

ID: MC123456789

Digital Logic Design (CS302)

Question No 01

Simplify the stated 5 Variable Boolean Expression using the Karnaugh Map method.

$$F(A, B, C, D, E) = \sum(1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31)$$

With the following **Don't Care** Conditions

$$F(A, B, C, D, E) = \sum(2, 6, 10, 14, 18, 22, 26, 30)$$

Solution:

BC/DE	00	0 1	1 1	10
00	0	1	3	2
01	4	5	7	6
11	12	1 3	1 5	14
10	8	9	1 1	10
BC/DE	00	0 1	1 1	10
00	16	1 7	1 9	18
01	20	2 1	2 3	22
11	28	2 9	3 1	30
10	24	2 5	2 7	26

A=1

A=0

BC/DE	00	0 1	1 1	10
00	0	1	1	X
01	0	1	1	X
11	0	1	1	X
10	0	1	1	X
BC/DE	00	0 1	1 1	10
00	0	1	1	X
01	0	1	1	X
11	0	1	1	X
10	0	1	1	X

A=0

A=1

Group:

Positions = 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31

Simplified Expression = E

F(A, B, C, D, E)