

Laboratory 1: Numbers and Logic Operations

Problem 1:

- a. Convert the following binary numbers to decimal numbers

11001011 110101 10000011 10001111 100 10010 111111 1101010 01010101

- b. Convert the following decimal numbers to binary numbers

213 9 67 99 23 143 6 1 197 252

- c. Convert the following binary numbers to hexadecimal numbers

11001100 11110001 110001 11000010 10100100 11101100 11111100 111111 11

- d. Convert the following hexadecimal numbers to binary numbers

0x45 0xFA 0x5D 0x99 0x03 0x5B 0xDD 0xFE 0x22 0x18

- e. Convert the following decimal numbers to hexadecimal numbers

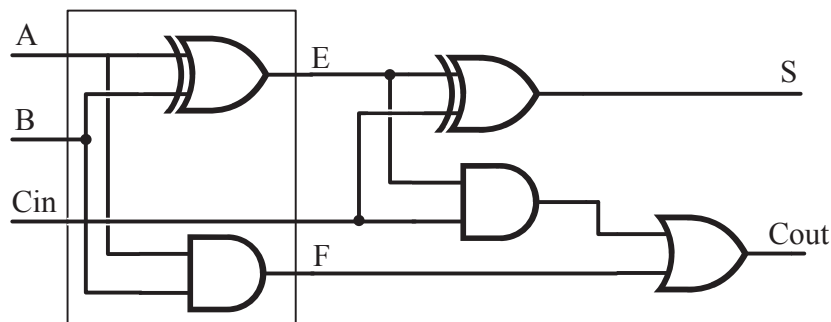
233 21 9 75 188 56 4 121 94 201

- f. Convert the following hexadecimal numbers to decimal numbers

0x5A 0xCC 0x40 0x07 0x3D 0xF1 0xFB 0x82 0xE4 0x05

Problem 2:

Consider the following logic circuit with the inputs A, B and Cin.



- a. Determine the truth table for the inputs A and B and the outputs E and F.
- b. Why is the part with the inputs A and B and the outputs E and F called a half-adder?
- c. Determine the truth table for the inputs A, B, Cin and the outputs S and Cout.
- d. Why is the full circuit called a full adder?