EE5803 FPGA Lab Assignment 1

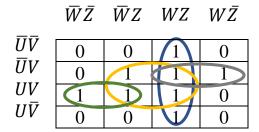
Question [CBSE 2018 Q6 (d)]:

Reduce the following Boolean Expression to its simplest form using K-map:

$$G(U, V, W, Z) = \sum (3,5,6,7,11,12,13,15)$$

Solution:

Simplification using K-map:



The simplified representation from the above map is given as

$$G = WZ + VZ + UV\overline{W} + \overline{U}VW$$

NAND realization:

$$G = WZ + VZ + UV\overline{W} + \overline{U}VW$$

$$\overline{G} = \overline{WZ + VZ + UV\overline{W} + \overline{U}VW}$$

$$G = \overline{(WZ)(VZ)(UV\overline{W})(\overline{U}VW)}$$