CSE311 Quiz Section: October 4, 2012

1. Carry look-ahead adder.

2. Find the sum-of-products expansion of the Boolean function $F(w, x, y, z)$ that has the value 1 if and only if an odd number of w, x, y, z have value 1.

3. Construct circuits from inverters, AND gates, and OR gates to produce these outputs.Can you simplify any of them? (Note: A bar above a expression means its negation)

   (a) $\bar{x} + y$

   (b) $xyz + \bar{x}y$

   (c) $(\overline{x+y})(\overline{y+z})(\overline{x+z})$

4. Translate English to logical expressions with nested quantifiers.

   Both editions: 1.5: 9

   Let L(x,y) be the statement "x loves y"

   (a) There is somebody whom everybody loves. (c)

   (b) Nobody loves everybody. (d)

   (c) Everyone loves himself or herself. (i)

   (d) There is someone who loves no one besides himself or herself. (j)