



## Assignment no 01: Chapter 2

**Note: You can check the exercises after the book Chapter. In our assignment, we are using the 11<sup>th</sup> edition of “Digital Fundamentals” By Thomas L. Floyd”**

**2. Express** each of the following decimal numbers as a power of ten:

- (a) 1000                      (b) 10000000                      (c) 1000000000

**4. How high** can you count with six decimal digits?

**6. Convert** the following binary numbers into decimal:

- (a) 100001                      (b) 100111                      (c) 101010                      (d) 111001  
(e) 1100000                      (f) 11111101                      (g) 11110010                      (h) 11111111

**8. What** is the highest decimal number that can be represented by each of the following numbers of binary digits (bits)?

- (a) two                      (b) three                      (c) four                      (d) five                      (e) six  
(f) seven                      (g) eight                      (h) nine                      (i) ten                      (j) eleven

**10. Generate** the binary sequence for each decimal sequence:

- (a) 0 through 7                      (b) 8 through 15                      (c) 16 through 31  
(d) 32 through 63                      (e) 64 through 75

**16. Use** direct subtraction on the following binary numbers:

- (a) 10 - 1                      (b) 100 - 11                      (c) 110 - 100  
(d) 1111 - 11                      (e) 1101 - 101                      (f) 110000 - 1111

**19. What** are two ways of representing zero in 1’s complement form?

**20. How** is zero represented in 2’s complement form?

**22. Determine** the 2’s complement of each binary number using either method:

- (a) 11                      (b) 110                      (c) 1010                      (d) 1001  
(e) 101010                      (f) 11001                      (g) 11001100                      (h) 11000111

**24. Express** each decimal number as an 8-bit number in the 1’s complement form:

- (a) -34                      (b) +57                      (c) -99                      (d) +115

**26. Determine** the decimal value of each signed binary number in the sign-magnitude form:

- (a) 10011001                      (b) 01110100                      (c) 10111111



28. Determine the decimal value of each signed binary number in the 2's complement form:

- (a) 10011001      (b) 01110100      (c) 10111111

34. Perform each subtraction in the 2's complement form:

- (a) 00110011 - 00010000      (b) 01100101 - 11101000

38. Convert each binary number to hexadecimal:

- (a) 1111      (b) 1011      (c) 11111  
(d) 10101010      (e) 10101100      (f) 10111011

40. Convert each decimal number to hexadecimal:

- (a) 10      (b) 15      (c) 32      (d) 54  
(e) 365      (f) 3652      (g) 7825      (h) 8925

44. Convert each decimal number to octal by repeated division by 8:

- (a) 23      (b) 45      (c) 65      (d) 84  
(e) 124      (f) 156      (g) 654      (h) 9999

46. Convert each binary number to octal:

- (a) 100      (b) 110      (c) 1100  
(d) 1111      (e) 11001      (f) 11110  
(g) 110011      (h) 101010      (i) 10101111

47. Convert each of the following decimal numbers to 8421 BCD:

- (a) 10      (b) 13      (c) 18      (d) 21      (e) 25      (f) 36  
(g) 44      (h) 57      (i) 69      (j) 98      (k) 125      (l) 156