

## Class Assignment 06

10 Marks

1. Complete the tables and attach the k-map simplification
2. Attach the drawing of logic diagram
3. Attach the simulation part

**Truth Table:**

Decimal	Inputs				Outputs						
	D	C	B	A	a	b	c	d	e	f	g
0	0	0	0	0	1	1	1	1	1	1	0
1	0	0	0	1	0	1	1	0	0	0	0
2	0	0	1	0	1	1	0	1	1	0	1
3	0	0	1	1	1	1	1	1	0	0	1
4	0	1	0	0	0	1	1	0	0	1	1
5	0	1	0	1	1	0	1	1	0	1	1
6	0	1	1	0	1	0	1	1	1	1	1
7	0	1	1	1	1	1	1	0	0	0	0
8	1	0	0	0	1	1	1	1	1	1	1
9	1	0	0	1	1	1	1	1	0	1	1

For (a)

DC \ BA	00	01	11	10
00	1	0	1	1
01	0	1	1	1
11	x	x	x	x
10	1	1	x	x

$$aB = D + AC + \cancel{BD} + \bar{A}\bar{C} + B$$

For b

DC \ BA	00	01	11	10
00	1	1	1	1
01	1	0	1	0
11	x	x	x	x
10	1	1	x	x

$$b = c' + A'B' + AB$$

For c

DC \ BA	00	01	11	10
00	1	1	1	0
01	1	1	1	1
11	x	x	x	x
10	1	1	x	x

$$c = A + B' + c$$

For d

DC \ BA	00	01	11	10
00	1	0	1	1
01	0	1	0	1
11	x	x	x	x
10	1	1	x	x

$$d = A'C' + BC' + BA' + AB'C + D$$

For e

DC \ BA	00	01	11	10
00	1	0	0	1
01	0	0	0	1
11	x	x	x	x
10	1	0	x	x

$$e = A'B + A'C'$$



For  $f$

DC \ BA	00	01	11	10
00	1	0	0	0
01	1	1	0	1
11	x	x	x	x
10	1	1	x	x

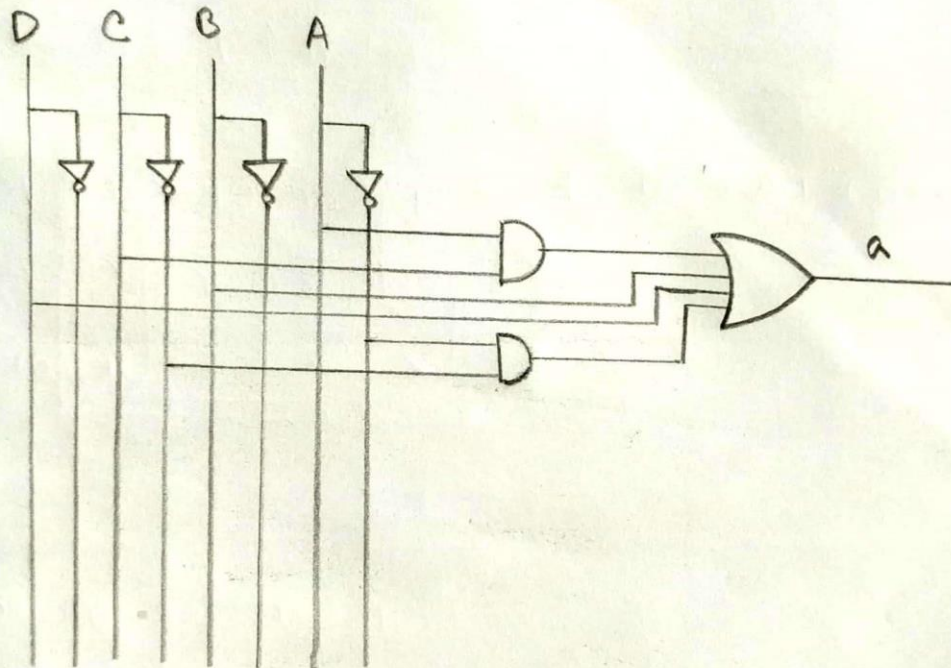
$$f = B'C + A'B' + D + CA'$$

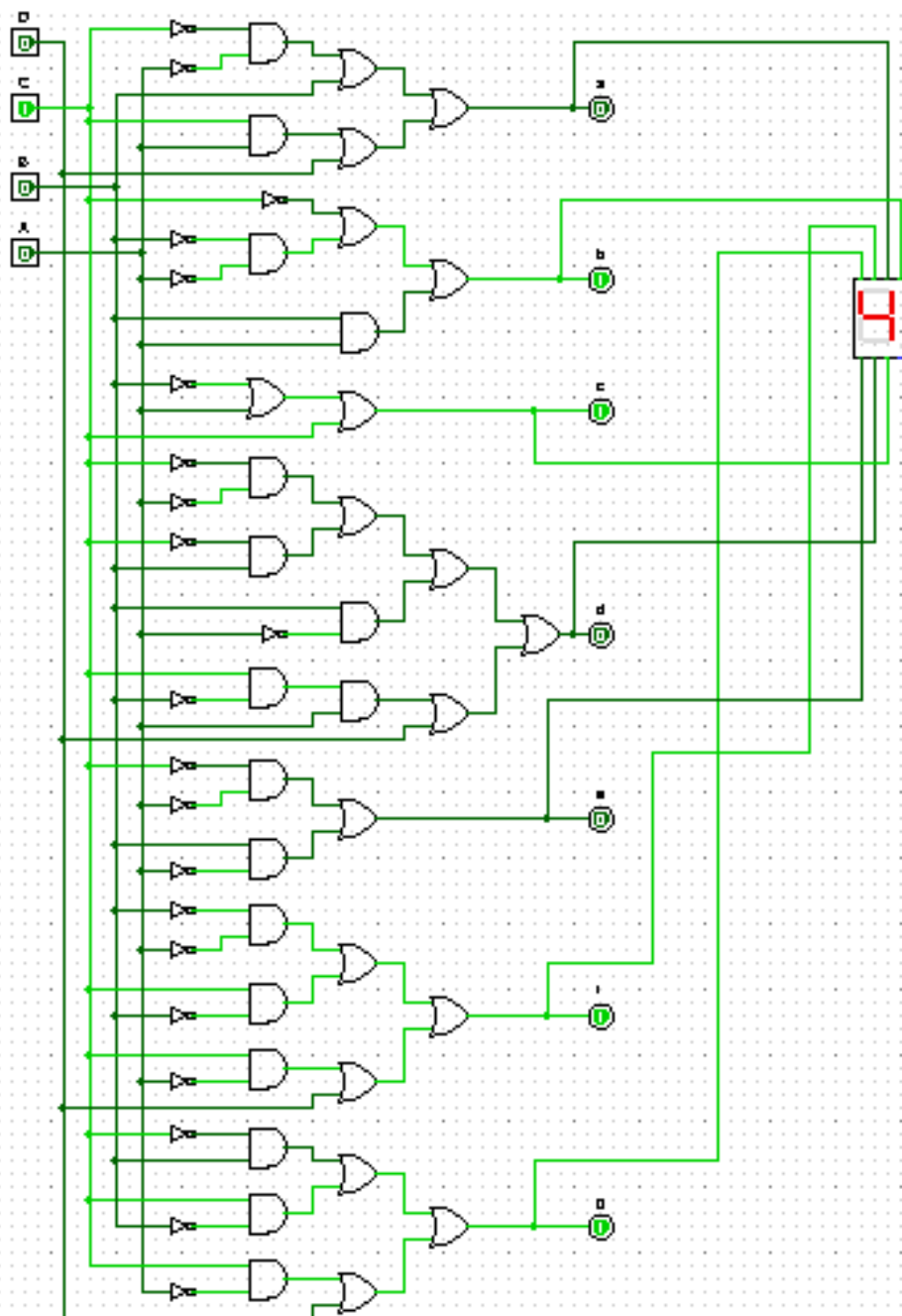
For  $g$

DC \ BA	00	01	11	10
00	0	0	1	1
01	1	1	0	1
11	x	x	x	x
10	1	1	x	x

$$g = A'B + BC' + B'C' + D$$

## K Map simplification

**Logic Diagram**



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Simulaion