11.10.2012

Istanbul Technical University
Department of Computer Engineering

BLG 231E - Digital Circuits
Assignment 1

Due Date: 18.10.2012, **Thursday,** 17.00.

- Write your answers to the **Answer Sheet** provided in "Sınıf Dosyaları" folder at the *nino-va* system. Any other paper will not be accepted.
- Plagiarized assignments will be given a negative mark.
- **No late submissions** will be accepted.

Submissions: Please submit your solutions to the Digital Circuits Course Assignment Box at the department secretary's office.

1- Considering the given numbers as i) unsigned, ii) signed perform the required calculations and *explain* your answers using the terms like *carry, borrow, overflow*. (Use 2's complement to represent negative numbers and for subtraction.)

a) (01111100) + (11010101)

b) (11000110) – (1101)

2- Using axioms, properties and theorems of the Boolean Algebra minimize the logical expressions given below. (Specify the theorem you used at each step)

a) **a'b'd'+ab'd'+abc'+abcd'**

b) **a'b'c+ec'+a'b'e+a'c+a'e'+a'bcd+cd+ed**