

Es. per martedì 29/10/2019

minimizzare la seguente espressione

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

Th. consensus $\rightarrow [(\bar{A} + \bar{D}) + \bar{B}] \cdot [(\bar{A} + \bar{D}) + B] = (\bar{A} + \bar{D})$

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

Th. Prop. distributiva $\rightarrow [(\bar{A} + \bar{D}) + \bar{C}] \cdot [(A + \bar{B}) + \bar{C}] =$
 $= \bar{C} + (\bar{A} + \bar{D}) \cdot (A + \bar{B})$

$$= (\bar{A} + \bar{D}) \cdot [\bar{C} + (A + \bar{B})(B + \bar{D})] =$$

$$= (\bar{A} + \bar{D}) \cdot [\bar{C} + AB + A\bar{D} + \bar{B}\bar{D}] =$$

$$= (\bar{A} + \bar{D}) \cdot [\bar{C} + AB + A\bar{D} + \bar{B}\bar{D}]$$

Th. consensus $\rightarrow AB + A\bar{D} + \bar{B}\bar{D} = AB + \bar{B}\bar{D}$

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

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

$$= \bar{A}\bar{C} + \bar{D}\bar{C} + \bar{B}\bar{D}[\bar{A} + 1] + A\bar{B}\bar{D} =$$

$$= \bar{A}\bar{C} + \bar{D}\bar{C} + \bar{B}\bar{D} + A\bar{B}\bar{D} = \bar{A}\bar{C} + \bar{D}[\bar{B} + AB] =$$

$$= \bar{A}\bar{C} + \bar{D}\bar{C} + \bar{B}\bar{D} + \bar{D}A = A\bar{D} + \bar{A}\bar{C} + \bar{D}\bar{B}$$

Th. consensus $\rightarrow \bar{A}\bar{C} + \bar{D}\bar{C} + \bar{D}A = \bar{A}\bar{C} + A\bar{D}$

UTILIZZANDO le MAPPE K:

A	B	C	D	F
0	0	0	0	1
0	0	0	1	1
0	0	1	0	1
0	0	1	1	0
0	1	0	0	1
0	1	0	1	1
0	1	1	0	0
0	1	1	1	0
1	0	0	0	1
1	0	0	1	0
1	0	1	0	1
1	0	1	1	0
1	1	0	0	1
1	1	0	1	0
1	1	1	0	1
1	1	1	1	0

sum

F

AB \ CD	00	01	11	10
00	1	1	1	1
01	1	1	0	0
11	0	0	0	0
10	1	0	1	1

(i) $\overline{B}\overline{D}$

(ii) $A\overline{D}$

(iii) $\overline{A}\overline{C}$

$$\Rightarrow F = A\overline{D} + \overline{A}\overline{C} + \overline{B}\overline{D}$$