

# Adders Assignment

Due September 13, 2017

**\*\*Part 1:** Implement a half adder using a function definition. This function should take two inputs,  $p$  and  $q$ , and it should return  $c$  and  $s$ . See the half adder diagram in the accompanying handout. Use two “for” loops to help you create a truth table for the half adder.

**\*\*Part 2:** Implement a full adder using a function definition. This function should take three inputs,  $p$ ,  $q$ , and  $r$ , and it should return  $c$  and  $s$ . See the full adder diagram in the accompanying handout. Note that your full adder function can call your half adder function. Use three “for” loops to help you create a truth table for the full adder.

**\*\*Part 3:** Implement a parallel adder using a function definition. This function should take six inputs,  $p$ ,  $q$ ,  $r$ ,  $s$ ,  $t$ , and  $u$ , and it should return  $c$ ,  $s_1$ ,  $s_2$ , and  $s_3$ . See the parallel adder description in the accompanying handout. Note that your parallel adder function can call your half adder function and your full adder function.