LAB - 06

$a = \sum 1, 4, 11, 13$

$a = (\bar{A}\bar{B}\bar{C}D) + (\bar{A}B\bar{C}\bar{D}) + (A\bar{B}CD) + (AB\bar{C}D)$

$a = \bar{A}\bar{C}(\bar{B}D + B\bar{D}) + AD(\bar{B}C + B\bar{C})$

$a = \bar{A}\bar{C}(B \oplus D) + AD(B \oplus C)$

$b = \sum 5, 6, 11, 12, 14, 15$

$b = (\bar{A}B\bar{C}D) + (\bar{A}BC\bar{D}) + (A\bar{B}CD) + (AB\bar{C}\bar{D}) + (ABC\bar{D}) + (ABCD)$

$b = \bar{A}B(\bar{C}D + C\bar{D}) + ACD(\bar{B} + B) + AB\bar{D}(\bar{C} + C)$

$b = \bar{A}B(C \oplus D) + ACD + AB\bar{D}$

$c = \sum 2, 12, 14, 15$

$c = (\bar{A}\bar{B}C\bar{D}) + (AB\bar{C}\bar{D}) + (ABC\bar{D}) + (ABCD)$

$c = (\bar{A}\bar{B}C\bar{D}) + AB\bar{D}(\bar{C} + C) + (ABCD)$

$c = (\bar{A}\bar{B}C\bar{D}) + (AB\bar{D}) + (ABCD)$

$c = \bar{A}\bar{B}C\bar{D} + AB(\bar{D} + CD)$

$c = \bar{A}\bar{B}C\bar{D} + AB(D + C)$

$d = \sum 1, 4, 7, 10, 15$

$d = (\bar{A}\bar{B}\bar{C}D) + (\bar{A}B\bar{C}\bar{D}) + (\bar{A}BCD) + (A\bar{B}C\bar{D}) + (ABCD)$

$d = BCD(\bar{A} + A) + \bar{A}\bar{C}(\bar{B}D + B\bar{D}) + (A\bar{B}C\bar{D})$

$d = BCD + \bar{A}\bar{C}(B \oplus D) + A\bar{B}C\bar{D}$

$e = \sum 1, 3, 4, 5, 7, 9$

$e = (\bar{A}\bar{B}\bar{C}D) + (\bar{A}\bar{B}CD) + (\bar{A}B\bar{C}\bar{D}) + (\bar{A}BC\bar{D}) + (\bar{A}BCD) + (A\bar{B}\bar{C}D)$

$e = \bar{A}D(\bar{B}\bar{C} + \bar{B}C + B\bar{C} + BC) + \bar{C}(\bar{A}B\bar{D} + A\bar{B}D)$

$e = \bar{A}D(BC + B \oplus C) + \bar{C}(\bar{A}B\bar{D} + A\bar{B}D)$

$f = \sum 1, 2, 3, 7, 13$

$f = (\bar{A}\bar{B}\bar{C}D) + (\bar{A}\bar{B}C\bar{D}) + (\bar{A}\bar{B}CD) + (\bar{A}BCD) + (AB\bar{C}D)$

$f = \bar{A}\bar{B}(\bar{C}D + C\bar{D} + CD) + BD(\bar{A}C + A\bar{C})$

$f = \bar{A}\bar{B}(C \oplus D + CD) + BD(A \oplus C)$

$g = \sum 0, 1, 7, 12$

$g = (\bar{A}\bar{B}\bar{C}\bar{D}) + (\bar{A}\bar{B}\bar{C}D) + (\bar{A}BCD) + (AB\bar{C}\bar{D})$

$g = \bar{A}\bar{B}\bar{C}(\bar{D} + D) + B(\bar{A}CD + A\bar{C}\bar{D})$

$g = \bar{A}\bar{B}\bar{C} + B(\bar{A}CD + A\bar{C}\bar{D})$