Class- B.tech 3rd yr (E.C.E)

Subject: 'ADNV'

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Date: 24/4/2020

Topic: State Machine

Comparison of Moore and Melay Models

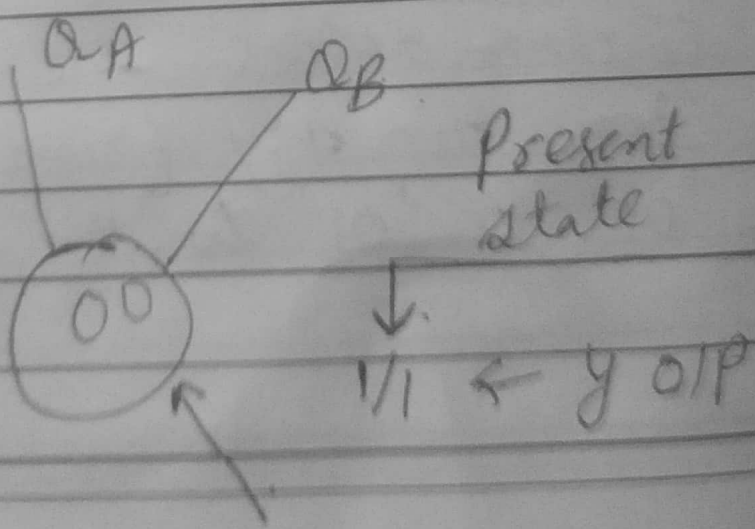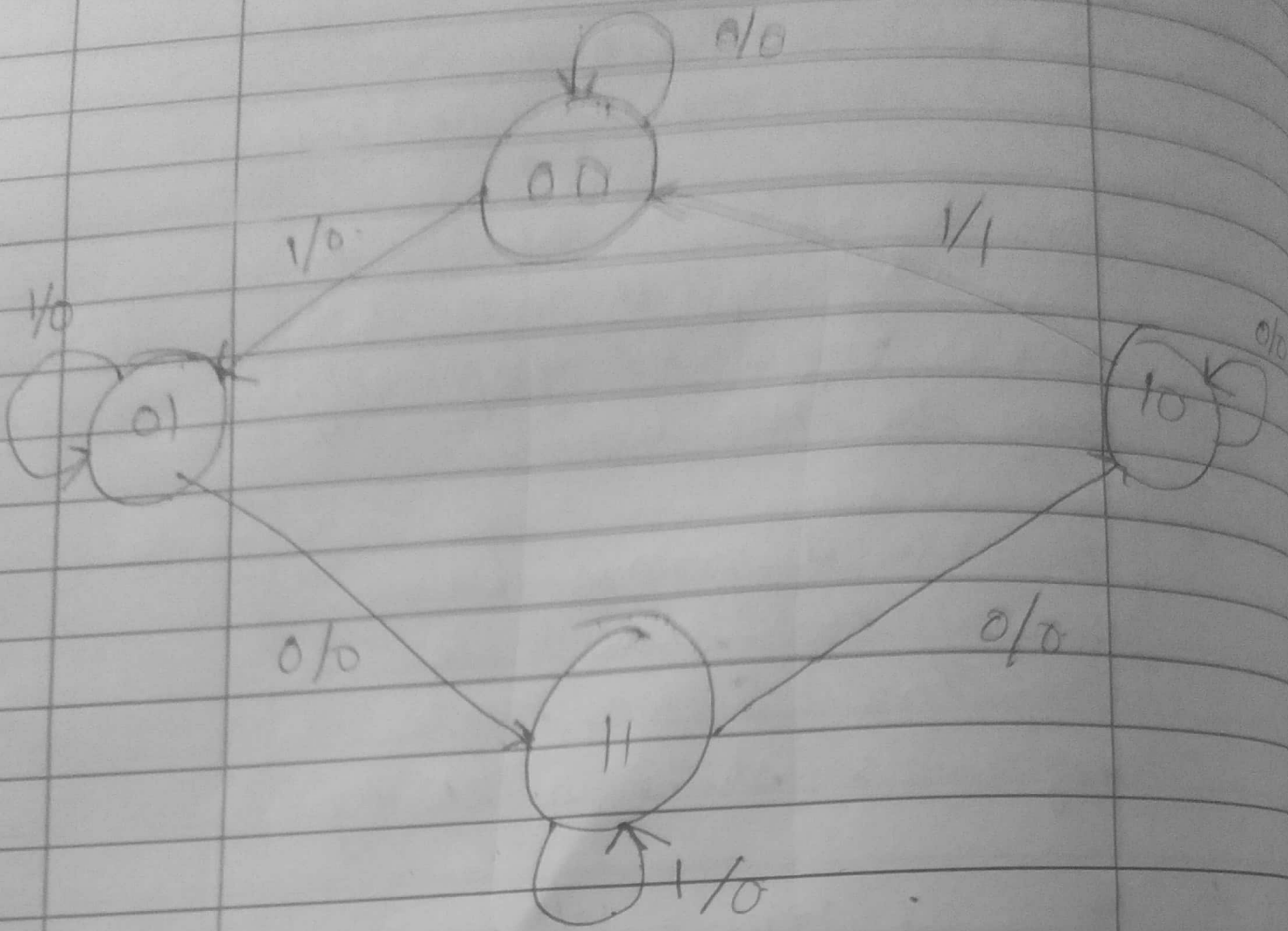| So No.	Moore Model	Melay Model
1.	The final o/p depends only on the present state of memory elements	The final o/p depends on the present state of memory element and the external o/p
2.	The o/p changes only after the active clk edge	o/p changes in between the clk edges if the external o/p changes
3	Implementations of a logic function needs more number of state than melay circuit	Implementation of the same logic function require less number of state than moore circuit

State table ː The state table tell us the relationship between the present state, next state and o/p

State diagram ː The Information available in the state table is represented graphically using the state diagram.

* The state diagram is drawn by using the state table as a reference. Such a state diagram is shown in the fig.

* The circle represented the present state. The arrows b/w the circle define the state transistion say from "00" to "01" or "01" to "11".

0/0

00

1/0

1/1

1/0

01

0/0

10

0/0

11

1/0

1/0

Q_A   Q_B

Present
state

00

↓

1/1 ← y O/P

A/P &

* A directed line connecting the same circle indicate that the next state is same as the present state

* The line joining the circles are labeled with a pair of binary numbers with a "/" in between. For example the line joining 00 and 01 is labeled as 1/0.

* Note that 00 to 01 transition takes place when $x=1$ and $y=0$ (see row-1 of the state table).
Hence 1 in 1/0 corresponds to "X" and "0" corresponds to y.

General format of state Table

Present State		Next State				Output Y	
		$x=0$		$x=1$		$x=0$	$x=1$
Q_A	Q_B	Q_A	Q_B	Q_A	Q_B		
0	0	0	0	0	1	0	0
0	1	1	1	0	1	0	0
1	0	1	0	0	0	0	1
1	1	1	0	1	1	1	0

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