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Computer Architecture  
Homework 2

$x_3$	$x_2$	$x_1$	$x_0$	$y$	$z$
0	0	0	0	0	1
0	0	0	1	0	0
0	0	1	0	1	0
0	0	1	1	1	1
0	1	0	0	0	0
0	1	0	1	1	0
0	1	1	0	0	1
0	1	1	1	1	0
1	0	0	0	0	0
1	0	0	1	0	1
1	0	1	0	0	0
1	0	1	1	1	0
1	1	0	0	0	1
1	1	0	1	1	0
1	1	1	0	0	0
1	1	1	1	0	1

③

$x_3 x_2 \backslash x_1 x_0$	00	01	11	10
00	0	0	1	1
01	0	1	1	0
11	0	1	0	0
10	0	0	1	0

$$Y = (x_2 + x_1)(\bar{x}_2 + x_0)(\bar{x}_3 + x_0)(\bar{x}_3 + \bar{x}_2 + \bar{x}_1)$$

④

$x_3 x_2 \backslash x_1 x_0$	00	01	11	10
00	1	0	1	0
01	0	0	0	1
11	1	0	1	0
10	0	1	0	0

$$Y = (\bar{x}_3 \bar{x}_2 \bar{x}_1 \bar{x}_0) + (\bar{x}_3 \bar{x}_2 x_1 x_0) + (\bar{x}_3 x_2 x_1 \bar{x}_0) + (x_3 x_2 \bar{x}_1 \bar{x}_0) + (x_3 x_2 x_1 x_0) + (x_3 \bar{x}_2 \bar{x}_1 x_0)$$

②

$x_3 x_2 \backslash x_1 x_0$	00	01	11	10
00	0	0	1	1
01	0	1	1	0
11	0	1	0	0
10	0	0	1	0

$\bar{x}_3 \bar{x}_2 x_1$   
 $\bar{x}_3 x_2 x_0$   
 $x_2 \bar{x}_1 x_0$   
 $\bar{x}_2 x_1 x_0$

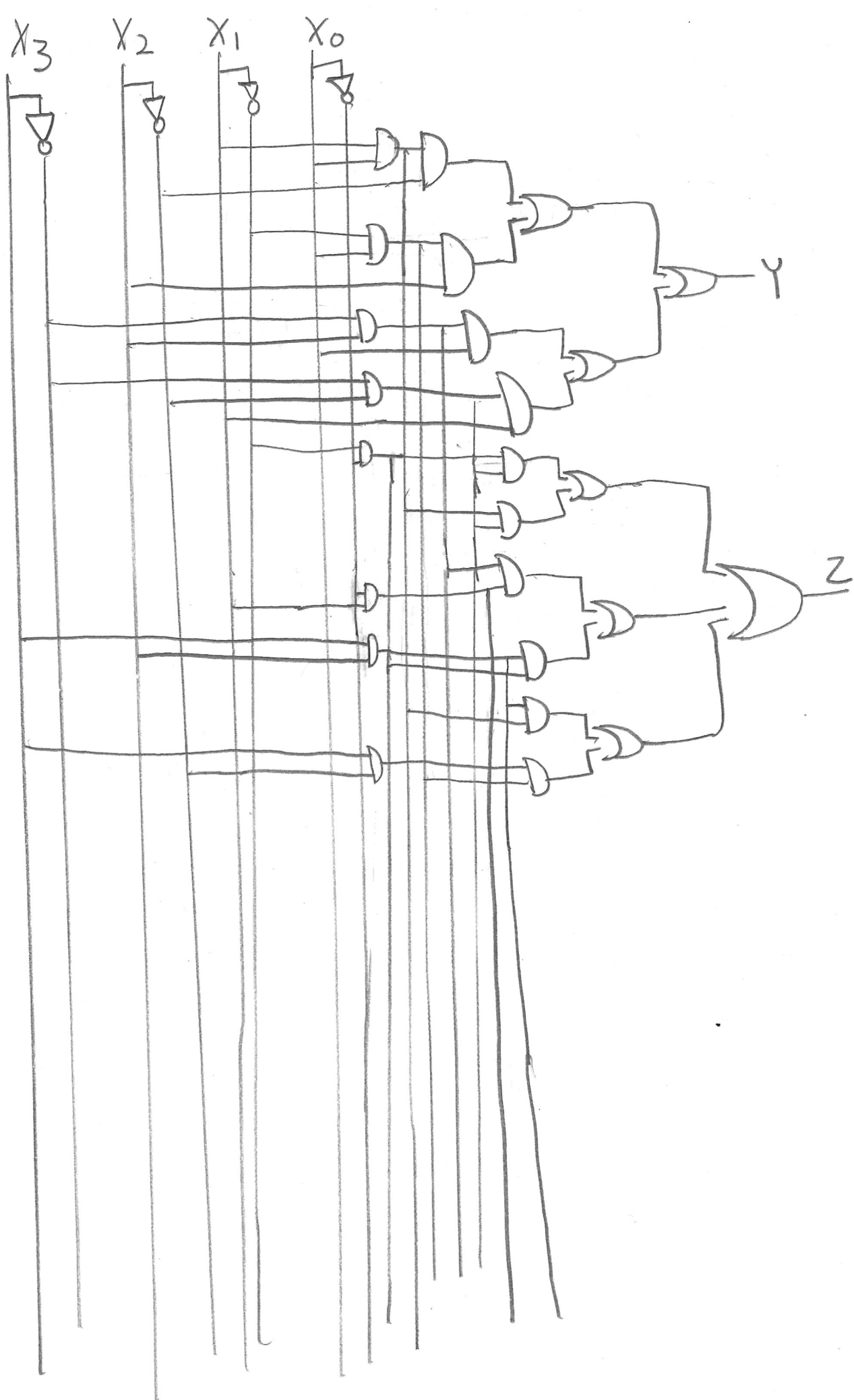
$$Y = (\bar{x}_2 x_1 x_0) + (x_2 \bar{x}_1 x_0) + (\bar{x}_3 x_2 x_0) + (\bar{x}_3 \bar{x}_2 x_1)$$

5

		$x_1 x_0$			
$x_3 x_2$		00	01	11	10
		00	01	11	10
00		0	0	1	0
01		0	0	0	1
11		1	0	1	0
10		0	1	0	0

$$Y = (x_3 + x_1)(x_2 + x_0)(x_3 + \bar{x}_2 + \bar{x}_0)(\bar{x}_2 + x_1 + \bar{x}_0)(\bar{x}_3 + x_2 + \bar{x}_1)(\bar{x}_3 + \bar{x}_1 + x_0)$$

6



$$\textcircled{7} \quad Y = (X_2 + X_1)(\overline{X_2} + X_0)(\overline{X_3} + X_0)(\overline{X_3} + \overline{X_2} + \overline{X_1})$$

$$Y = \overline{(X_2 + X_1)} + \overline{(\overline{X_2} + X_0)} + \overline{(\overline{X_3} + X_0)} + \overline{(\overline{X_3} + \overline{X_2} + \overline{X_1})}$$

} from #3

$$Y = (X_3 + X_1)(X_2 + X_0)(X_3 + \overline{X_2} + \overline{X_0})(\overline{X_2} + X_1 + \overline{X_0})(\overline{X_3} + X_2 + \overline{X_1})(\overline{X_3} + \overline{X_1} + X_0)$$

} from #5

$$Y = \overline{(X_3 + X_1)} + \overline{(X_2 + X_0)} + \overline{(X_3 + \overline{X_2} + \overline{X_0})} + \overline{(\overline{X_2} + X_1 + \overline{X_0})} + \overline{(\overline{X_3} + X_2 + \overline{X_1})} + \overline{(\overline{X_3} + \overline{X_1} + X_0)}$$

