



P6.

A)

S ₁	S ₀	a	b	c	d	e	f	g
0	0	1	1	1	1	1	1	0
0	1	0	1	1	0	0	0	0
1	0	1	1	0	1	1	0	1
1	1	1	1	1	1	0	0	1

B) $(a \cdot b \cdot c \cdot d \cdot e \cdot f \cdot \bar{g}) + (\bar{a} \cdot b \cdot c \cdot \bar{d} \cdot \bar{e} \cdot \bar{f} \cdot \bar{g}) +$
 $(a \cdot b \cdot \bar{c} \cdot d \cdot e \cdot \bar{f} \cdot g) + (a \cdot b \cdot c \cdot d \cdot \bar{e} \cdot \bar{f} \cdot g)$

C) $= (a \cdot b \cdot c \cdot d \cdot (f \cdot \bar{g} + \bar{a} \cdot \bar{e} \cdot \bar{f} + \bar{e} \cdot \bar{f})) + (a \cdot b \cdot c \cdot (\bar{d} \cdot \bar{g}))$
 $= a \cdot b \cdot c \cdot d \cdot f + a \cdot b \cdot c \cdot d \cdot \bar{a} \cdot \bar{e} \cdot \bar{f} + a \cdot b \cdot c \cdot d \cdot \bar{e} \cdot \bar{f}$

P7. A) $(\bar{A} \cdot \bar{B} \cdot \bar{C}) + (\bar{A} \cdot \bar{B} \cdot C) + (\bar{A} \cdot B \cdot \bar{C}) + (A \cdot \bar{B} \cdot C)$

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

A	B	C	F(A,B,C)
0	0	0	1
0	0	1	1
0	1	0	1
0	1	1	0
1	0	0	0
1	0	1	1
1	1	0	0
1	1	1	0

D) SOP: NAND because there are more AND gates than OR, matching what the NAND gate naturally performs.

POS: NOR because there are more OR gates than AND, matching what the NOR gate naturally performs.