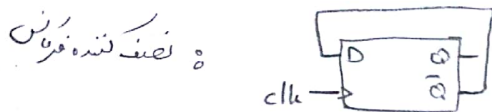
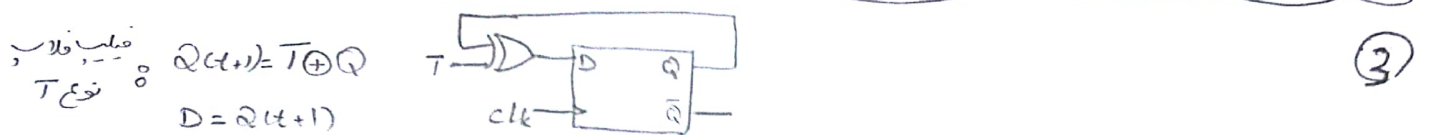
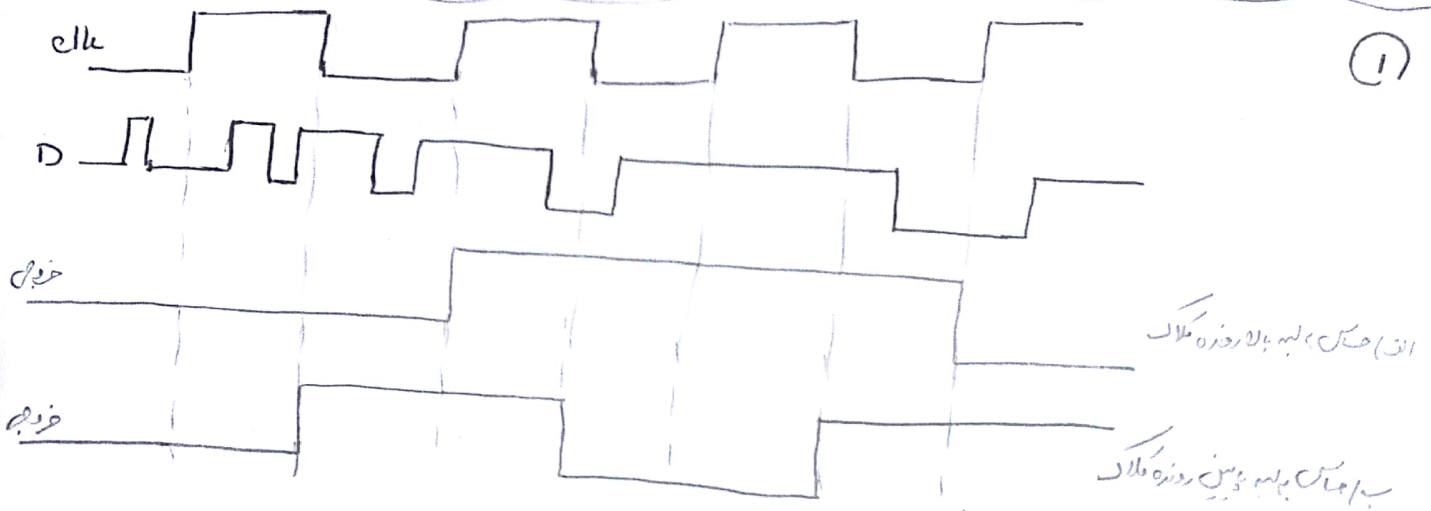


طرح سیستم دیجیتال 1

دیزاین سیستم دیجیتال



④

معادلات ورودی

این $J_1 = Q_1 + Q_0$
 $k_1 = X$

$J_0 = Q_1$
 $k_0 = X$

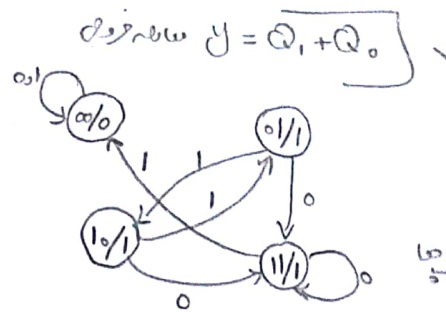
معادلات خروجی

$Q_1(t+1) = J_1 \bar{Q}_1 + \bar{k}_1 Q_1 = (Q_1 + Q_0) \bar{Q}_1 + \bar{X} Q_1 = Q_0 \bar{Q}_1 + \bar{X} Q_1$
 $Q_0(t+1) = J_0 \bar{Q}_0 + \bar{k}_0 Q_0 = Q_1 \bar{Q}_0 + \bar{X} Q_0$

Input

P.S	0	1
00	00/0	00/0
01	11/1	10/1
10	11/1	01/1
11	11/1	00/1

↑ ↑
 $Q_1 Q_0$



مسار از نوع مورگن به عنوان
 خروجی فقط به حالت فعلی فلیپ فلاپها
 وابسته است

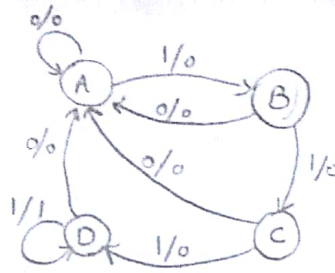
حالت زده شده

P.S	:	01	11	11	00	00	00	00	00	00
Input	:	0	0	1	1	0	1	0	1	1
output	:	1	1	1	0	0	0	0	0	0

خروجی

2. خروجی شروع از حالت 00

الف) 1111



P.S	0	1
(00) A	A/0	B/0
(01) B	A/0	C/0
(10) C	A/0	D/0
(11) D	A/0	D/1

(5)

جواب: F.F

Q ₁ Q ₀	0	1
00	0d	0d
01	0d	1d
10	0d	0d
11	1d	0d

Q ₁ Q ₀	0	1
00	0d	1d
01	0d	1d
10	0d	1d
11	1d	0d

$$J_0(Q_0, Q_1, x) = \sum m(1, 5) + d(2, 3, 6, 7)$$

Q ₁ Q ₀	00	01	11	10
x	0	d	d	1
1	1	d	d	1

$$J_0 = x$$

$$J_0(Q_0, Q_1, x) = \sum m(3) + d(4, 5, 6, 7)$$

Q ₁ Q ₀	00	01	11	10
x	0	d	d	1
1	1	d	d	1

$$J_0 = Q_1 x$$

$$K_1(Q_0, Q_1, x) = \sum m(2, 3, 6) + d(0, 1, 4, 5)$$

Q ₁ Q ₀	00	01	11	10
x	0	d	1	d
1	1	1	d	d

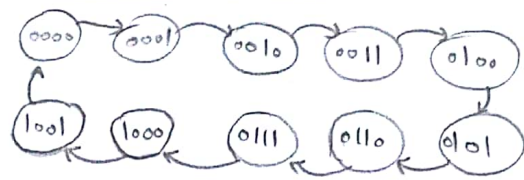
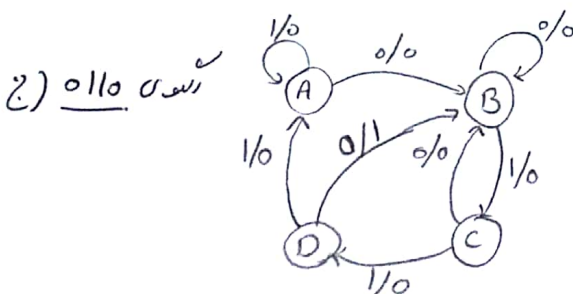
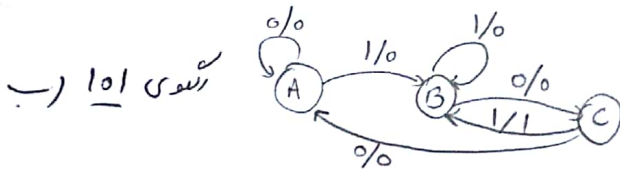
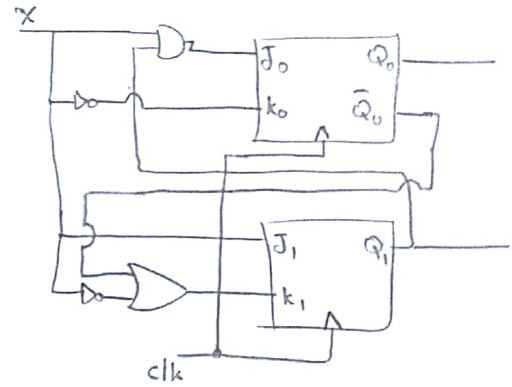
$$K_1 = \bar{Q}_0 + x$$

$$K_0(Q_0, Q_1, x) = \sum m(4, 6) + d(0, 1, 2, 3)$$

Q ₁ Q ₀	00	01	11	10
x	0	d	1	1
1	1	d	d	d

$$K_0 = \bar{x}$$

$$J = m(7) = Q_0 Q_1 x$$



(6)

P.S	A	B	C	D	N.S	A	B	C	D	J _A	K _A	J _B	K _B	J _C	K _C	J _D	K _D
0000	0	0	0	0	0000	0	0	0	0	0	d	0	d	0	d	1	d
0001	0	0	0	1	0001	0	0	0	1	0	d	0	d	0	d	1	d
0010	0	0	1	0	0010	0	0	1	0	0	d	0	d	0	d	1	d
0011	0	0	1	1	0011	0	0	1	1	0	d	0	d	0	d	1	d
0100	0	1	0	0	0100	0	1	0	0	0	d	1	d	0	d	1	d
0101	0	1	0	1	0101	0	1	0	1	0	d	1	d	0	d	1	d
0110	0	1	1	0	0110	0	1	1	0	0	d	1	d	0	d	1	d
0111	0	1	1	1	0111	0	1	1	1	0	d	1	d	0	d	1	d
1000	1	0	0	0	1000	1	0	0	0	1	d	0	d	0	d	1	d
1001	1	0	0	1	1001	1	0	0	1	1	d	0	d	0	d	1	d

$$J_A(A, B, C, D) = \sum m(7) + d(8, 9, 10, \dots, 15)$$

$$K_A(A, B, C, D) = \sum m(9) + d(0, 1, 2, \dots, 7, 10, 11, \dots, 15)$$

$$J_B = \sum m(3) + d(4, 5, 6, 7, 10, 11, \dots, 15)$$

$$K_B = \sum m(7) + d(0, 1, 2, 3, 8, 9, 10, \dots, 15)$$

$$J_C = \sum m(1, 5) + d(2, 3, 6, 7, 10, \dots, 15)$$

$$K_C = \sum m(3, 7) + d(0, 1, 4, 5, 8, 9, 10, \dots, 15)$$

$$J_D = \sum m(0, 2, 4, 6, 8) + d(1, 3, 5, 7, 9, 10, \dots, 15)$$

$$K_D = \sum m(1, 3, 5, 7, 9) + d(0, 2, 4, 6, 8, 10, \dots, 15)$$

