

King Fahd University of Petroleum and Minerals
Department of Electrical Engineering
EE 200 Digital Logic Circuit Design
Dr. H. Ragheb
HW No. 1 (Due Wed. Feb. 28)

1- Convert the following to

i- octal

ii- hexadecimal

a. $(110110111101)_2$

b. $(317)_{10}$

2- Convert the following to decimal

a. $(35701)_8$

b. $(2E7)_{16}$

3- Compute the sum of the following pairs of 6-bit unsigned numbers. If the answer is to be stored in a 6-bit location, indicate which of the sums produces overflow. Also show the decimal equivalent of the problem

a. $001101 + 010110$

b. $110111 + 000101$

c. $101100 + 011001$

d. $101100 + 010011$

4- Each of the following pairs of signed (two's complement) numbers are stored in computer words (6 bits) (positive number 2's complement is the same as the signed magnitude). Compute the sum as it is stored in a 6-bit computer word. Show the decimal equivalents of each operand and the sum. Indicate if there is overflow.

a. $110011 + 010011$

b. $001101 + 110100$

c. $010001 + 011011$

d. $010010 + 010100$

e. $111010 + 110011$

f. $101101 + 101001$

5-subtract each of the following pairs of unsigned numbers

a. $001101 - 000110$

b. $110101 - 000011$

c. $000111 - 010011$

6- Subtract each of the following pairs of signed (two's complement) numbers

a. $110101 - 000011$

b. $110101 - 011000$

c. $010000 - 100100$