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## CHAPTER 5

# *Subnetting/Supernetting and Classless Addressing*

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### 5.1 MULTIPLE-CHOICE QUESTIONS

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|-------|-------|-------|-------|-------|
| 1. b  | 3. d  | 5. a  | 7. b  | 9. a  |
| 11. c | 13. b | 15. c | 17. c | 19. c |
| 21. d | 23. b | 25. c | 27. a |       |

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### 5.2 EXERCISES

29. First address is 25.34.0.0. Last address is 25.34.255.255.
31. First address is 182.44.82.0. Last address is 182.44.82.63
- 33.
- a. 255.255.128.0
  - b. 255.255.224.0
  - c. 255.255.248.0
  - d. 255.255.252.0
  - e. 255.255.254.0
  - f. 255.255.255.0
35. Theoretically, we have:
- a.  $2^{10} = 1024$
  - b.  $2^2 = 4$
  - c.  $2^{11} = 2048$
  - d.  $2^{16} = 65,536$
37. Theoretically, we have:
- a.  $2^2 = 2$
  - b.  $2^3 = 8$
  - c.  $2^4 = 16$

- d. 1 subnet because the subnet mask is the same as the default network mask.
- 39.
- a. 2
  - b. 0
  - c. 3
  - d. 8
- 41.
- a. 255.255.128.0
  - b.  $2^{15} = 32,768$
  - c. For first subnet: first address is 16.0.0.0; last address is 16.0.127.255
  - d. For last subnet: first address is 16.255.128.0; last address is 16.255.255.255
- 43.
- a. 255.255.255.248
  - b. 8
  - c. For first subnet: first address is 211.17.180.0; last address is 211.17.180.7
  - d. For last subnet: first address is 211.17.180.248; last address is 211.17.180.255
- 45.
- a. 123.56.77.32 to 123.56.77.39
  - b. 200.17.21.128 to 200.17.21.159
  - c. 17.34.16.0 to 17.34.17.255
  - d. 180.34.64.64 to 180.34.64.67
- 47.
- a. 64
  - b. 160
  - c. 224
  - d. 0
- 49.
- a. 32,768
  - b. 256
  - c. 65,536
  - d.  $2^{22}$
51. Write each byte as a sum of numbers written as powers of two and then find and add any of the powers used in either number (Note that if a power is used in both numbers, it is added only once).