Digital Circuits: Homeworks #1

Due on Friday, March 24, 2017

Note: All the problem numbers are from 11th edition of the textbook. Also, we have some extra problems in Problem 7 (3-5).

1. **2-7(a)(e).**
   Convert each binary number to decimal
   (a) 110011.11
   (b) 1011100.10101
2. **2-11(h).**
   Convert each decimal number to binary
   (a) 198
3. **2-15(d)**
   Add the binay numbers
   (a) 111+101
4. **2-17(e)**
   Perform the following binary multiplications
   (a) 1110×1110
5. **2-22(h)**
   Determine the 2's complement of each binary number
   (a) 11000111
6. **2-25(c)(d)**
   Express each decimal number as an 8-bit number in the 2's complement form
   (a) +101
   (b) -125
7. **3-5**

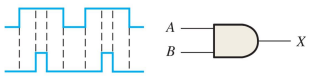

Figure 1: waveform

Determine the output, X, for each 2-input gate with the input waveforms shown in Figure 1. Show the proper relationship of output to inputs with a timing diagram.

(a) AND-gate

(b) OR-gate

(c) NAND-gate

(d) NOR-gate

(e) XOR-gate

(f) XNOR-gate