6 - Canonical Forms

Wednesday, May 15, 2024

12:40 PM

CANONICAL (STANDARD) FORM

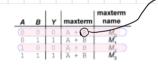
de a standard way to represent all truth tables

- * SOP (SUM 07 Product) form
 - · each row has a minterm assumption - each uninterm is true
 - We can form a function by oring mintern where output 75 1

	Α	В	Y	minterm	name
	0	0	0	A B	m_0
(1	1	AB	m,
	1	0	0	AB	m ₂
(1	1	1	AB	m_3

 $Y = F(A, B) = \overline{A}B + AB = \Sigma(1, 3)$

- · the fiterals in the minterm are complements or not So that the whole miterm is true
- * pos (product of sum) form
 - · each row has a maxterm assomption- each maxterm is faul
 - · Form punction by ANDing maxterms where output is faise (0)



· the literals in the minterm are complements or not so that the whole miterm is pase

 $Y = F(A, B) = (A + B)(\overline{A} + B) = \Pi(0, 2)$

SOP 1/s POS

- SOP and POS are logically equivalent

 SOP produces a shorter equation when the output is TRUE on only a few rows of a truth table
 - . POS is shorter when the output is FALSE on only a few rows of a truth table