

Homework 5

First Name:

Last Name:

Red ID#:

Section # (#1 for 2PM class, and #2 for 7PM class):

Q1 Find the minimum sum-of-products expression for each function
(d denotes don't care terms specified in parentheses).

(a) $f(a, b, c, d) = \sum m(0, 2, 3, 4, 7, 8, 14)$

(b) $f(a, b, c, d) = \sum m(1, 2, 4, 15) + \sum d(0, 3, 14)$

Q2 Find the minimum expression for each of these functions.

(a) $f(A, B, C) = m_1 + m_3 + m_4 + m_6$

(b) $f(d, e, f) = \sum m(1, 4, 5, 7)$

(c) $f(r, s, t) = r't' + rs' + rs$

(d) $f(a, b, c) = m_3 + m_4 + m_6 + m_7$

(e) $f(n, p, q) = \sum m(2, 3, 5, 7)$

Q3 Find the minimum sum-of-products expressions for each of the following functions (d denotes don't care terms).

(a) $f(A, B, C, D) = \sum m(4, 11, 12, 13, 14) + \sum m(5, 6, 7, 8, 9, 10)$

(b) $f(A, B, C, D) = \sum m(3, 11, 12, 13, 14) + \sum m(5, 6, 7, 8, 9, 10)$

(c) $f(A, B, C, D) = \sum m(1, 2, 4, 13, 14) + \sum m(5, 6, 7, 8, 9, 10)$

(d) $f(A, B, C, D) = \sum m(4, 15) + \sum d(5, 6, 7, 8, 9, 10)$