Cpr E 281 HW05
ELECTRICAL AND COMPUTER ENGINEERING
IOWA STATE UNIVERSITY

Karnaugh Maps
Assigned Date: Sixth Week
Due Date: Oct. 7, 2013

P1. (10 points) Problem 2.47 in the book.

P2. (10 points) Problem 2.49 in the book.

P3. (10 points) Find the simplest realization of the following function
$f(x_1, ..., x_4) = \Sigma\, m(0, 3, 4, 7, 9, 10, 13, 14)$,
assuming that the logic gates have a maximum fan-in of two.

P4. (10 points) Use functional decomposition to find the best implementation of the
following function: $f(x_1, ..., x_5) = \Sigma\, m(1,2,7,9,10,18,19,25,31) + D(0, 15,20,26)$.
How does your implementation compare with the lowest-cost SOP implementation?
Give the costs.

P5. (10 points) Problem 2.69 in the textbook.

P5. (10 points) Problem 2.70 in the textbook.

P7. (10 points) Problem 2.73 in the textbook.

P8. (10 points) Problem 2.74 in the textbook.

P9. (10 points) Problem 2.77 in the textbook.

P10. (10 points) Jointly minimize the function for segments D and F to display digits from
0 to 9.