Dec.	A	B	C	D	E	F	G	H	I	J
0	0	0	0	0	1	1	1	1	1	1
1	0	0	1	0	0	0	1	0	0	1
2	0	1	0	1	0	1	1	1	1	0
3	0	1	1	1	0	1	1	0	1	1
4	1	0	0	1	1	0	1	0	0	1
5	1	0	1	1	1	1	0	0	1	1
6	1	1	0	1	1	1	0	1	1	1
7	1	1	1	0	0	1	1	0	0	1

Sum of products :

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

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

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

$$= \bar{C}(1 + (\bar{A}\cdot B)) + C(\bar{A}\cdot B + A\cdot \bar{B})$$

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

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

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

$$E = \bar{A}\cdot\bar{B}\cdot\bar{C} + A\cdot\bar{B}\cdot\bar{C} + A\cdot\bar{B}\cdot C + A\cdot B\cdot\bar{C}$$

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

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

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

$$F = \bar{A}\cdot\bar{B}\cdot\bar{C} + \bar{A}\cdot B\cdot\bar{C} + \bar{A}\cdot B\cdot C + A\cdot\bar{B}\cdot C + A\cdot B\cdot\bar{C} + A\cdot B\cdot C$$

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

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

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

$$G = A\cdot\bar{B}\cdot C + A\cdot B\cdot\bar{C}$$

$$H = \bar{A}\cdot\bar{B}\cdot\bar{C} + \bar{A}\cdot B\cdot\bar{C} + A\cdot B\cdot\bar{C}$$

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

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

$$I = \bar{A}\cdot\bar{B}\cdot\bar{C} + \bar{A}\cdot B\cdot\bar{C} + \bar{A}\cdot B\cdot C + A\cdot\bar{B}\cdot C + A\cdot B\cdot\bar{C}$$

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

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

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

$$\tilde{J} = \bar{A}\cdot B\cdot\bar{C}$$

H not working properly → with 1 and 2

J → with 2