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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

②

$x_3x_2$	$x_1x_0$	00 01 11 10	
00	0	0	0
01	0	1	1
11	0	1	0
10	0	0	1

$x_3x_2$	$x_1x_0$	00 01 11 10	
00	0	0	1
01	0	1	0
11	0	0	0
10	0	1	0

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

$x_3x_2$	$x_1x_0$	00 01 11 10	
00	0	0	0
01	0	0	1
11	1	0	0
10	0	1	0

$$Y = (\bar{x}_3\bar{x}_2\bar{x}_1\bar{x}_0) + (\bar{x}_3\bar{x}_2x_1\bar{x}_0) + (\bar{x}_3x_2\bar{x}_1\bar{x}_0) + (x_3x_2\bar{x}_1\bar{x}_0) + (x_3\bar{x}_2x_1\bar{x}_0) + (x_3\bar{x}_2\bar{x}_1\bar{x}_0)$$

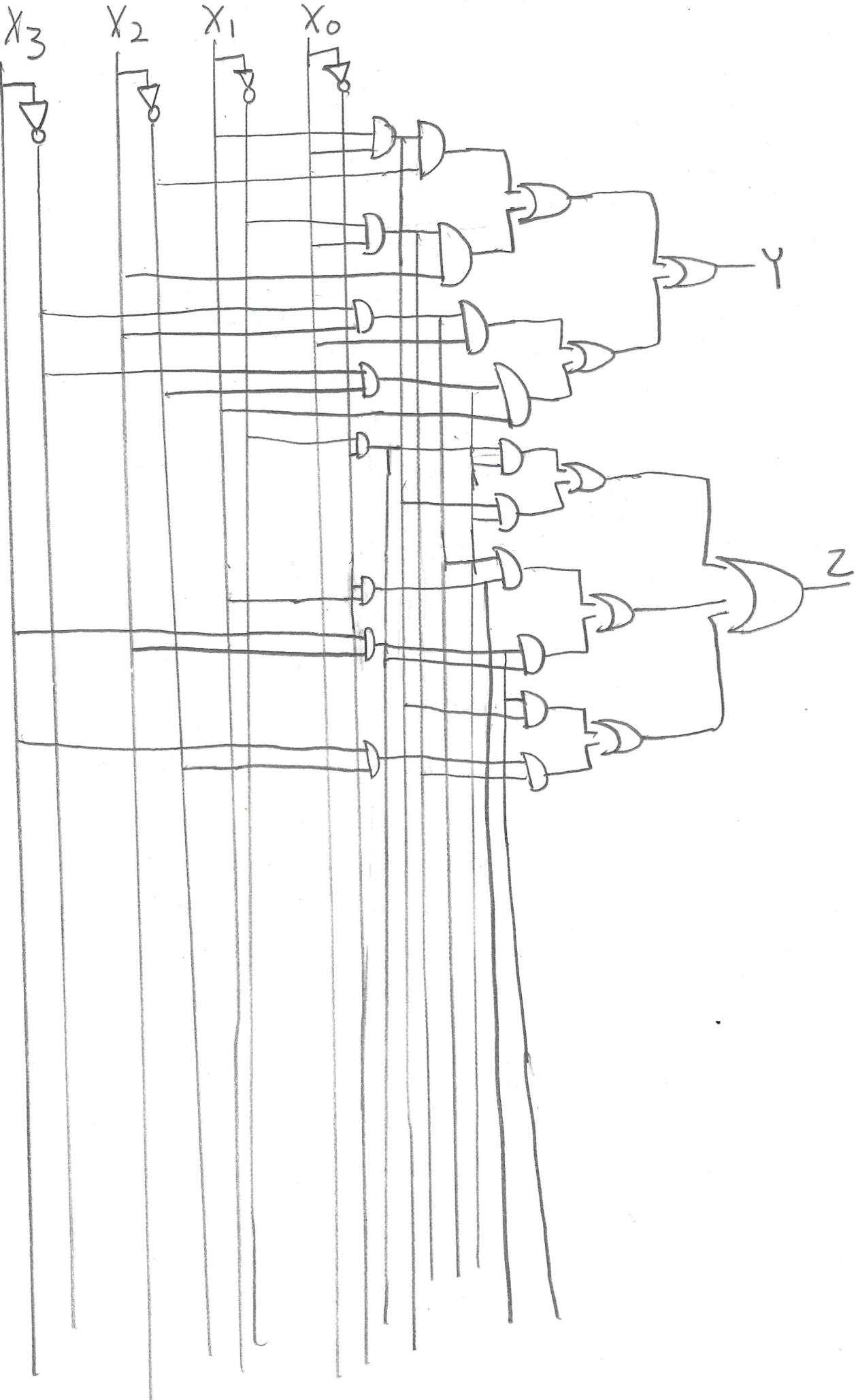
$$Y = (\bar{x}_2x_1\bar{x}_0) + (x_2\bar{x}_1\bar{x}_0) + (\bar{x}_3x_2\bar{x}_0) + (\bar{x}_3\bar{x}_2x_1)$$

(5)

$x_3x_2$	$x_1x_0$	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)



⑦

$$Y = \overbrace{(x_2 + x_1)(\bar{x}_2 + x_0)(\bar{x}_3 + x_0)(\bar{x}_3 + \bar{x}_2 + \bar{x}_1)}^{\text{from #3}}$$

$$Y = \overbrace{(\bar{x}_2 + x_1) + (\bar{x}_2 + x_0) + (\bar{x}_3 + x_0) + (\bar{x}_3 + \bar{x}_2 + \bar{x}_1)}^{\text{from #3}}$$

$$Y = \overbrace{(x_3 + x_1)(x_2 + x_0)(x_3 + \bar{x}_2 + \bar{x}_0)(\bar{x}_2 + x_1 + \bar{x}_0)(\bar{x}_3 + x_2 + \bar{x}_1)(\bar{x}_3 + \bar{x}_1 + x_0)}^{\text{from #3}}$$

$$Y = \overbrace{(\bar{x}_3 + x_1) + (x_2 + x_0) + (x_3 + \bar{x}_2 + \bar{x}_0) + (\bar{x}_2 + x_1 + \bar{x}_0) + (\bar{x}_3 + x_2 + \bar{x}_1) + (\bar{x}_3 + \bar{x}_1 + x_0)}^{\text{from #5}}$$

