

# Assignment 1 | FPGA Lab

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## 1 Question

Write the Product of Sum form of function  $G(U,V,W)$  for the following truth table representation of F

U	V	W	G
0	0	0	1
0	0	1	0
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	0
1	1	0	0
1	1	1	1

## 2 Solution

### 2.1 KMAP Implementation

Given truth table can be minimized using a KMap (Figure 1). Using implicants in figure, POS Terms obtained are :  $(U + \bar{W})$ ,  $(V + \bar{W})$ ,  $(\bar{U} + \bar{V} + W)$

### 2.2 Minimized POS Expression

$$G = (U + \bar{W}).(V + \bar{W}).(\bar{U} + \bar{V} + W)$$

		$VW$			
		00	01	11	10
$U$	0	1	0	0	1
	1	1	0	1	0

Figure 1: POS for G