TUGAS DSK 3
BOOLEAN ALGEBRA 2

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Tugas DSK

1. $F_1 = x'y'z' + x'y'z + x'yz'$

$F_2 = x'yz + xy'z' + xy'z + xyz' + xyz$

komp : F1

$F_1' = x'yz + xy'z' + xy'z + xyz' + xyz$

$(F_1')' = (x+y'+z')(x'+y+z)(x'+y+z')(x'+y'+z)(x'+y'+z')$

$F_1 = m_3\ m_4\ m_5\ m_6\ m_7$

POS : $\Pi m(3,4,5,6,7)$ || SOP : $\Sigma(0,1,2)$

Komp : F_2

$F_2' = x'y'z' + x'y'z + x'yz'$

$(F_2')' = (x+y+z)(x+y+z')(x+y'+z)$

$F_2 = m_0\ m_1\ m_2$

POS : $\Pi m(0,1,2)$ || SOP : $(3.4.5.6.7)$

2. A) $F(A, B, C) = (A' + B)(B' + C)$

$= A'B' + A'C + BC$

SOP $= A'B'C + A'B'C' + A'BC + A'B'C + ABC + A'BC$

$= A'B'C + A'B'C' + A'BC + ABC$

$= m_1 + m_0 + m_3 + m_7$

$= \Sigma(0, 1, 3, 7)$

Komp: F

$F' = A'BC' + AB'C' + AB'C + ABC'$

$(F)' = (A + B' + C)(A' + B + C)(A' + B + C')(A' + B' + C)$

POS $= M_2 M_4 M_5 M_6$

$= \Pi M(2, 4, 5, 6)$

B) $F(x, y, z) = 1$

$= xy + xzy + yz + xz + (x + x')$

$= xy + xyz + yz + xz + x(y + y')$

$= xyz + xyz' + xyz + xyz + x'yz + xyz + xy'z + xy'z + xy$

$= xyz + xyz' + x'yz + xy'z + xy'z + xy'z' + xyz + xyz' + x'yz + x'yz'$

$= xyz + xyz' + x'yz + xy'z + xy'z' + x'yz'$

SOP: $m_7 + m_6 + m_3 + m_5 + m_4 + m_2$

$= \Sigma(2, 3, 4, 5, 6, 7)$

Komp = F

$F' = x'y'z' + x'y'z$

$(F')' = (x+y+z)(x+y+z')$

Pos = $M_0 M_1 = \prod M(0,1)$

b) $F(x, y, z) = (x+y+z)(y+xz)$

$= xy + xyz + zyxz$

SOP = $xyz' + xyz + xyz + xyz + x'yz + xyz + xyz'$

SOP = $m_6 + m_7 + m_3 + m_5$

$= \Sigma(3, 5, 6, 7)$

Komp = f

$F' = x'y'z' + x'y'z + x'y'z' + xy'z'$

$(F')' = (x+y+z)(x+y+z')(x+y'+z)(x'+y+z)$

Pos = $M_0 M_1 M_2 M_4 = \prod M(0, 1, 2, 4)$

3. A) $F(x, y, z) = \Sigma(1, 3, 7)$

$= x' y' z + x' y z + x y z$

komp = F'

$F' = (x' y' z') + (x' y z') + (x y' z') + (x y z) + (x y z)$

$(F')' = (x + y + z)(x + y' + z)(x' + y + z)(x' + y + z')$

$(x' + y' + z)$

Pos = $m_0\ m_2\ m_5\ m_4\ m_6$

$\Pi(0, 2, 4, 5, 6)$

B) $F(x, y, z) = \Sigma(0, 3, 6, 7)$

$= x' y' z' + x' y z + x y z' + x y z$

komp = F'

$F' = x' y' z + x' y z' + x y' z' + x y' z$

$(F')' = (x + y + z)(x + y' + z)(x + y + z)(x' + y + z')$

Pos = $m_1\ m_2\ m_4\ m_5$

$\Pi(1, 2, 4, 5)$

c) $F(A, B, C) = \Pi(0, 1, 3, 2, 4, 6)$

$(F')' = (A+B+C)(A+B+C')(A+B'+C)(A+B'+C')$

$(A'+B+C)(A'+B'+C)$

$F' = A'B'C' + A'B'C + A'BC' + A'BC + AB'C' + ABC'$

komp = F

$F = AB'C + ABC$

SOP $= m_5 + m_7$

SOP $= \Sigma(5, 7)$