Name: _____ *Student #:* _____

Due Date: 10 April 2014 5:00pm

Notes:

- **Show your work.**
- Follow all instructions, to include the Homework Policies and Procedures.
- Make sure your answers are clearly marked.

Part 1. Complete the following problems from the book.

5.2

5.3

5.6

5.9b

5.12a

Part 2. Complete the following problems.

1. Consider the function f = a'c' + bc' + a'b. Use Shannon's expansion to derive a circuit for f that uses a 2-to-1 multiplexer.

2. Repeat Problem 1 for f = b'c' + ab.

3. For the function f(a, b, c) = ∑m(0, 2, 3, 6). Use Shannon's expansion to derive an implementation using a 2-to-1 multiplexer and any other necessary gates.

4. Consider the function f = b' +a'c' +ac. Show how REPEATED application of Shannon's expansion can be used to derive the minterms of f. NOTE: This mean expand on one literal at a time.