

2022518692

Mod Aswathq Ahamed Fakhim

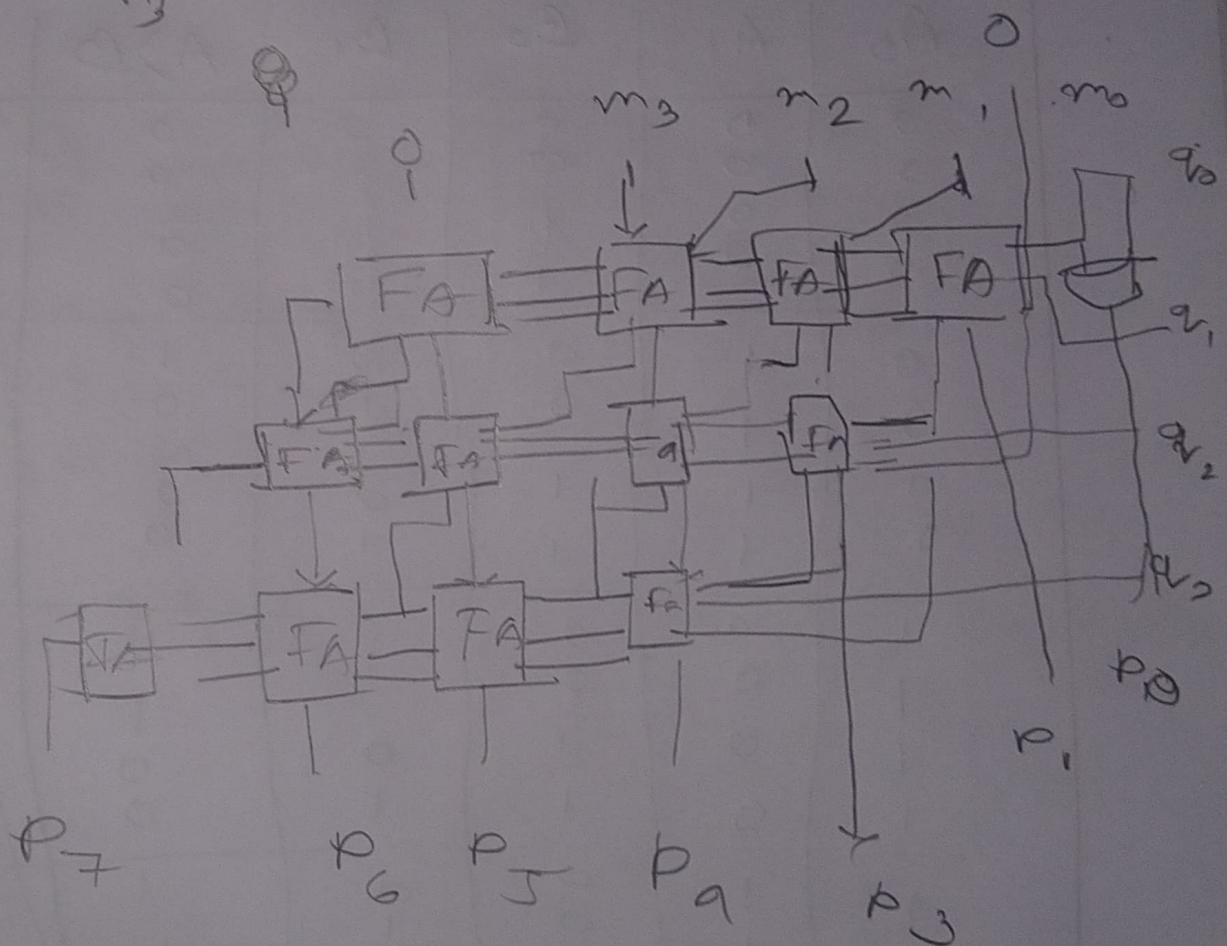
multiplier  
multiplier

$m_2 m_1 m_0$   
 $q_2 q_1 q_0$

$m_2 q_0 m_1 q_0 m_0 q_0$

$m_2 q_1 m_1 q_1 m_0 q_1$  X

$m_2 q_2 m_1 q_2 m_0 q_2$  X X  
 $p_4 p_3 p_2 p_1 p_0$







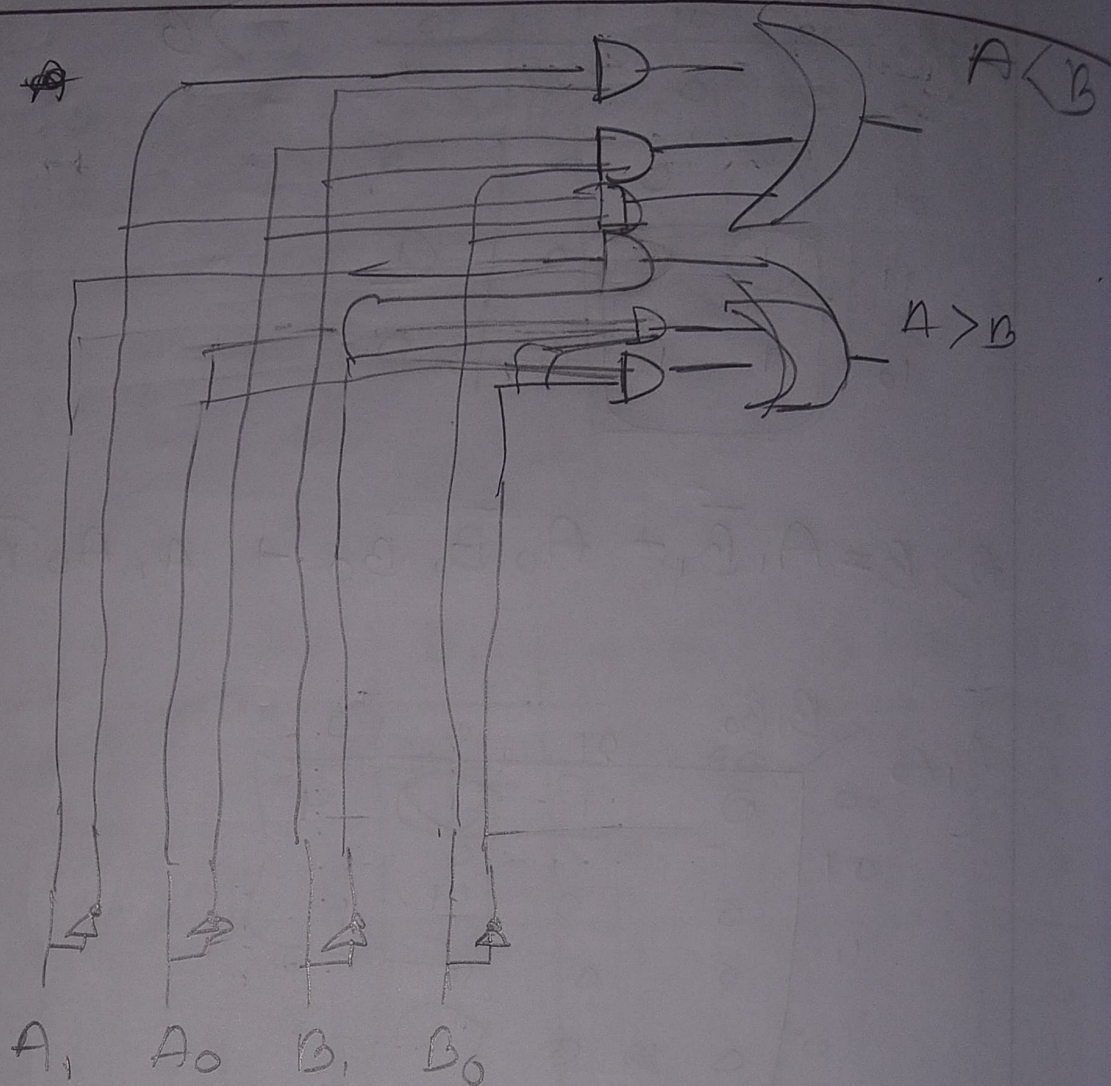
$A \geq B$		$A < B$	
$A_1 A_0$	$B_1 B_0$	$A_1 A_0$	$B_1 B_0$
00	00	00	00
00	01	00	01
00	10	00	10
00	11	00	11
01	00	01	00
01	01	01	01
01	10	01	10
01	11	01	11
10	00	10	00
10	01	10	01
10	10	10	10
10	11	10	11
11	00	11	00
11	01	11	01
11	10	11	10
11	11	11	11

$$A > B = A_1 \bar{B}_1 + A_0 \bar{B}_1 \bar{B}_0 + A_1 A_0 \bar{B}_0$$

$A_1 A_0$	$B_1 B_0$	$A_1 A_0$	$B_1 B_0$
00	00	00	00
00	01	00	01
00	10	00	10
00	11	00	11
01	00	01	00
01	01	01	01
01	10	01	10
01	11	01	11
10	00	10	00
10	01	10	01
10	10	10	10
10	11	10	11
11	00	11	00
11	01	11	01
11	10	11	10
11	11	11	11

$$A < B = \bar{A}_1 \bar{B}_1 + \bar{A}_0 \bar{B}_1 \bar{B}_0 + \bar{A}_1 \bar{A}_0 \bar{B}_0$$





The 2 bit greater  
Smaller comparator



20

~~26~~

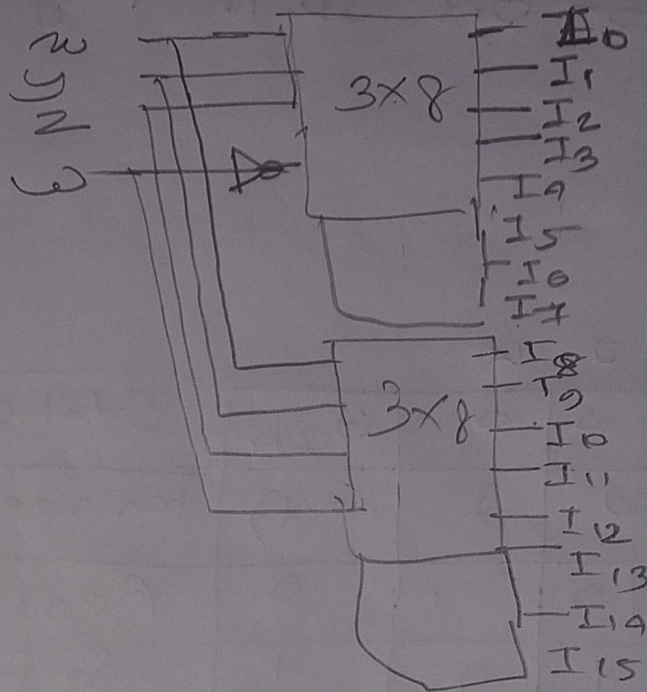
26

4x16

using 2

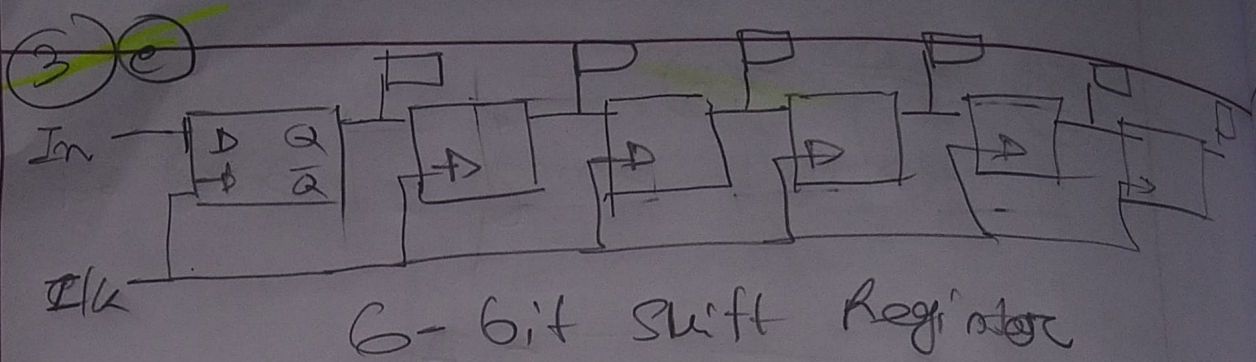
3x8 bit decoder

decoder



4x16 decoder  
with 3x8 decoder





③ ②

JK  
Flip Flop

J	K	$Q_{t+1}$	State
0	0	$Q(t)$	no change
0	1	0	Reset
1	0	1	Set
1	1	$Q'(t)$	inversion

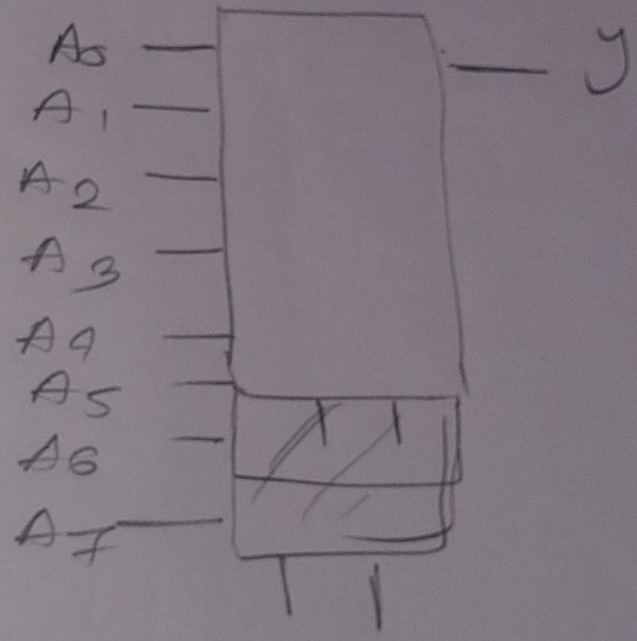
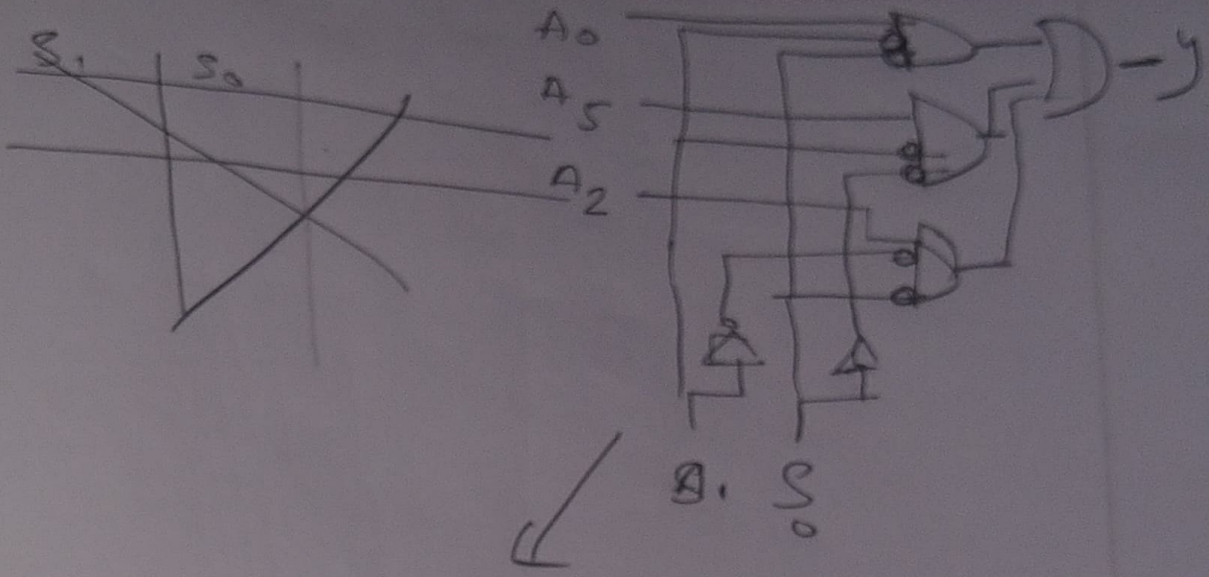
③ ②

D Flip  
Flop

D	$Q_{t+1}$	State
0	0	Reset
1	1	Set



2(a)



$$y = (A_0 S_1' S_0') + (A_5 S_1' S_0) + (A_2 S_1 S_0')$$

~~max~~