Truth Table

Inputs			Outputs			Warning	Alarm
X1	X2	X3	Y1	Y2	Y3	W	A
0	0	0	0	0	0	0	0
0	0	1	0	0	1	0	0
0	1	0	0	1	0	0	0
0	1	1	0	1	1	1	0
1	0	0	1	0	0	0	0
1	0	1	1	0	1	1	0
1	1	0	1	1	0	1	0

Restrictions:

Yn = Xn and W = A = 0 (where one or fewer input signals are high)
Yn = Xn , W = 1 and A = 0 (where two input signals are high and a warning signal is released)
Yn = 0 , W = 0 and A = 1 (where all three input signals are high and an alarm is released)

Boolean Functions derived for outputs based on the scenario's specifications:

Y1 = x1x2'+x1x2x3'
Y2= x1'x2+x1x2x3'
Y3=x1'x3+x1x2x3'

W=x1’x2x3+x1x2’x3+x1x2x3’
A= x1x2x3

Boolean Function format used: SOP (Sum of product) where **’ represents low (0)**