Atividade de Casa - Álgebra de Boole

* 2ª Questão: Tabela Verdade

entradas				saída
E1	E0	ENT1	ENT0	S
0	0	0	0	0
0	0	0	1	0
0	0	1	0	0
0	0	1	1	0
0	1	0	0	1
0	1	0	1	0
0	1	1	0	0
0	1	1	1	0
1	0	0	0	1
1	0	1	0	1
1	0	1	1	0
1	1	0	0	0
1	1	0	1	1
1	1	1	0	1
1	1	1	1	0

Solução ⇒ $\overline{E1}\,E0\,\overline{ENT1}\,\overline{ENT0} + E1\,\overline{E0}\,\overline{ENT1}\,\overline{ENT0} + E1\,\overline{E0}\,\overline{ENT1}\,ENT0 + E1\,E0\,\overline{ENT1}\,\overline{ENT0} + E1\,E0\,\overline{ENT1}\,ENT0 + E1\,E0\,ENT1\,\overline{ENT0}$

Simplificando ∴

$\overline{E1}\,E0\,\overline{ENT1}\,\overline{ENT0} + E1\,\overline{E0}\,\overline{ENT1}\,\overline{ENT0} + E1\,\overline{E0}\,\overline{ENT1}\,ENT0 + E1\,E0\,ENT1\,\overline{ENT0} + E1\,E0\,\overline{ENT1}\,ENT0 + A1\,A0\,ENT1\,ENT0$

$\overline{E1}\,E0\,\overline{ENT1}\,\overline{ENT0} + E1(\overline{E0}\,\overline{ENT1}\,\overline{ENT0} + \overline{E0}\,\overline{ENT1}\,ENT0 + E0\,\overline{ENT1}\,\overline{ENT0} + E0\,\overline{ENT1}\,ENT0 + E0\,ENT1\,\overline{ENT0})$

$\overline{E1}\,E0\,\overline{ENT1}\,\overline{ENT0} + E1(\overline{ENT1}(\overline{E0}\,\overline{ENT0} + E0\,\overline{ENT0} + E0\,ENT0 + E0\,ENT1\,\overline{ENT0}))$

$E1\,E0\,\overline{ENT1}\,\overline{ENT0} + E1(ENT1(1) + E0\,ENT1\,ENT0)$

$E1\,E0\,\overline{ENT1}\,\overline{ENT0} + E1(\overline{ENT1} + E0\,ENT1\,\overline{ENT0})$

$\overline{E1}\,E0\,\overline{ENT1}\,\overline{ENT0} + E1(\overline{ENT1} + E0\,\overline{ENT0})$

$\overline{E1}\,E0\,\overline{ENT1}\,\overline{ENT0} + E1\,\overline{ENT1} + E1\,E0\,\overline{ENT0}$

$E0(\overline{E1}\,\overline{ENT1}\,\overline{ENT0} + E1\,\overline{ENT0})\,E1\,\overline{ENT1}$

$E0(\overline{ENT0}(\overline{E1}\,\overline{ENT1} + E1) + E1\,\overline{ENT1}$

$E0(\overline{ENT0}(E1 + \overline{ENT1}) + E1\,\overline{ENT1}$

$E0(E1\,\overline{ENT0} + \overline{ENT0}\,\overline{ENT1}) + E1\,\overline{ENT1}$

Solução - simplificação:

↳ $0\,E1\,\overline{ENT0} + E0\,\overline{ENT0}\,ENT1 + E1\,\overline{ENT1}$

* 3º questão: Tabela Verdade

entradas				saídas			
V	E	P	A	SA	SP	SE	SV
0	0	0	0	0	0	0	0
0	0	0	1	1	0	0	0
0	0	1	0	0	1	0	0
0	0	1	1	1	0	0	0
0	1	0	0	0	0	1	0
0	1	0	1	1	0	0	0
0	1	1	0	0	0	0	1
0	1	1	1	1	0	0	0
1	0	0	0	0	0	0	1
1	0	0	1	1	0	0	0
1	0	1	0	0	1	0	0
1	0	1	1	1	0	0	0
1	1	0	0	0	0	1	0
1	1	0	1	1	0	0	0
1	1	1	0	0	1	0	0
1	1	1	1	1	0	0	0

Soluções ⇒

$$SA = \bar{V}\bar{E}\bar{P}A + \bar{V}\bar{E}P\bar{A} + \bar{V}\bar{E}PA + \bar{V}E\bar{P}A + V\bar{E}\bar{P}A + V\bar{E}PA + VE\bar{P}A + VEPA$$

$$A(\bar{V}\bar{E}\bar{P} + \bar{V}\bar{E}P + V\bar{E}\bar{P} + \bar{V}E\bar{P} + VE\bar{P} + V\bar{E}P + VE\bar{P} + VEP)$$

$$A(P(\bar{V}E + \bar{V}\bar{E} + V\bar{E} + VE) + \bar{P}(\bar{V}\bar{E} + \bar{V}E + V\bar{E} + VE))$$

$$A(P(E(\bar{V} + \bar{V} + V + V)) + \bar{P}(\bar{E}(\bar{V} + \bar{V} + V + V))$$

$$A(P(E(1)) + (\bar{P}(\bar{E}(1))$$

$$A(P(E)) + \bar{P}(\bar{E}))$$

$$A(PE + \bar{P}\bar{E}) \rightsquigarrow = 1$$

$$\boxed{SA = A}$$

$SP = V\bar{E}P\bar{A} + \bar{V}EPA + V\bar{E}P\bar{A} + VEP\bar{A}$

$SE = \bar{V}EP\bar{A} + VE\bar{P}\bar{A}$

$SV = VE\bar{P}\bar{A}$