CSE 260

QUIZ 2

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sec : 01 (NRT)

1. (a)

$f(w,x,y,z) = (xy+z)(y+xy'+yz)$

$= (xy+z)y + (xy+z)xy' + (xy+z)yz$

$= xy.y + zy + xy'xy + xy'z + xy.y + yzz$ [distribution law]

$= xyy + zy + 0 + xy'z + xy + yz$ [$x \cdot x' = 0$ complement law]

$= xy + zy + x \cdot 0 + xy'z + xy + yz$

$= xy.(z+z')(w+w') + zy(x+x')(w+w') + xy'z(w+w') + xy(z+z')(w+w') + yz(x+x')(w+w')$ [complement law]

$= xyz + xyz' + xyz + x'yz + xy'zw + w'xy'z + xyz + xyz' + xyz + x'yz$ [distribution law]

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

$[x+x = x]$

$= xyz(w+w') + xyz'(w+w') + x'yz(w+w') +$

$wxy'z + w'xy'z$ $[x+x'=0$ (Compliment)$]$

$= wxyz + w'xyz + wxyz' + w'xyz' + wx'yz +$

$w'x'yz + wxy'z + w'xy'z$ [distribution law]

Minterms $= \Sigma(1111, 0111, 1110, 0110, 1011,$

$0011, 1101, 0101)$

$= \Sigma(15, 7, 14, 6, 11, 3, 13, 5)$

$= \Sigma(3, 5, 6, 7, 11, 13, 14, 15)$