

Name:

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COE 202, Term 132
Digital Logic Design

Quiz# 3

Date: Sunday, March 16

Q1. For the following Boolean function $F(A, B, C, D) = \sum m(0, 1, 2, 5, 6, 7, 8, 9, 10, 12, 13)$

CD \ AB	00	01	11	10
00	1	1	0	1
01	0	1	1	1
11	1	1	0	0
10	1	1	0	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.

Q2. Consider the following Boolean function **F** together with the don't care conditions **d**
 $F(A, B, C, D) = \sum m(0, 2, 5, 8, 10)$, $d(A, B, C, D) = \sum m(3, 4, 7, 9, 11, 13, 14, 15)$

		CD			
	AB	00	01	11	10
00		1	0	X	1
01		X	1	X	0
11		0	X	X	X
10		1	X	X	1

Simplify the Boolean function **F** together with the don't care conditions **d**, into minimal product-of-sums expression.