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Section : 05 .



— 3 —

$$1) F(x, y, z) = x'y' + yz + xy z'$$

$$= x'y'(z+z') + yz(x+x') + xy z'$$

$$= x'y'z + x'y'z' + xyz + x'y z + xy z'$$

$$= \Sigma(0, 1, 3, 6, 7)$$

Table:

0	000	✓	(0, 1)	00-
1	001	✓	(1, 3)	0-1
3 6	011 110	✓ ✓	(3, 7) (6, 7)	-11 11-
7	111	✓		

$$(0,1) \rightarrow 00- \rightarrow \cancel{xyz} x'y'$$

$$(1,3) \rightarrow 0-1 \rightarrow \cancel{xyz} x'z$$

$$(6,7) \rightarrow 11- \rightarrow \cancel{xyz} xy$$

$$(3,7) \rightarrow -11 \rightarrow \cancel{xyz} yz$$

	0	1	3	6	7
<del>xyz</del> $x'y'$	x	x			
<del>xyz</del> $x'z$		x	x		
<del>xyz</del> $yz$			x		x
<del>xyz</del> $xy$				x	x

$$\therefore y = x'y' + x'z + xy$$

*A*

P.T.O  $\rightarrow$

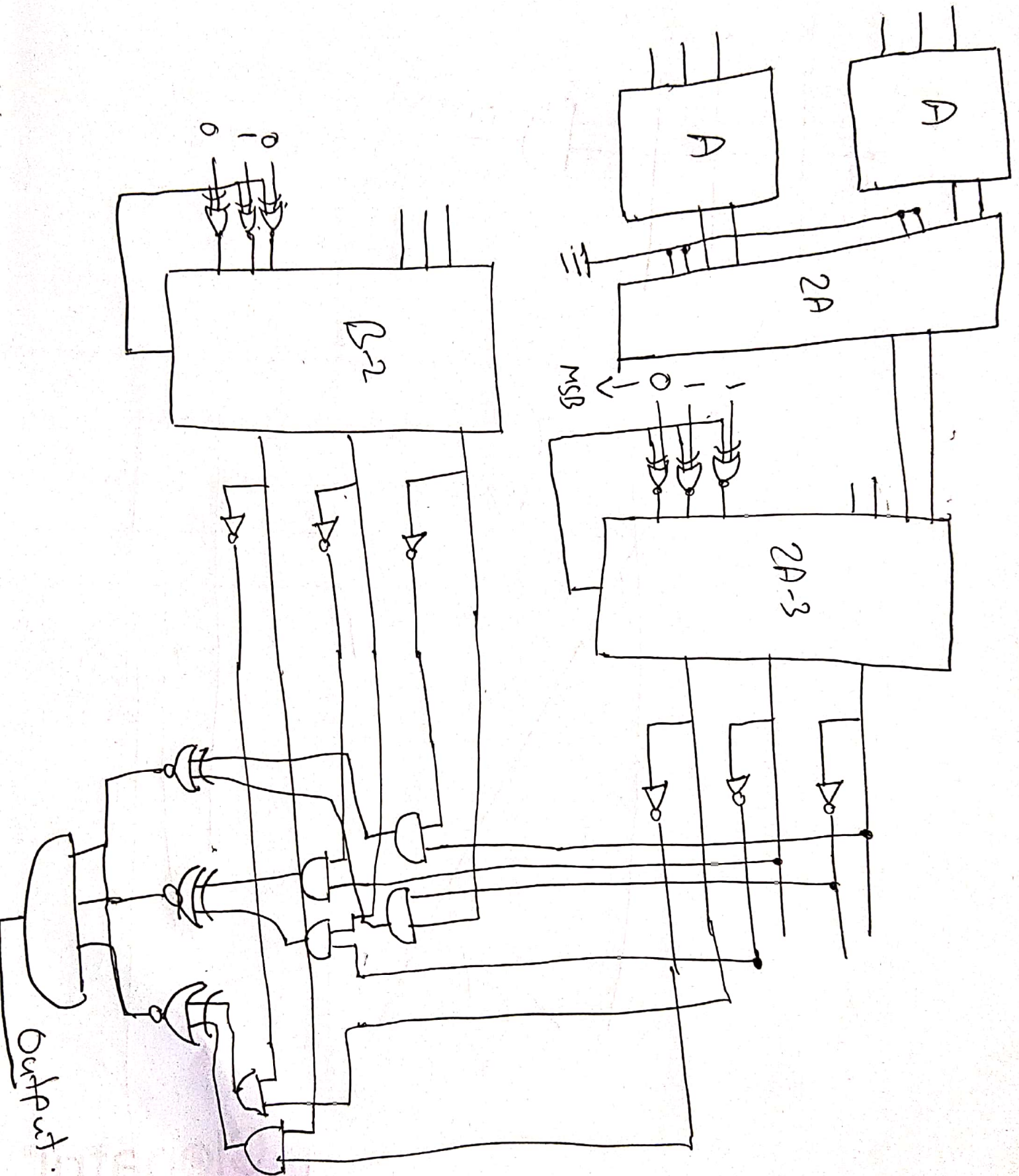


Healthcare

**Clonatri**

clonazepam

2) The circuit is as follows:-





$$3) F(W, X, Y, Z) = (Y' + X)(W + X)$$

$$= WY' + XY' + XW + X$$

$$= WY'(X + X') + XY'(W + W') + XW(Y + Y') + X(Y + Y')$$

$$= XWY' + \cancel{X'Y'W} + XY'W + XY'W' + XWY + XY'W$$

$$+ XY + XY'$$

$$= XWY'(Z + Z') + X'Y'W(Z + Z') + XY'W(Z + Z') + XY'W'$$

$$(Z + Z') + XYW(Z + Z') + \cancel{X'Y'W} + XY(W + W') + X'Y'(W + W')$$

$$= XY'WZ + XY'WZ' + X'Y'WZ + X'Y'WZ' + XY'WZ + XY'WZ'$$

$$+ \cancel{X'Y'W'Z} + X'Y'W'Z' + XYWZ + XYWZ' + XYW(Z + Z')$$

$$+ XYW'(Z + Z') + XY'W(Z + Z') + XY'W'(Z + Z')$$

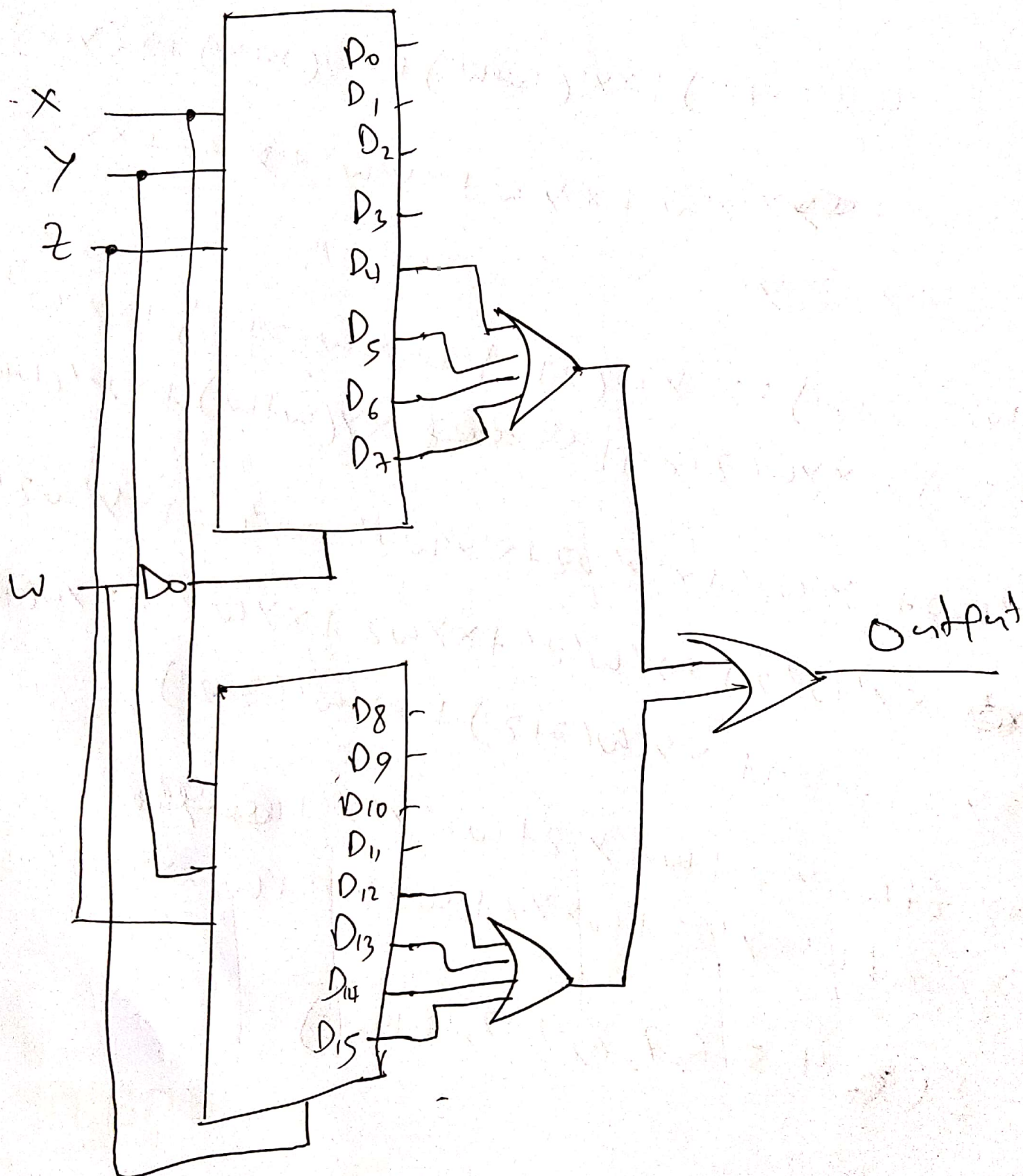
$$= WX'Y'Z + WX'Y'Z' + WX'Y'Z + WX'Y'Z' + \cancel{WX'Y'Z} + \cancel{WX'Y'Z'}$$

$$+ W'XY'Z + W'XY'Z' + WX'YZ + WX'YZ' + W'XYZ + W'XYZ'$$

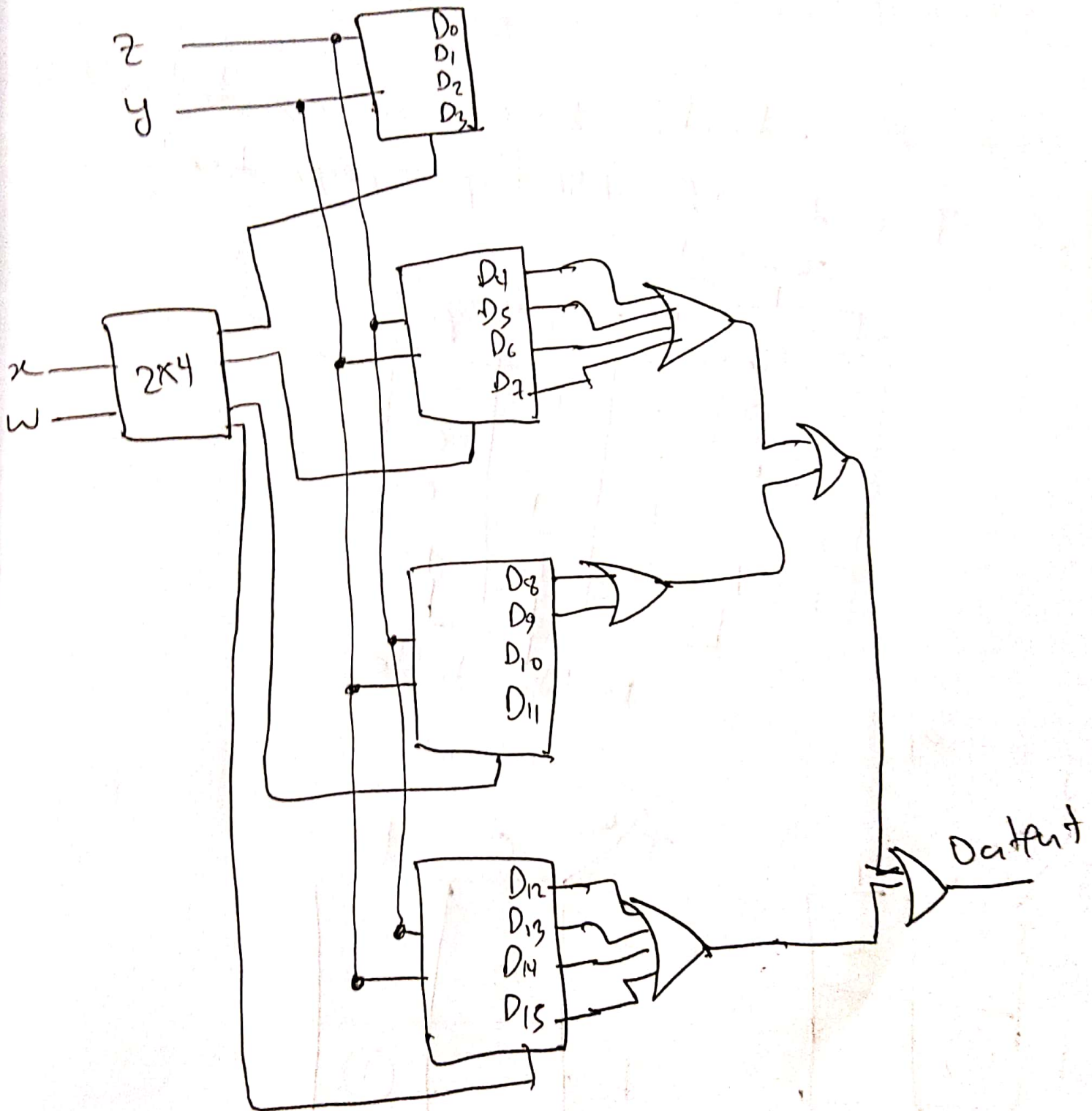
$$= \sum(4, 5, 6, 7, 8, 9, 12, 13, 14, 15)$$

Implementation using

@ 3:8 Decoder;



⑥ 2:4 Decoder:





4) T-Flip flop can be constructed using SR flip flop.

The characteristic table and excitation table of T and SR flip flop respectively is:

Characteristic table			S	R
T	$Q_n$	$Q_{n+1}$		
0	0	0	0	x
0	1	1	x	0
1	0	1	1	0
1	1	0	0	1

Excitation table

By K-map:-

T \ $Q_n$	0	1
0		x
1	①	

T \ $Q_n$	0	1
0	x	
1		①



$$S = TQn'$$

$$R = TQn$$

Therefore, the circuit will be:-

