

8.00 am

Name: Hassan Ali

8.30

Roll No: 20P-0149

Section: "C"

9.00

1) State Diagram

9.30

First 4 ODD Numbers 1, 3, 5, 7

10.00

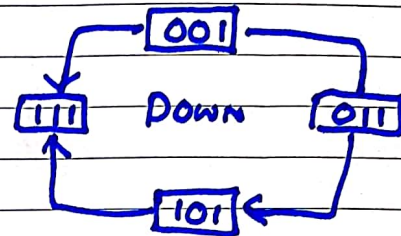
1 → 001

3 → 011

5 → 101

7 → 111

10.30



11.00

11.30

	Y	Q ₂	Q ₁	Q ₀	(Next) Q ₂	(Next) Q ₁	(Next) Q ₀
Noon	0	0	0	0			
	0	0	0	1	1	1	1
12.30	0	0	1	0			
	0	0	1	1	0	0	1
1.00	0	1	0	0			
	0	1	0	1	0	1	1
1.30	0	1	1	0			
	0	1	1	1	1	0	1
2.00	1	0	0	0			
	1	0	0	1	0	1	1
2.30	1	0	1	0			
	1	0	1	1	1	0	1
3.00	1	1	0	0			
	1	1	0	1	1	1	1
3.30	1	1	1	0			
	1	1	1	1	0	0	1

4.00

4.30

5.00

6.00 pm

Transition Table

-Y=0 (Down)

J₂ K₂

J₁ K₁

J₀ K₀

1 x

1 x

x 0

0 x

x 1

x 0

x 1

1 x

x 0

x 0

1 x

x 0

-y=1 (up)

J₂ K₂

J₁ K₁

J₀ K₀

0 x

1 x

x 0

1 x

x 1

x 0

x 0

1 x

x 0

x 1

x 1

x 0

K-Maps

-J₂

-K₂

-J₀

	00	01	11	10
00		1	0	
01		x	x	
11		x	x	
10		0	1	

$$J_2 = \bar{y} Q_1 Q_0 + y Q_1 Q_0$$

	00	01	11	10
00		x	x	
01		1	0	
11		0	1	
10		1	x	

$$K_2 = \bar{Q}_1 Q_0 \bar{y} + Q_1 Q_0 y$$

	00	01	11	10
00		1	x	
01		1	1	
11		1	x	
10		1	x	

$$J_1 = Q_0$$

	00	01	11	10
00		x	1	
01		x	x	
11		x	1	
10		x	x	

$$K_1 = Q_0$$

	00	01	11	10
00		x	x	
01		x	x	
11		x	x	
10		x	x	

$$J_0 = 0$$

	00	01	11	10
00		0	0	
01		0	0	
11		0	0	
10		0	0	

$$K_0 = 0$$

Expressions:

$$J_2 = y Q_1 Q_0 + y Q_1 Q_0 = Q_0 (y + Q_1)$$

$$J_1 = Q_0$$

$$J_0 = 0$$

$$K_2 = Q_1 Q_0 \bar{y} + Q_1 Q_0 y = Q_0 (y + Q_1)$$

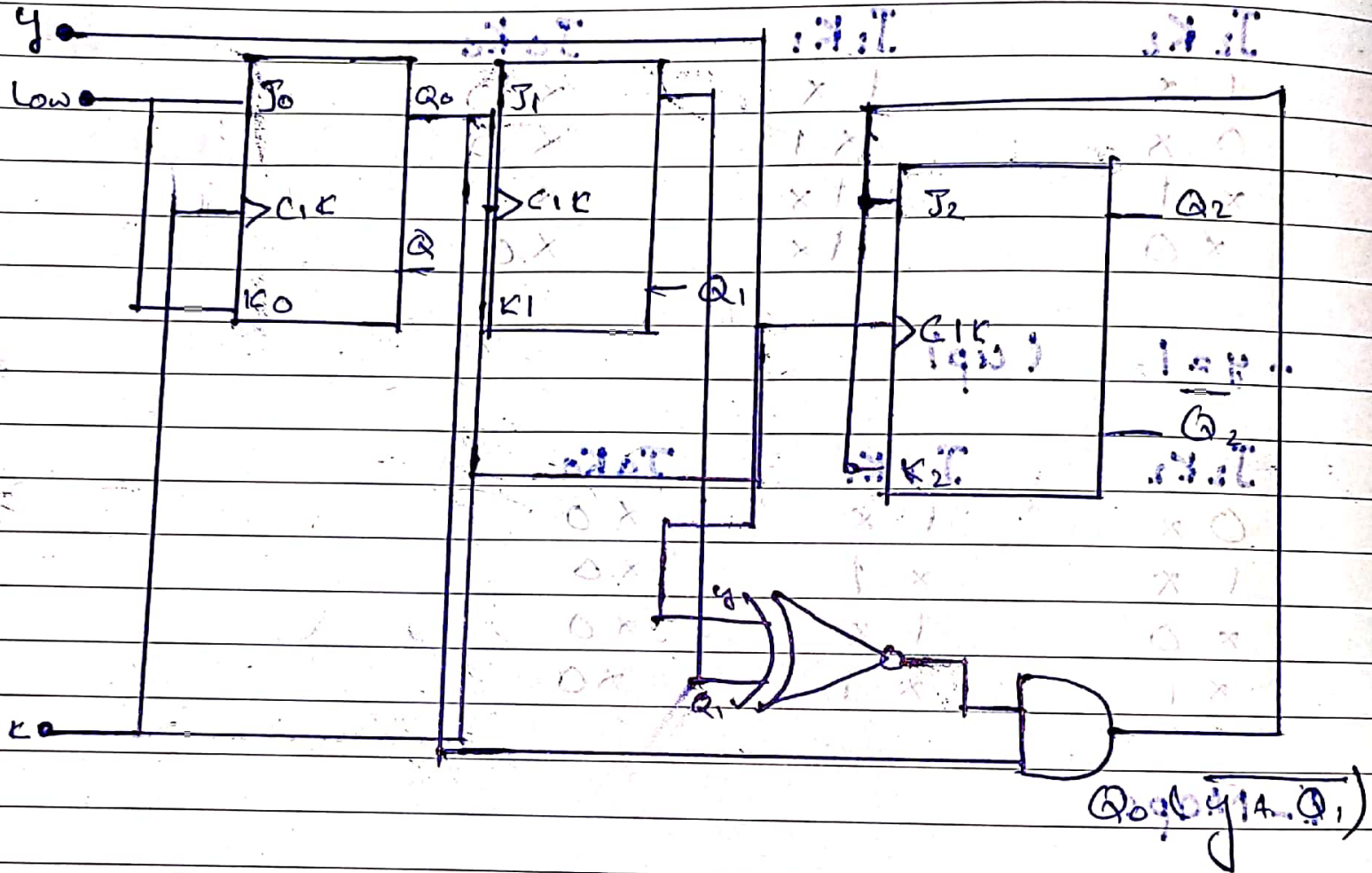
$$K_1 = Q_0$$

$$K_0 = 0$$

8.00 am

Circuit Diagram:-

8.30



Noon

12.30

1.00

1.30