**COMP 1800 – Fall 2016**

**Classwork 3+4: Binary Addition and Boolean Operators**

**(31 points)**

Number of People: Teams of up to 2. If you work with a teammate, only one submission is needed. Be sure to put both of your names on the paper. Feel free to ask me or Swaroop for help!

Due: Sept. 8, by the end of class

Submission: Turn in this assignment as a hard copy before the end of class; no electronic submission is necessary.

Grader: TA, Swaroop Goli ([ssgoli@memphis.edu](mailto:ssgoli@memphis.edu)). Questions about grading? Please contact him first!

Please show all work on these problems! Answers without work will be given minimal or no credit.

1. **(5 pts)** Compute the result of the binary addition (111011)2 + (110110)2.
2. **(12 pts, 3 each)** Evaluate each of the following Boolean expressions. Be sure to follow the order of operations for Boolean expressions!  
   1. 1 || 0 && !1
   2. (1 || 0) && (!1)
   3. 1 || (0 && !1)
   4. 1 || 0 && (!1)

Write truth tables for the following Boolean expressions, showing all the intermediate steps that you took for each one.

1. **(7 pts)** (*A* || *B*) && !*B*
2. **(7 pts)** !(*A* || *B* && *A*)