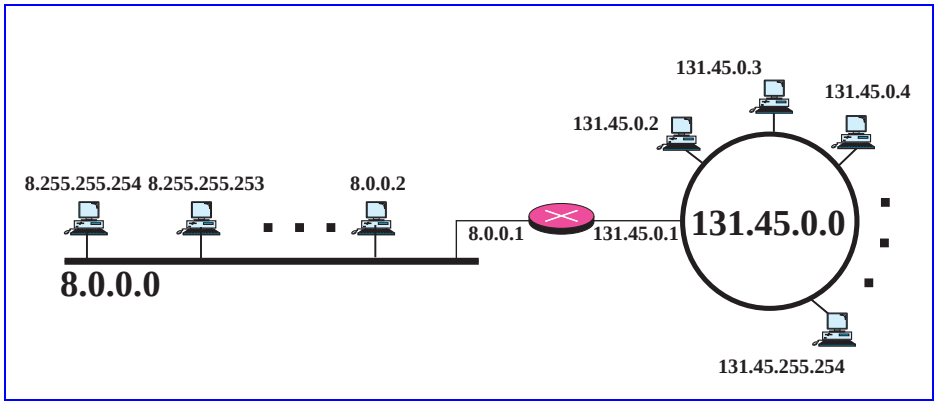
d. netid: 205.23.67 hostid: 8

34. 132.14.56.12 does not belong because it has a network address of 132.14.0.0. The other 3 have a network address of 123.0.0.0.
35. 130.5.34.12 does not belong because it has a network address of 130.5.0.0. The other 3 have a network address of 130.4.0.0
36. This message must travel through a router because it is moving from network 128.23.0.0 to network 193.45.23.0.
37. This message must travel through a router because it is moving from network 128.23.0.0 to network 14.0.0.0.
38. This message must travel through a router because it is moving from network 128.23.0.0 to network 128.45.0.0.
39. This message does not travel through a router because it is staying within network 128.23.0.0.
40. This message must travel through a router because it is moving from network 195.23.67.0 to network 195.23.41.0.
41. This message does not travel through a router because it is staying within network 195.23.67.0.
42. This message must travel through a router because it is moving from network 9.0.0.0 to network 11.0.0.0.
43. This message does not travel through a router because it is staying within network 9.0.0.0.
44. Network 8.0.0.0: Class A

    Network 131.45.0.0: Class B

    See Figure 4.1.

Figure 4.1 *Exercise 44*



45. Class E
46. Class A
47. Class A
48. Class A

49. Class A
50. Source address: 108.5.18.22
    Destination address: 108.255.255.255
51. Source address: 140.15.8.20
    Destination address: 140.15.255.255
52. Source address: 200.4.8.20
    Destination address : 200.4.8.255
53. Source address: 108.67.18.70
    Destination address: 255.255.255.255
54. Source address: 180.6.8.17
    Destination address: 255.255.255.255
55. Source address: 202.7.8.27
    Destination address: 255.255.255.255
56. Source address: 124.67.89.34
    Destination address: 127.X.Y.Z (where X, Y, and Z can be anything)
57. Source address: 185.42.56.88
    Destination address: 127.X.Y.Z (where X, Y, and Z can be anything)
58. Source address: 218.34.13.89
    Destination address: 127.X.Y.Z (where X, Y, and Z can be anything)
59. Source address: 123.27.19.24
    Destination address: 0.67.89.56
60. Source address: 187.12.16.38
    Destination address: 0.0.18.99
61. Source address: 215.14.14.9
    Destination address: 0.0.0.22
62. Source address: 0.0.0.0
    Destination address: 255.255.255.255
63. Source address: 0.0.0.0
    Destination address: 255.255.255.255
64. Source address: 0.0.0.0
    Destination address: 255.255.255.255