

Name:

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COE 202, Term 142
Digital Logic Design

Quiz# 3

Date: Tuesday, March 17

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**

$$F(A, B, C, D) = \sum m(3, 6, 13), d(A, B, C, D) = \sum m(1, 4, 7, 9, 11, 12, 14, 15)$$

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

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