

**Gebze Technical University Department of Computer Engineering CSE**  
**101 – Introduction to Computer Engineering HW #1**

**1)**

- a) 1000 - 1010 - 1001
- b) 1110 - 1111 - 0011
- c) 1 - E - 1
- d) F - E - D - B

**2)**

- 43 -> 01000011 -> C
- 6F -> 01101111 -> o
- 6D -> 01101101 -> m
- 70 -> 01110000 -> p
- 75 -> 01110101 -> u
- 74 -> 01110100 -> t
- 65 -> 01100101 -> e
- 72 -> 01110010 -> r

**3)**

- (5 - 1) -> 00101 + 11111 = 00100 = 4 (decimal)
- (5 - 11) -> 00101 + 10101 = 11010 = -6 (decimal)

**4)**

- 01001011     AND    10101011 =    00001011
- 01001011     OR     10101011 =    11101011
- 01001011     XOR    10101011 =    11100000

**5)**

a) 7123

OR the bit patterns in register 2 and 3, and place the result in register 1.

b) 2BCD

LOAD the register B with the bit pattern CD.

**6)**

;There must be already defined values at A0

;and A1 in order to see the program is working.

;Because of the way the instructions that are given

;in the HW1.pdf

load R0,11110000b ;The binary value to take the first 4 bits

load R1,00001111b ;The binary value to take the last 4 bits

;We copy the value at A0 to R2 and A1 to R3.

;A0 =  $10 \cdot 16^1 + 0 \cdot 16^0 = 160d$

;A1 =  $10 \cdot 16^1 + 1 \cdot 16^0 = 161d$

load R2,[160]

load R3,[161]

;XY and/or ZQ operation

;Ex: R2 = 36h -> 00110110 AND 11110000 = 00110000

and R2,R2,R0 ;R2 equals "R2 and R0" operation

and R3,R3,R1 ;R3 equals "R3 and R1" operation

or R4,R2,R3 ;R4 equals "R2 or R3" operation

store R4,[162] ;We store the value we found at R4 to A2 (162)

halt ;We stopped the program