

HWA ellenőrző feladatok megoldásai

3. feladat

a.) Adja meg az $F(ABC)=(A+B)(B+C)$ logikai függvény kanonikus boole-algebrai alakjait!

A	B	C	A+B	B+C	F
0	0	0	0	0	0
0	0	1	0	1	0
0	1	0	1	1	1
0	1	1	1	1	1
1	0	0	1	0	0
1	0	1	1	1	1
1	1	0	1	1	1
1	1	1	1	1	1

Diszjunktív: $F = \bar{A}\bar{B}\bar{C} + \bar{A}BC + A\bar{B}C + AB\bar{C} + ABC$

Konjunktív: $F = (A + B + C) \cdot (A + B + \bar{C}) \cdot (\bar{A} + B + C)$

b.) Adja meg az $F(ABC) = A + \bar{B}C$ logikai függvény kanonikus boole-algebrai alakjait!

A	B	C	A	$\bar{B}+C$	F
0	0	0	0	0	0
0	0	1	0	1	1
0	1	0	0	0	0
0	1	1	0	0	0
1	0	0	1	0	1
1	0	1	1	1	1
1	1	0	1	0	1
1	1	1	1	0	1

Disj $F = \bar{A}\bar{B}C + A\bar{B}\bar{C} + A\bar{B}C + AB\bar{C} + ABC$
Konj $F = \boxed{} (A+B+C) \cdot (A+\bar{B}+C) \cdot (A+\bar{B}+\bar{C})$

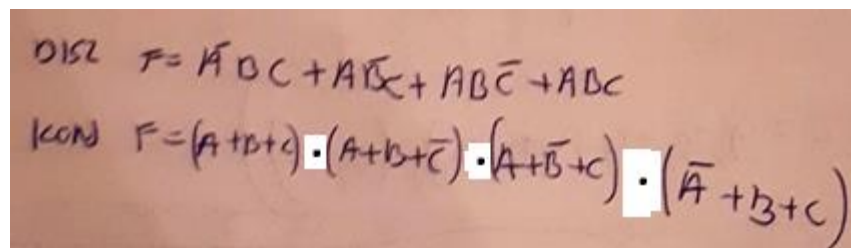
c.) Adja meg az $F(ABC)=A(B+C)$ logikai függvény kanonikus boole-algebrai alakjait!

A	B	C	A	B+C	F
0	0	0	0	0	0
0	0	1	0	1	0
0	1	0	0	1	0
0	1	1	0	1	0
1	0	0	1	0	0
1	0	1	1	1	1
1	1	0	1	1	1
1	1	1	1	1	1

DISJ $F = A\bar{B}C + A\bar{B}\bar{C} + ABC$
KAN $F = (A+B+C) \cdot (A+B+\bar{C}) \cdot (A+\bar{B}+C) \cdot (A+\bar{B}+\bar{C}) \cdot (\bar{A}+B+C)$

d.) Adja meg az $F(ABC)=AB+AC+BC$ logikai függvény kanonikus boole-algebrai alakjait!

A	B	C	AB	AC	BC	F
0	0	0	0	0	0	0
0	0	1	0	0	0	0
0	1	0	0	0	0	0
0	1	1	0	0	1	1
1	0	0	0	0	0	0
1	0	1	0	1	0	1
1	1	0	1	0	0	1
1	1	1	1	1	1	1



DISJ $F = \bar{A}BC + A\bar{B}C + AB\bar{C} + ABC$
KONJ $F = (A+B+C) \cdot (A+B+\bar{C}) \cdot (A+\bar{B}+C) \cdot (\bar{A}+B+C)$

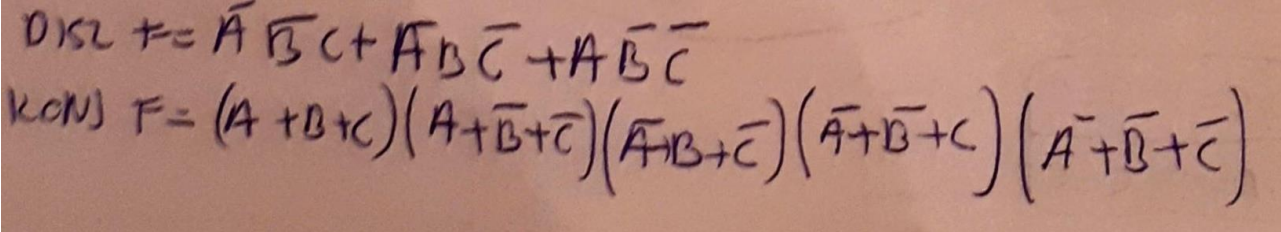
e.) Adja meg az $F(ABC)=AB+AC$ logikai függvény kanonikus boole-algebrai alakjait!

A	B	C	AB	AC	F
0	0	0	0	0	0
0	0	1	0	0	0
0	1	0	0	0	0
0	1	1	0	0	0
1	0	0	0	0	0
1	0	1	0	1	1
1	1	0	1	0	1
1	1	1	1	1	1

Disz $F = A\bar{B}C + AB\bar{C} + ABC$
Konj $F = (A+B+C)(A+B\bar{C})(A+\bar{B}+C)(A+\bar{B}+\bar{C})(\bar{A}+B+C)$

f.) Adja meg az $F(A,B,C) = A \oplus B \oplus C$ függvény kanonikus boole-algebrai alakjait !

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



DISJ $F = \bar{A}\bar{B}C + \bar{A}B\bar{C} + A\bar{B}\bar{C}$
KONJ $F = (A+B+C)(A+\bar{B}+\bar{C})(\bar{A}+B+\bar{C})(\bar{A}+\bar{B}+C)(A+\bar{B}+\bar{C})$