BLM/COM275

2021-2022 Fall

Homework-1

Due Date: 19.10.2021 11:59 p.m.

Answer on paper and upload the photo of the solutions to the system in pdf format. The name of the file you uploaded to the system should be "**StudentNumber.pdf**".

Q1. Convert the following numbers with the indicated bases to decimal:

a) $(735)_8$ **b)** $(525)_6$

Q2. Convert the following binary numbers to hexadecimal and to decimal: **a)** 1.10010, **b)** 110.010. Explain why the decimal answer in (b) is 4 times that in (a).

Q3. Obtain the 1's and 2's complements of the following binary numbers:

a) 10000000 **b)** 0000000 **c)** 11011010 **d)** 01110110

Q4. Perfom subtraction on the given unsigned binary numbers using the 2's complement of the subtrahend. Where the result should be negative, find its 2's complement and affix a minus sign.

a)10011-10001 **b)**100010-100011 **c)** 1001-101000 **d)** 110000-10101

Q5. Represent the decimal number 5.137 in BCD and excess-3 code.

Q6. The following is a string of ASCII characters whose bit patterns have been converted into hexadecimal for compactness: 73 F4 E5 76 E5 4A EF 62 73. Of the eight bits in each pair of digits, the leftmost is a parity bit. The remaining bits are the ASII code.

- **(a)** Convert the string to bit form and decode the ASCII.
- **(b)** Determine the parity used: odd or even?