

Name:

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COE 202, Term 122
Digital Logic Design

Quiz# 3

Date: Monday, March 11

Q1. For the Boolean function $F(W, X, Y, Z) = \sum m(0, 1, 2, 3, 7, 8, 10)$, $d(W, X, Y, Z) = \sum m(5, 6, 11, 13, 15)$ shown in the k-map below:

		YZ			
		00	01	11	10
WX	00	1	1	1	1
	01	0	x	1	x
	11	0	x	x	0
	10	1	0	x	1

- (i) Identify all the *prime implicants* and the *essential prime implicants* of F .
- (ii) Simplify the Boolean function F into a minimal sum-of-products expression.
- (iii) Simplify the Boolean function F into a minimal product-of-sums expression.

Q2. The following Boolean expression: $BE + B'DE'$ is a simplified version of the expression: $A'BE + BCDE + BC'D'E + A'B'DE' + B'C'DE'$. Are there any don't care conditions? If so, what are they?