KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS
COLLEGE OF COMPUTER SCIENCE AND ENGINEERING
COMPUTER ENGINEERING DEPARTMENT

COE 202 - Term 053
Assignment #1

Q.1 (40 points)

Perform the following operations. For each operation show all intermediate steps and the final result. Show the carry (if it exists) in the intermediate steps.

- Base 2:
    - 1100101 + 0011010
    - 10001 + 000101
    - 10111011 + 11011011
    - 10100101 + 01011001
    - 11100011 + 10101010
    - 1001110000110101 + 0110010111010110
    - 1000001010111111 + 0111111111110000
- Base 8:
    - 731 + 274
    - 250 + 333
    - 17547 + 15627
    - 74562 + 372
    - 24357 + 76766
    - 56745 + 23734
- Base 16:
    - EF5 + 1A7
    - 3ED + 562
    - 23B8 + 12B
    - 276A + FFEC
    - 56AB + 25B7
    - FF07B + BB1A5
    - 3B00F + 1092F
    - FF012FF + FF8ABE6

Q.2 (20 points)

Perform the following operations. For each operation show all intermediate steps and the final result. Show the "borrow" (if it exists) in the intermediate steps.

- Base 2:
    - 1100101 - 0011010
    - 10111011 - 11011011
    - 0110010111010110 - 1001110000110101
    - 0111111111110000 - 1000001010111111
- Base 8:
    - 17547 - 15627
    - 24357 - 76766
    - 56745 - 23734

- Base 16:
  - 3ED - 562
  - 276A - FFEC
  - 56AB - 25B7

Q.3 (40 points)

Convert the following numbers into the target base. For each conversion indicate the method followed and show intermediate results.

- $(15B9)_{16} = (\ )_{10}$
- $(675)8 = (\ )_{10}$
- $(675)_{10} = (\ )_8$
- $(110101)_2 = (\ )_{10}$
- $(11010110)_2 = (\ )_8$
- $(15B7)_{12} = (\ )_{16}$
- $(2222)_8 = (\ )_{16}$
- $(5555)_{16} = (\ )_8$
- $(2222)_8 = (\ )_{10}$
- $(5555)_{16} = (\ )_{10}$
- $(323)_{10} = (\ )_2$
- $(6938)_{10} = (\ )_8$
- $(72543)_{10} = (\ )_{16}$
- $(40325)_{10} = (\ )_2$
- $(21692)_{10} = (\ )_{12}$
- $(32768)_{10} = (\ )_2$
- $(32768)_{10} = (\ )_8$
- $(32768)_{10} = (\ )_{16}$
- $(131071)_{10} = (\ )_2$
- $(131072)_{10} = (\ )_{16}$