

Important terms related to minimization of Boolean expression + K Maps

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| 1) Minterm | 4) Canonical form |
| 2) Maxterm | 5) SOP (Sum Of Product) |
| 3) Cardinal form | 6) POS (Product Of Sum) |

| Sl no | Terms | Explanation |
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| 1 | minterm | Product of all the literals with or without the bar within the expression . Example $XY'Z'$ |
| | Short hand minterm notation | Example : the short hand minterm designation of $xy'z'$ Step 1 : substitute 0's for barred letters and 1's for non barred letters , $xy'z'=100$,(Binary equivalent) Step 2 : Express decimal subscript of m (lower case m) = m_4 |
| 2 | maxterm | Sum of all the literals with or without the bar within the expression. Example $X'+Y+Z'$ |
| | Short hand maxterm notation | Example : the short hand maxterm designation of $x+y'+z'$ Step 1 : substitute 1's for barred letters and 0's for non barred letters , $xy'z'=011$,(Binary equivalent) Step 2 : Express decimal subscript of M (Upper case M) = M_3 |
| 3 | Cardinal form | $F(X,Y,Z) = \Sigma(0,1,2,5)$ $F(W,X,Y,Z) = \Pi (0,3,6,8,10,12,14)$ |
| 4 | Canonical form | $(X.Y.Z)+(X'+Y'+Z)$ $(X+Y+Z')$. $(X'+Y+Z)$. $(X'+Y''+Z')$ Boolean Expression composed entirely either of minterms or maxterms is referred to as Canonical Expression |
| 5 | SOP (Sum Of Product) Or Canonical SOP | When a boolean expression is represented purely as Sum Of Minterms , it is said to be in Canonical Sum-Of-Products Form Example: $(XYZ')+(XY'Z')+(X'YZ')$ |
| 6 | POS (Product Of Sum) Or Canonical POS | When a boolean expression is represented purely as product of Maxterms , it is said to be in Canonical Product-Of-Sum Form Example : $(X+Y+Z')(X+Y'+Z')(X'+Y+Z')$ |