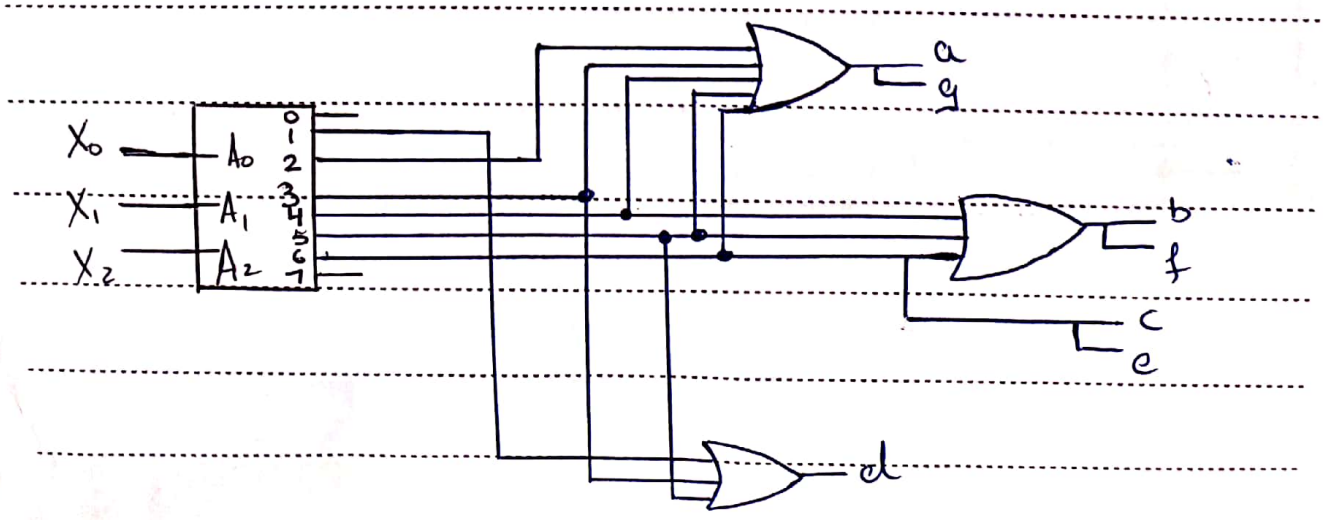
Assignment - 3

- Umamah Hussain
21L-1858
BSCS-2A

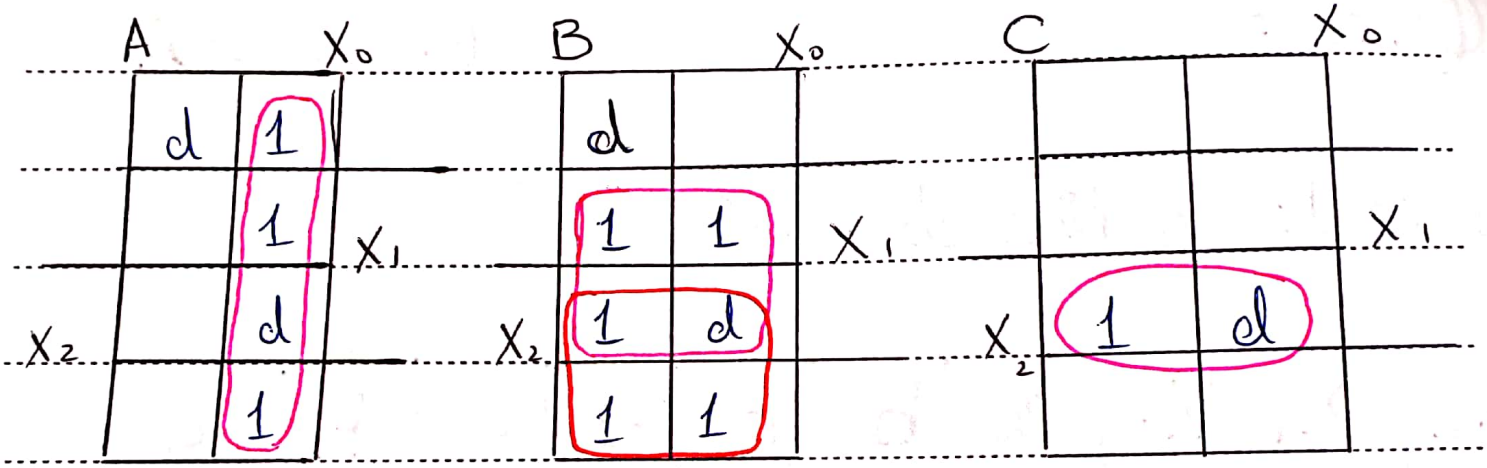
Q. 3-32

a.) 3 to 8 line decoder

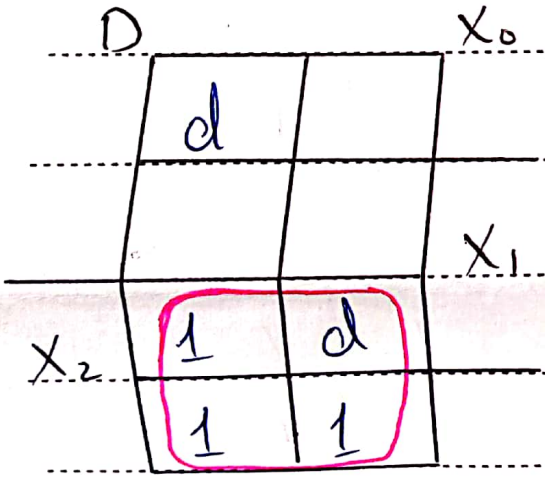
X_2	X_1	X_0	a	b	c	d	e	f	g
0	0	0	d	d	d	d	d	d	d
0	0	1	0	0	0	1	0	0	0
0	1	0	1	0	0	0	0	0	1
0	1	1	1	0	0	1	0	0	1
1	0	0	1	1	0	0	0	1	1
1	0	1	1	1	0	1	0	1	1
1	1	0	1	1	1	0	1	1	1
1	1	1	d	d	d	d	d	d	d



b.) $A = \{d\}$; $B = \{a, g\}$; $C = \{c, e\}$; $D = \{b, f\}$



$A = X_0$ $B = X_1 + X_2$ $C = X_1 X_2$



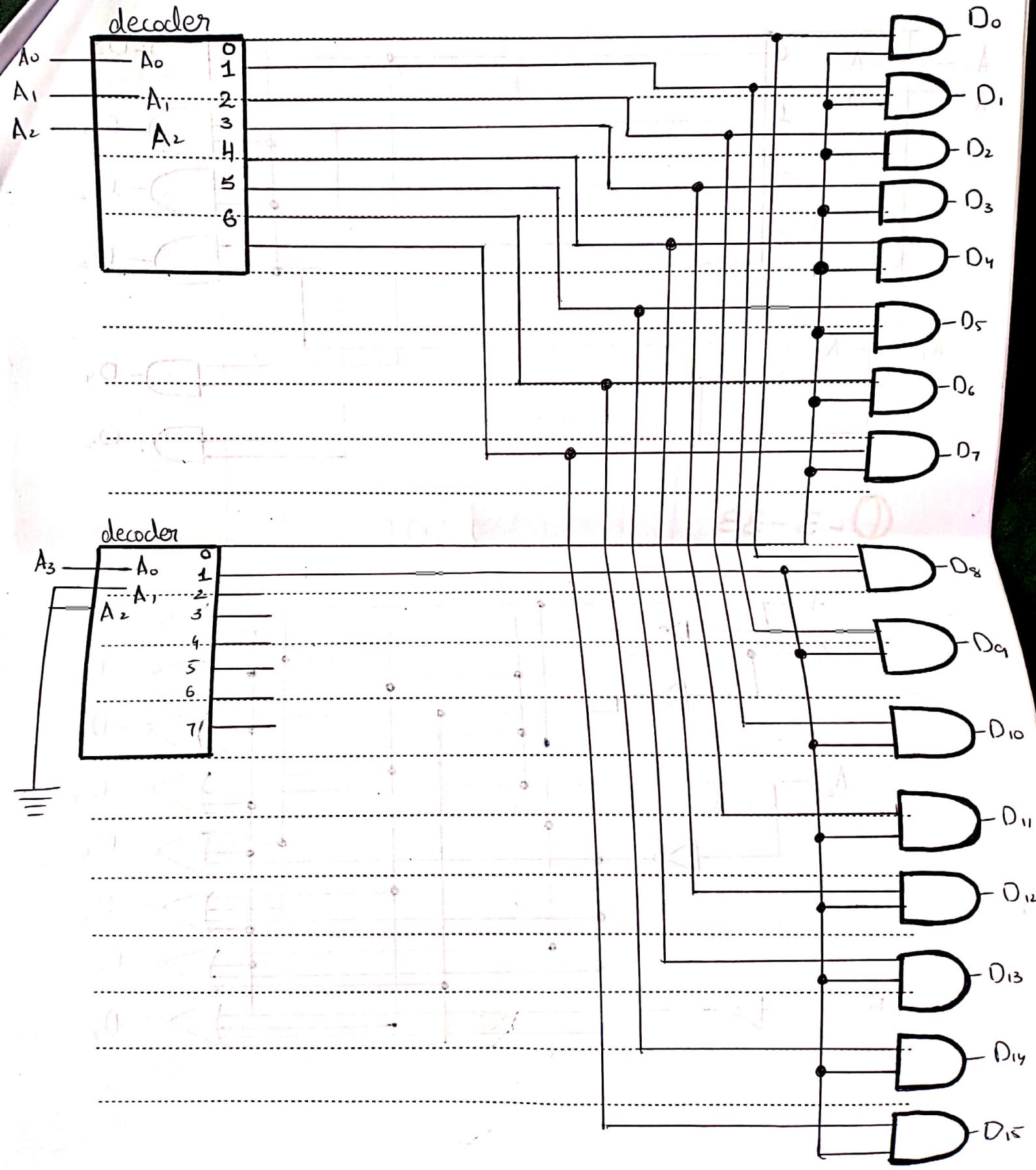
$D = X_2$

Gate input cost:

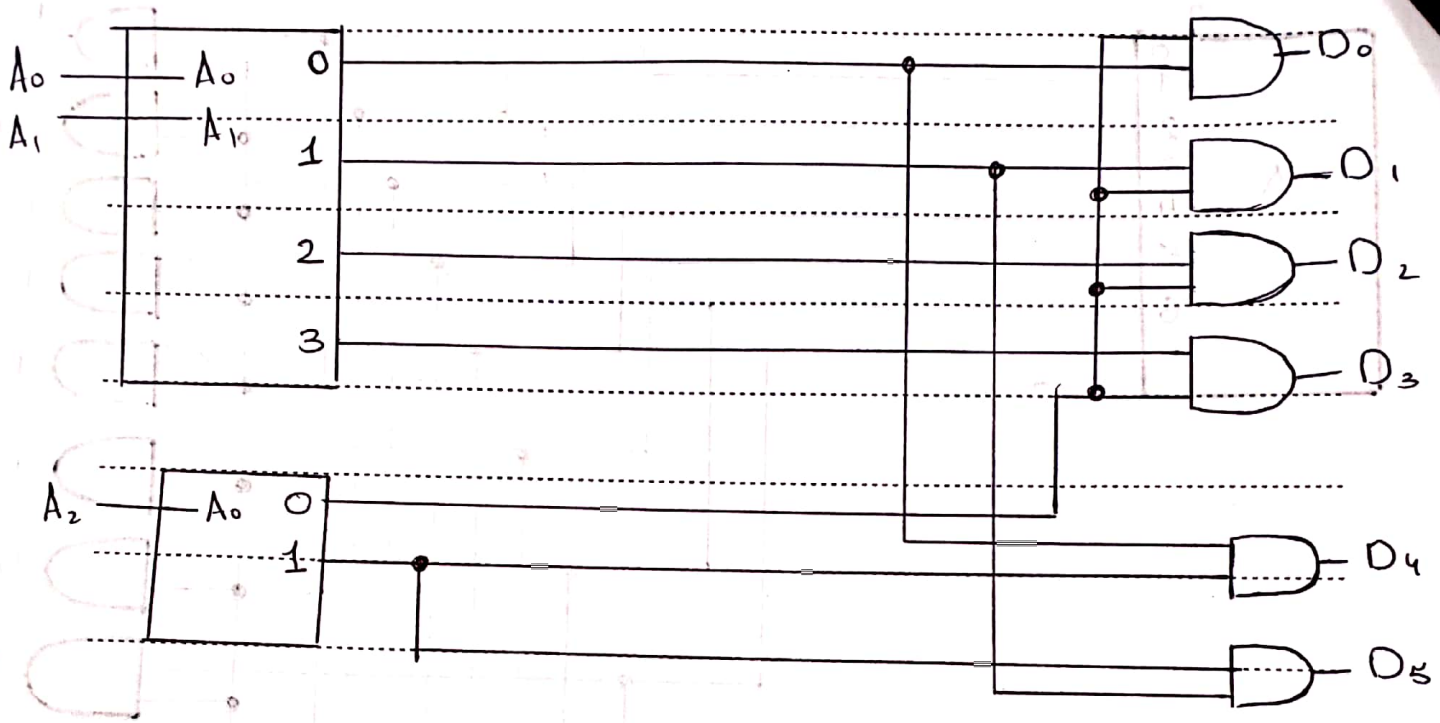
$b = 4$

$a = 27 + 11 = 38$

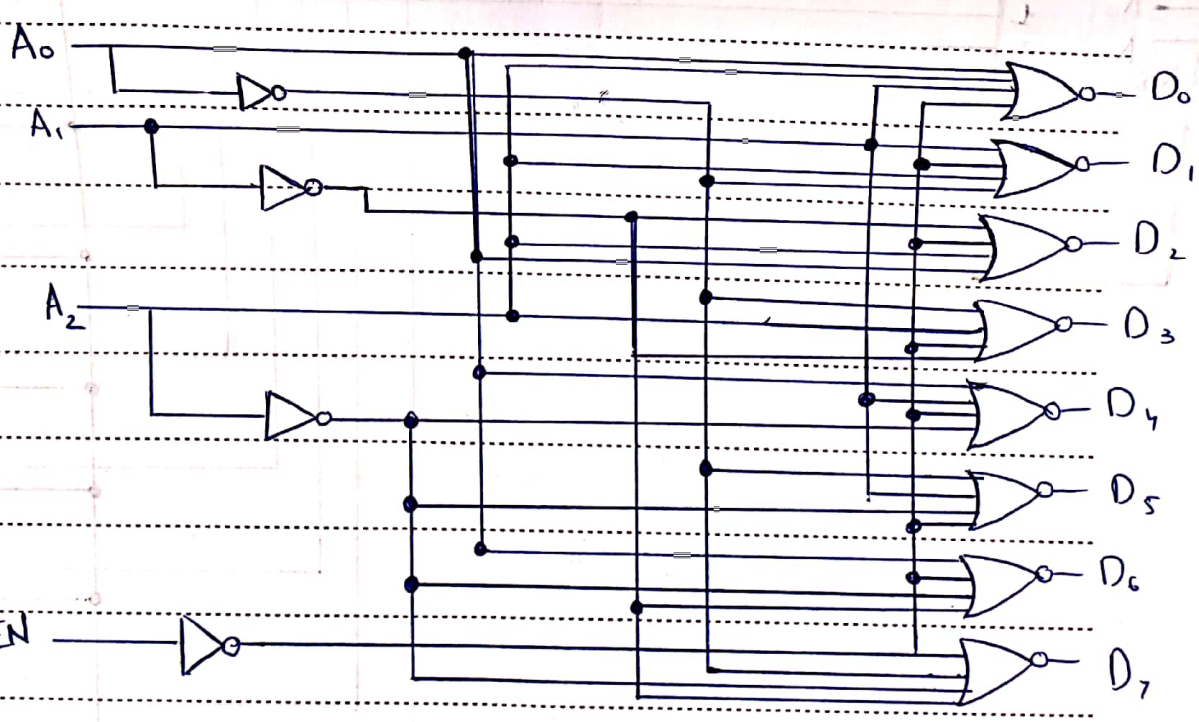
Q. 3-28



Q-3-31



Q-3-33



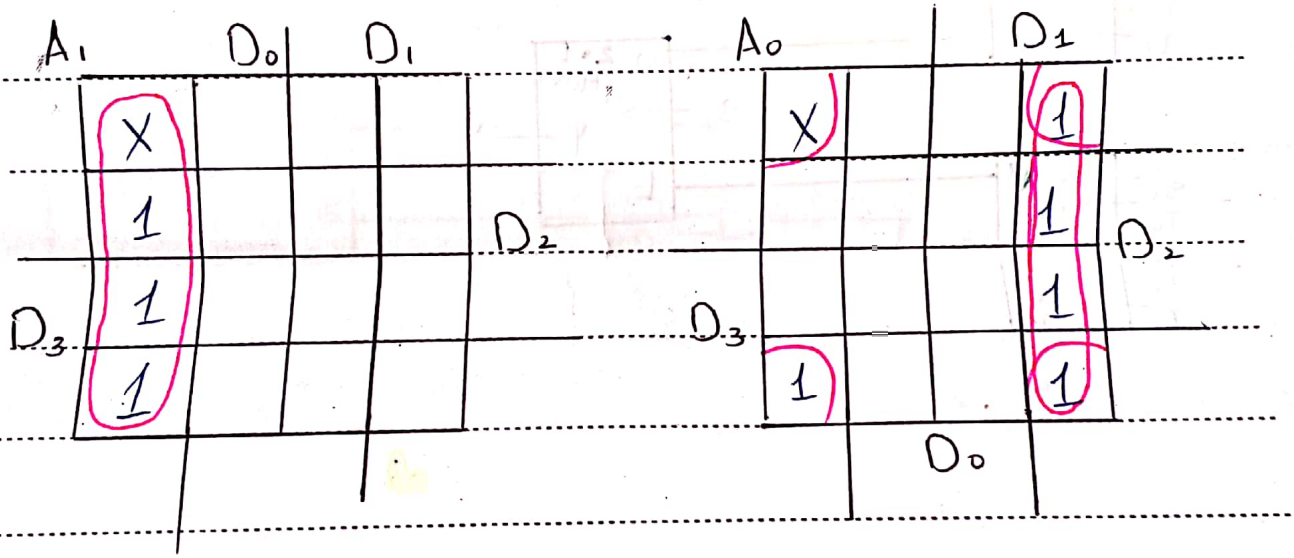
Q-3-35

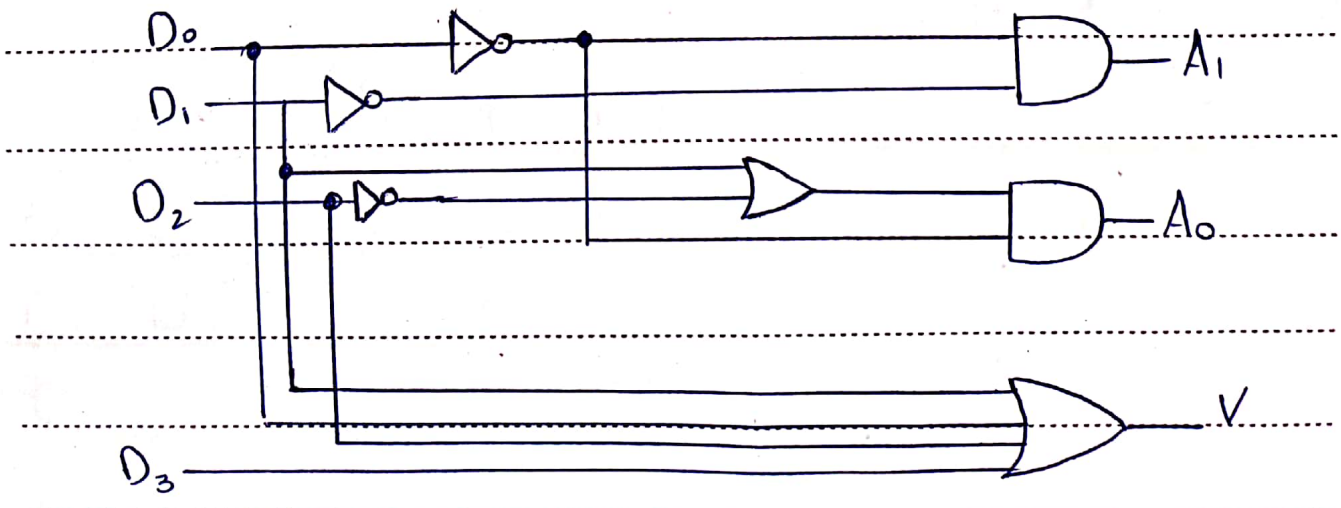
D_3	D_2	D_1	D_0	A_1	A_0	V
0	0	0	0	x	x	0
x	x	x	1	0	0	1
x	x	1	0	0	1	1
x	1	0	0	1	0	1
1	0	0	0	1	1	1

$V = D_0 + D_1 + D_2 + D_3$

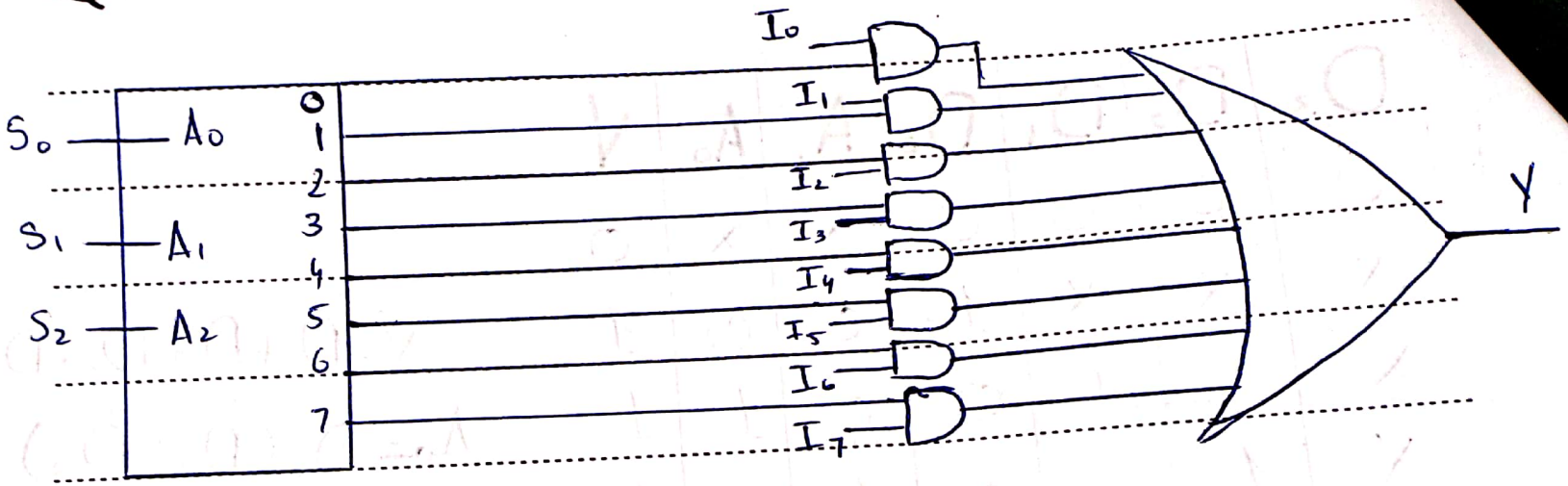
$A_0 = \overline{D_0}(D_1 + \overline{D_2})$

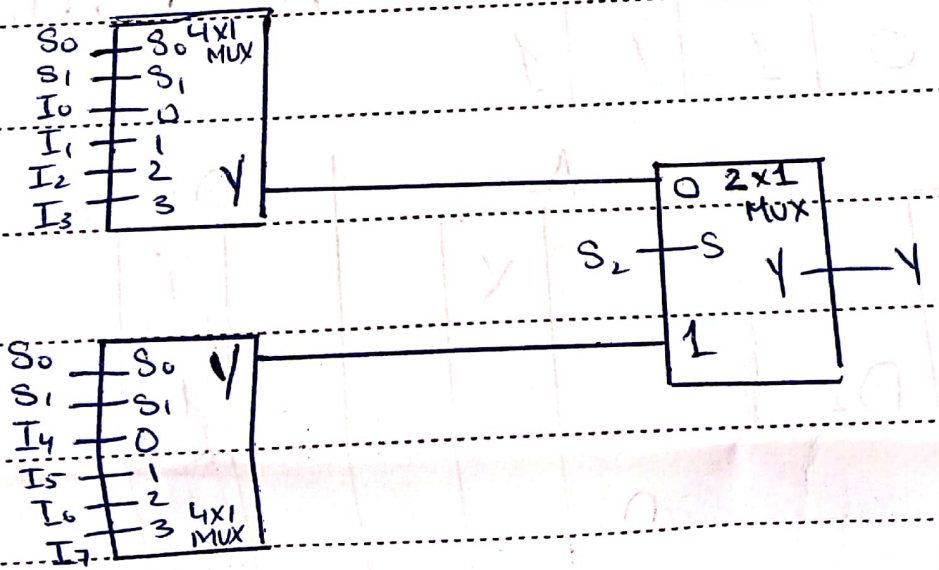
$A_1 = \overline{D_0}\,\overline{D_1}$



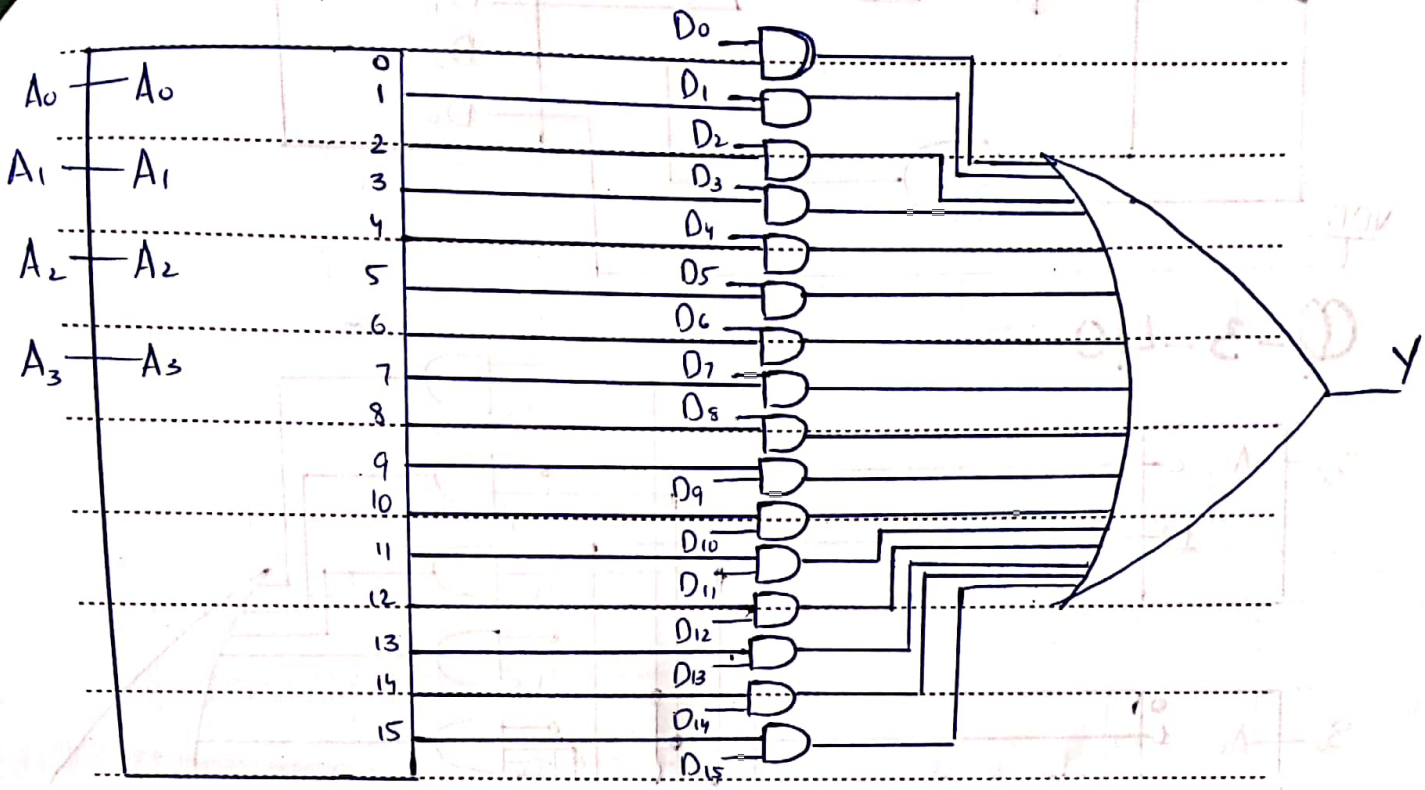


Q-3-37





Q-3-38



Q-3-47

A	B	C	D	F
0	0	0	0	0
0	0	0	1	1
0	0	1	0	0
0	0	1	1	1
0	1	0	0	1
0	1	0	1	0
0	1	1	0	0
0	1	1	1	0

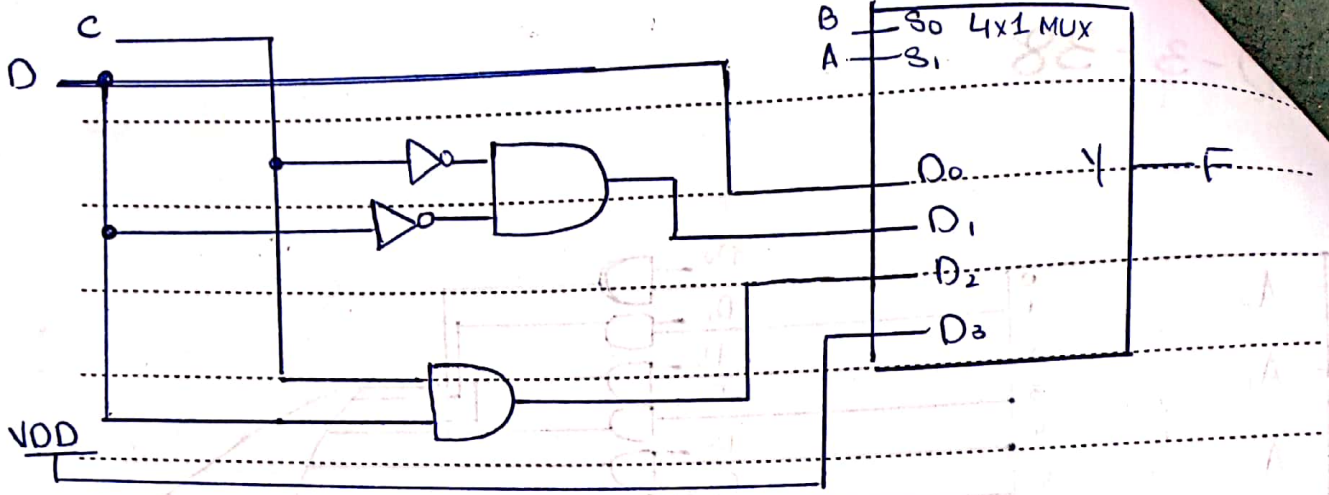
F = D

F = $\bar{C}\bar{D}$

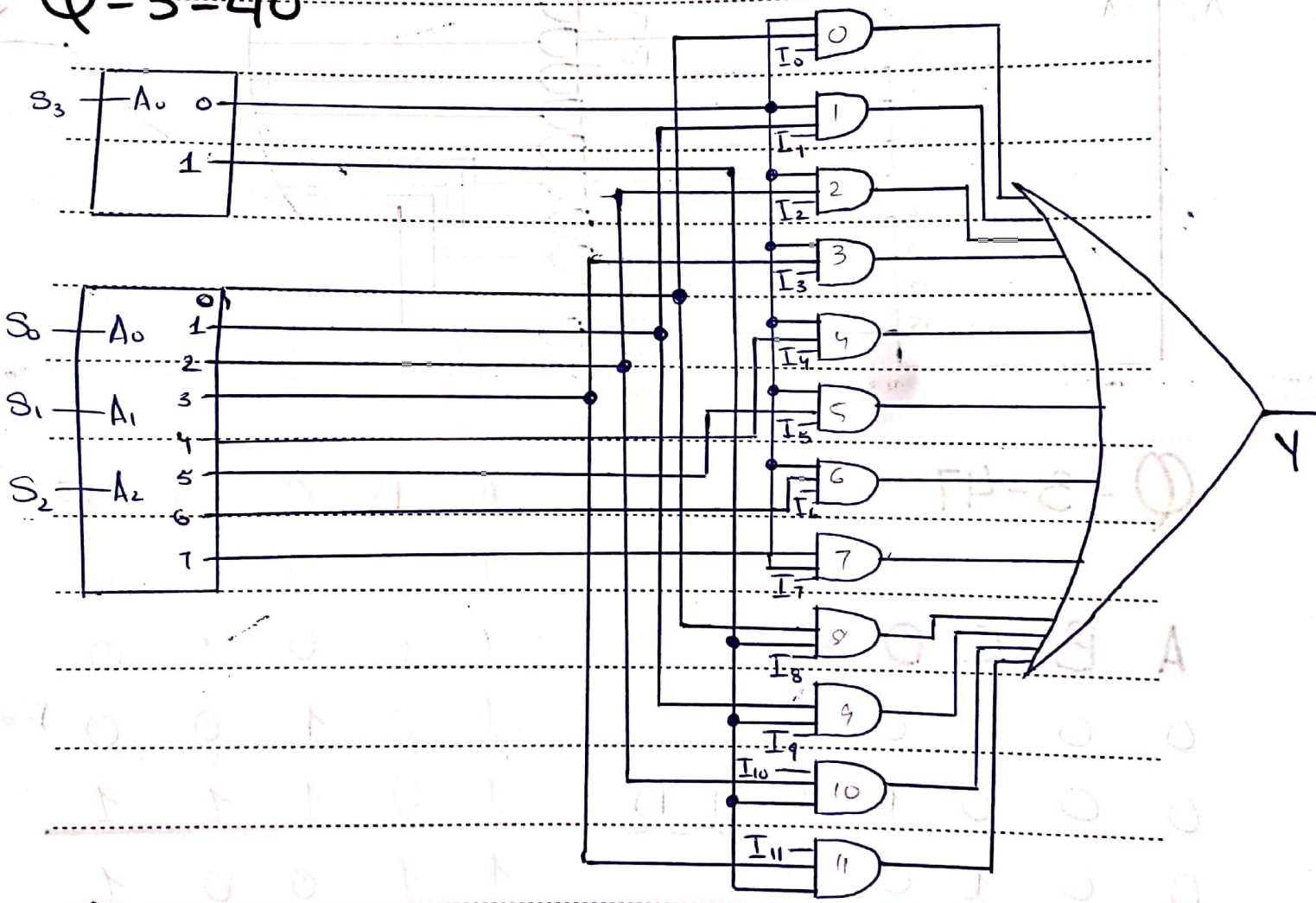
A	B	C	D	F
1	0	0	0	0
1	0	0	1	0
1	0	1	0	0
1	0	1	1	1
1	1	0	0	1
1	1	0	1	1
1	1	1	0	1
1	1	1	1	1

F = CD

F = 1



Q-3-40



Q-3-59