

Faculty of Computer & Information Sciences Ain Shams University

CHW 261: Logic Design

Tutorial Sheets 2020-2021 Dr. Manal Tantawi & Dr. Mirvat Al-Qutt



Assignment D

- 1) Simplify the following Functions using K-Map
 - a. $F(A, B, C) = \sum (0,1,5,7)$
 - b. $F(A,B,C) = \sum (1,2,3,6,7)$
 - c. $F(A,B,C) = \sum (0,2,3,4,6)$
 - d. $F(A, B, C, D) = \sum (0, 2, 4, 5, 6, 7, 8, 10, 13, 15)$
 - e. $F(A, B, C, D) = \sum (4,6,7,15)$
- 2) Simplify the following Functions using K-Map
 - a. $F(x, y, z) = \prod (0,1,3,4)$
 - b. $F(w, x, y, z) = \prod (2,3,6,7)$
 - c. $F(w, x, y, z) = \prod (1, 3, 5, 7, 13, 15)$
- 3) Find the minterms of the following Boolean expressions by first plotting each function in a map:
 - a. F(A,B,C,D) = C'D + ABC' + ABD' + A'B'D
 - b. F(A,B,C,D) = A'B + A'CD + B'CD + BC'D'
- 4) Simplify the following Functions using K-Map
 - a. F(A, B, C, D) = A'B'C'D + AB'D + A'BC' + ABCD + AB'C
 - b. F(A, B, C, D) = A'B'C'D' + BC'D + A'C'D + A'BCD + ACD'
- 5) Simplify the following Functions together with the don't care conditions
 - a. $F(A, B, C, D) = \sum (1, 3, 5, 7, 9, 15), d(A, B, C, D) = \sum (4, 6, 11, 12, 13)$