CS220A: COMPUTER ORGANIZATION
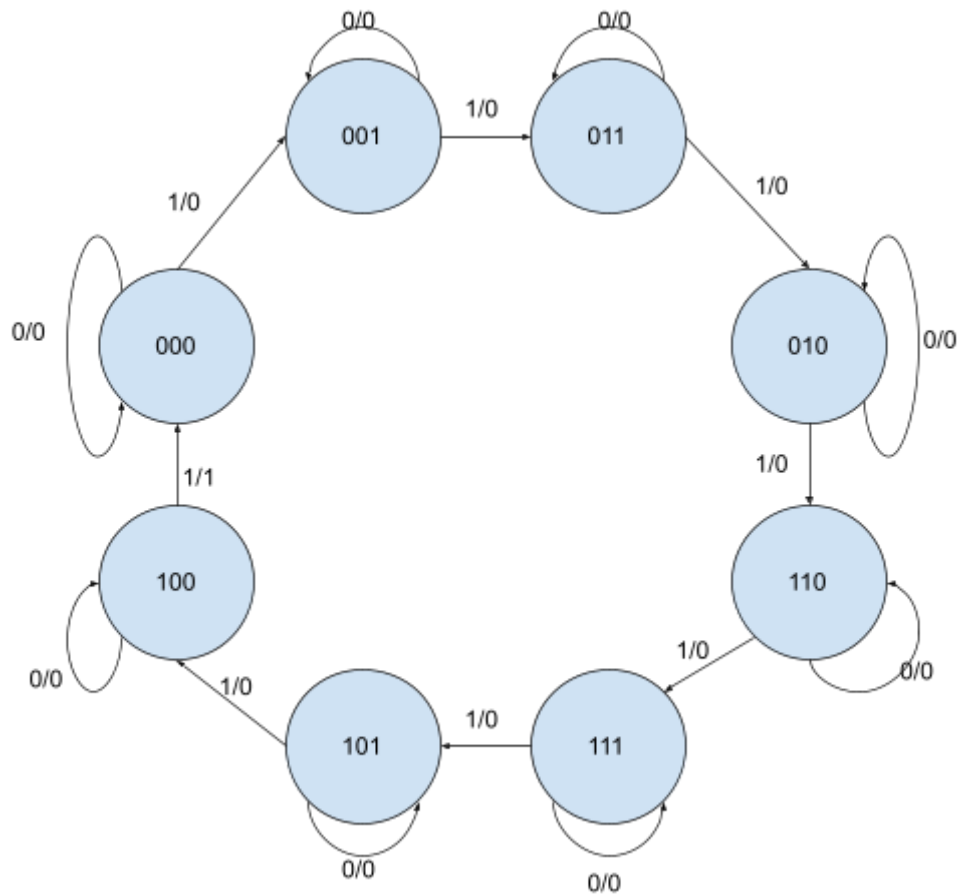
ASSIGNMENT - 4

Question - 1

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a)

- **State Diagram**

- **State Table**

Present State	(Next State, Output)	
	Input = 1	Input = 0
000	(001,0)	(000,0)
001	(011,0)	(001,0)
011	(010,0)	(011,0)
010	(110,0)	(010,0)
110	(111,0)	(110,0)
111	(101,0)	(111,0)
101	(100,0)	(101,0)
100	(000,1)	(100,0)

● Transition and output table

Present State	Next State		Output	
	Input = 1	Input = 0	Input = 1	Input = 0
000	001	000	0	0
001	011	001	0	0
011	010	011	0	0
010	110	010	0	0
110	111	110	0	0
111	101	111	0	0
101	100	101	0	0
100	000	100	1	0

- **Excitation Table**

Present State	Input	Next State	Output
000	1	001	0
000	0	000	0
001	1	011	0
001	0	001	0
011	1	010	0
011	0	011	0
010	1	110	0
010	0	010	0
110	1	111	0
110	0	110	0
111	1	101	0
111	0	111	0
101	1	100	0
101	0	101	0
100	1	000	1
100	0	100	0

b)

- **K-Map**

State / Input	000	001	011	010	110	111	101	100
0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	1

- **Circuitry**