99243022 معصومه یاسایی

1)

ab \ cd	00	01	11	10
00	1	0	0	0
01	1	0	0	1
11	1	1	0	1
10	1	1	0	0

$\Rightarrow f_1 = \bar{a}\bar{b} + \bar{a}c + \bar{b}d$

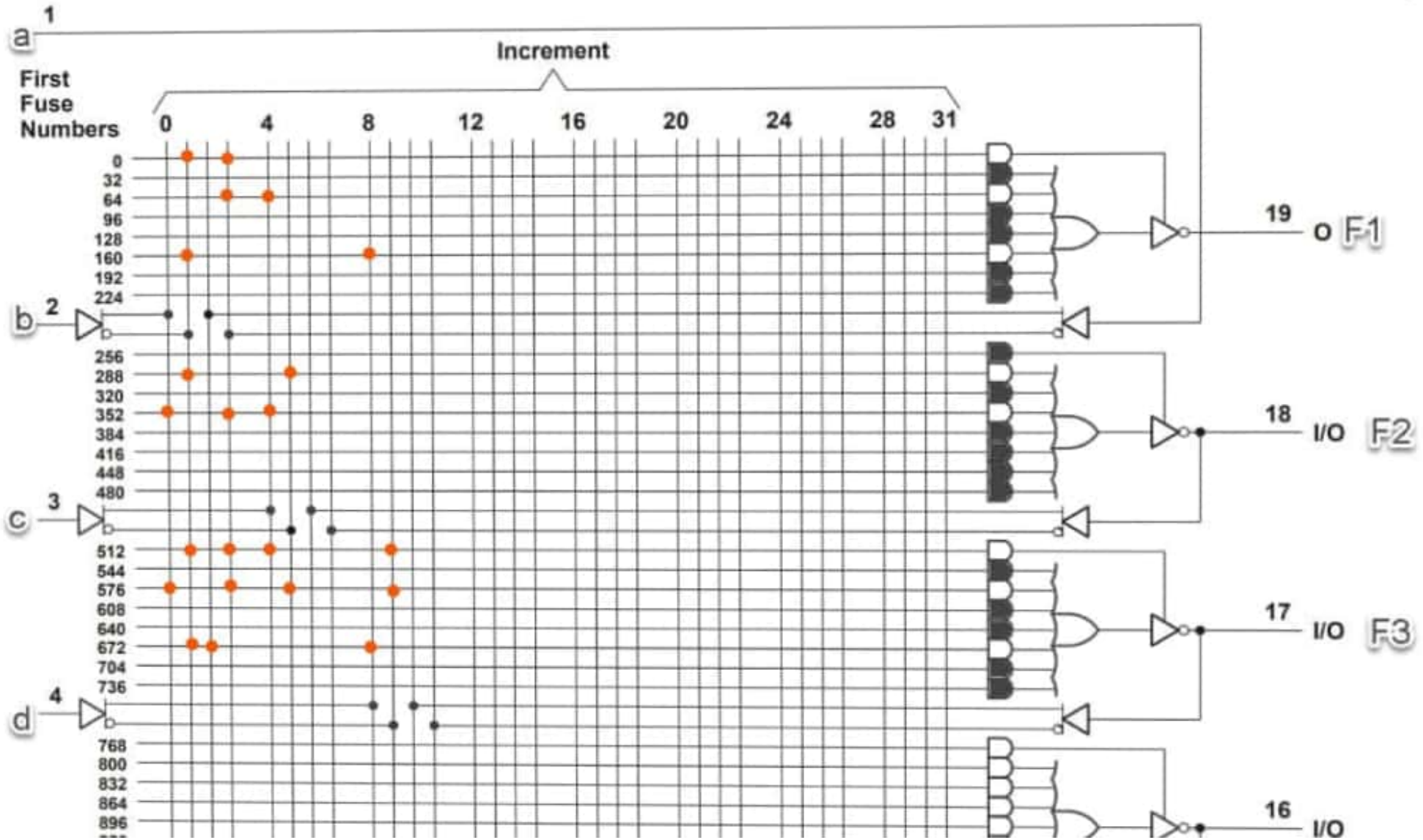
ab \ cd	00	01	11	10
00	1	0	0	1
01	1	0	0	1
11	0	1	0	0
10	e	1	0	0

$f_2 = \bar{b}\bar{c} + \bar{a}bc$

ab \ cd	00	01	11	10
00	0	1	0	0
01	0	0	0	1
11	0	0	0	1
10	1	0	0	0

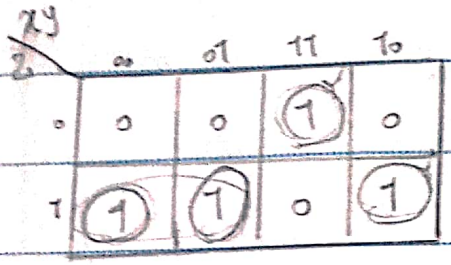
$f_3 = \bar{a}\bar{b}c\bar{d} + \bar{a}b\bar{c}\bar{d} + a\bar{b}d$

logic diagram (positive logic)



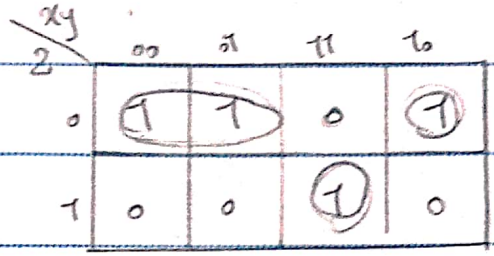
2)

A



3

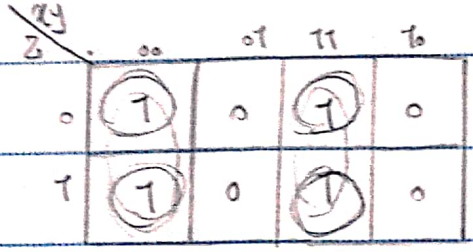
$\bar{A}$



3

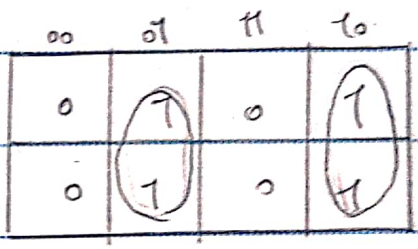
4

B



2

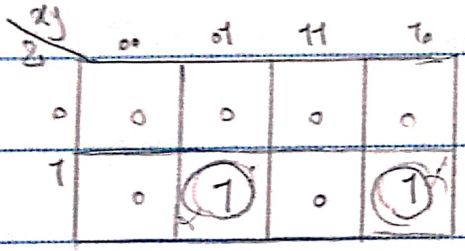
$\bar{B}$



2

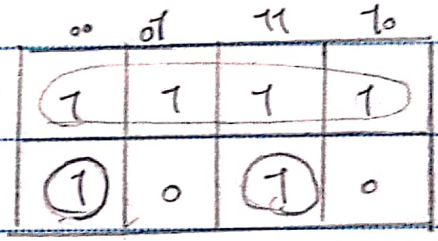
4

C



2

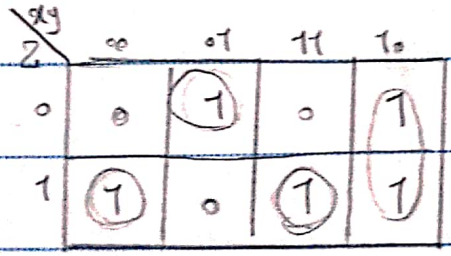
$\bar{C}$



3

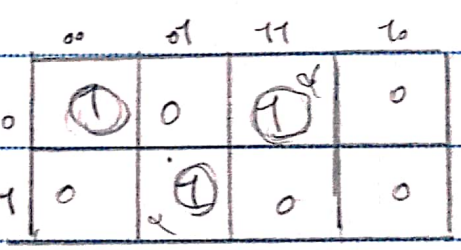
2

D



4

$\bar{D}$



3

3

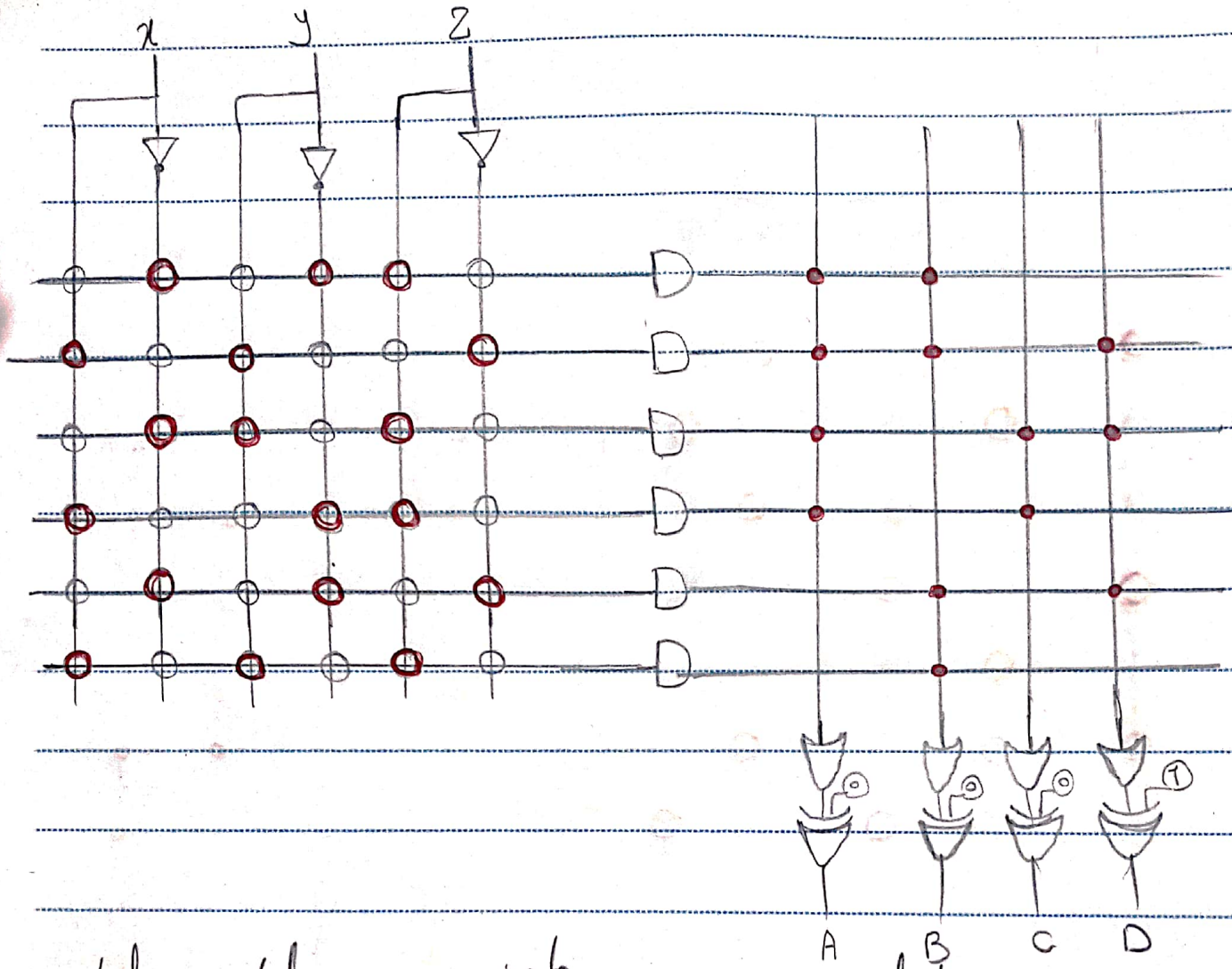
چون میخیم تعداد product term هارا ی خواهیم باید هر ۱۶ حالت بررسی شود تا بیشترین مپ های اشتراکی را پیدا کنیم. حالت مطلوب برای $A, B, C, \bar{D}$ است که ۶ مپ داریم.

$$xy\bar{z} + \bar{x}\bar{y}z + \bar{x}yz + x\bar{y}z + \bar{x}\bar{y}\bar{z} + xyz$$

Sa Su Mo Tu We Th Fr

Subject:
Year: Month: Date:

$$xy\bar{z} + \bar{x}\bar{y}z + \bar{x}yz + x\bar{y}z + \bar{x}\bar{y}\bar{z} + xyz$$



product terms	product terms No	inputs x	y	z	outputs A	B	C	$\bar{D}$
$xy\bar{z}$	①	1	1	0	1	1	–	1
$\bar{x}\bar{y}z$	②	0	0	1	1	1	–	–
$\bar{x}yz$	③	0	1	1	1	–	1	1
$x\bar{y}z$	④	1	0	1	1	–	1	–
$\bar{x}\bar{y}\bar{z}$	⑤	0	0	0	–	1	–	1
xyz	⑥	1	1	1	–	1	–	–

Sa Su Mo Tu We Th Fr

Subject:
Year: Month: Date:

3)

Q_n	T	Q_{n+1}	J	K
0	0	0	0	X
0	1	1	1	X
1	0	1	X	0
1	1	0	X	1

Q_n	Q_{n+1}	J	K
0	0	0	X
0	1	1	X
1	0	X	1
1	1	X	0

J

Q_n \ T	0	1
0	0	1
1	X	X

$J = T$

K

Q_n \ T	0	1
0	X	X
1	0	1

$K = \bar{T}$