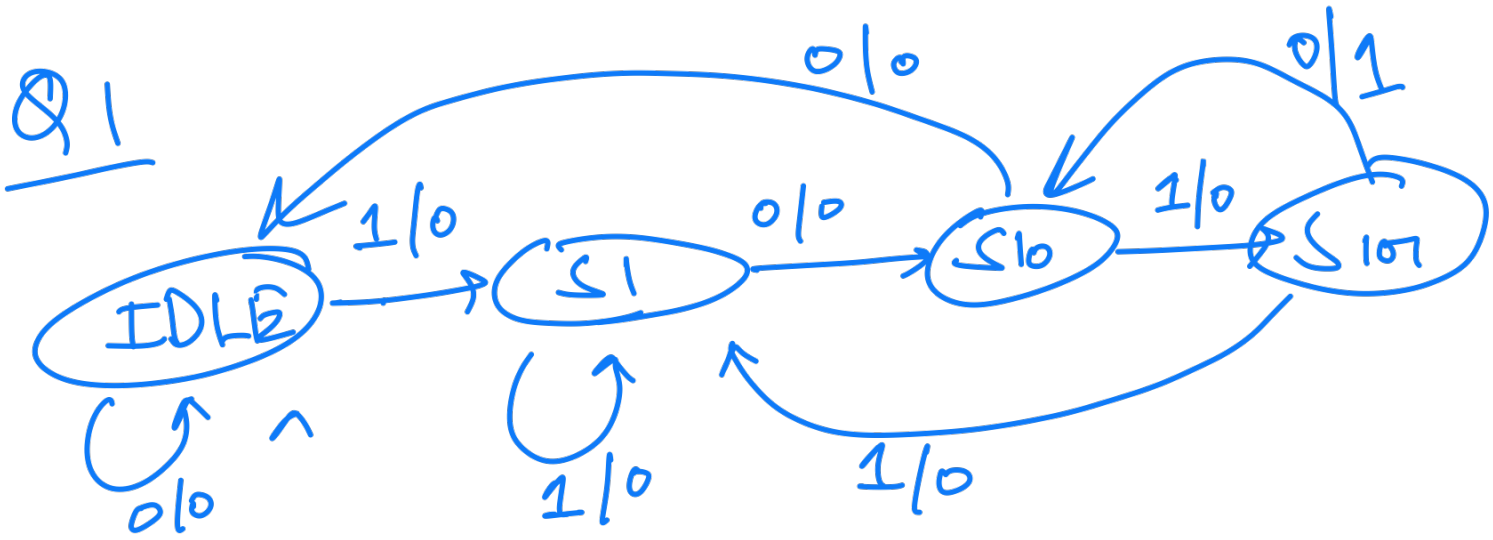
Q1



State - Diagram

Excitation Table :-

PS	In	NS	Out
IDLE	0	IDLE	0
	1	S1	0
S1	0	S10	0
	1	S1	0
S10	0	IDLE	0
	1	S101	0
S101	0	S10	1
	1	S1	0

Transition Table :- (NS, Out)

PS	0	1
IDLE	(IDLE, 0)	(S1, 0)
S1	(S10, 0)	(S1, 0)
S10	(IDLE, 0)	(S101, 0)
S101	(S10, 1)	(S1, 0)

IDLE → 00

S1 → 10

S10 → 01

S101 → 11

Current state	Next State	I/P	O/P	D_1	D_2
0 0	0 0	0	0	0	0
0 0	0 0	1	0	1	0
0 1	0 1	0	0	0	1
0 1	0 1	1	0	1	0
1 0	1 0	0	0	0	0
1 0	1 0	1	0	1	0
1 1	0 1	0	0	0	1
1 1	1 1	1	1	1	1

Q_1Q_2 / X	00	01	11	10
0	0	0	0	0
1	1	1	1	1

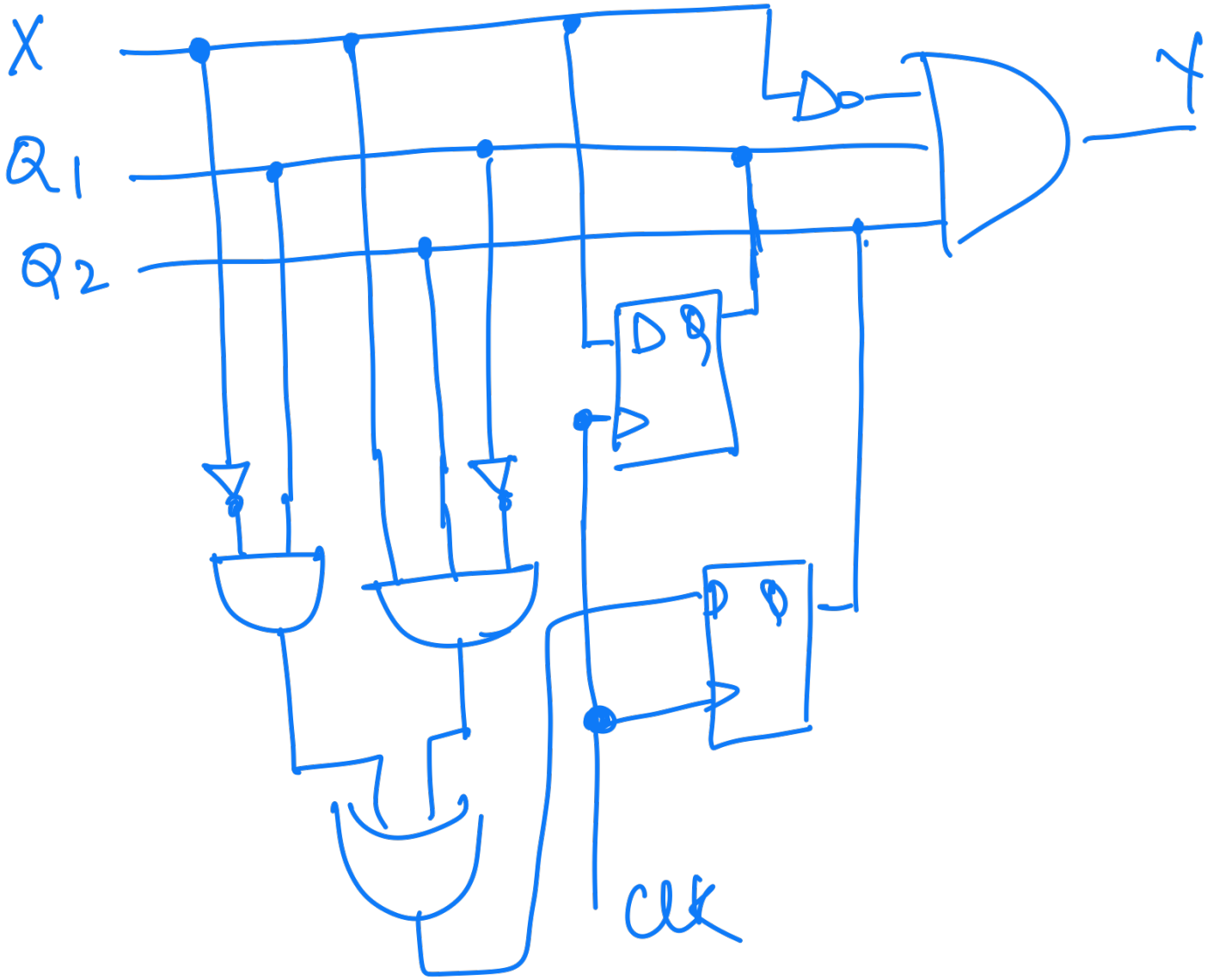
$D_1 = X$

Q_1Q_2 / X	00	01	11	10
0	0	0	1	1
1	0	1	0	0

$$D_2 = \bar{X} Q_1 + X \bar{Q_1} Q_2$$

X / Q_1Q_2	00	01	11	10
0	0	0	1	0
1	0	0	0	0

$$Y = Q_1 Q_2 \bar{X}$$



Circuit