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ENGINEERING FACULTY OF ENGINEERING

ELECTRONIC PROCESSING AND COMMUNICATIONS

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# LTspice Simulation of Sequential Circuits

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## Question 1

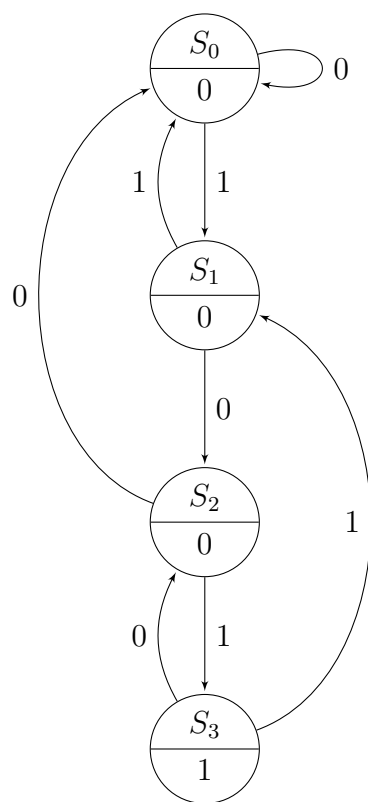


Figure 1: State Diagram for Q1

## Question 2

<i>Present State</i> ( <i>n</i> )	Next State ( <i>n</i> +1)		Present Output <i>Z</i>
	X=0	X=1	
$S_0$	$S_0$	$S_1$	0
$S_1$	$S_2$	$S_0$	0
$S_2$	$S_3$	$S_0$	0
$S_3$	$S_2$	$S_1$	1

Table 1: State Transition Table in terms of  $S_0$  and  $S_1$

Present State (n)	Next State (n+1)				D-inputs required				Output Z
	X = 0		X = 1		X = 0		X = 1		
	$Q_n^A$	$Q_n^B$	$Q_{n+1}^A$	$Q_{n+1}^B$	$Q_{n+1}^A$	$Q_{n+1}^B$	$D_A$	$D_B$	
0	0	0	0	1	0	0	0	1	0
0	1	1	1	0	0	1	1	0	0
1	1	1	0	0	0	1	0	0	0
1	0	1	1	0	1	1	0	1	1

Table 2: State Transition Table in terms of  $Q_n^A$  and  $Q_n^B$ **Question 3****Question 4****Question 5****Question 6****Question 7****Question 8****Question 9****Question 10****Question 11****Question 12****Question 13****Question 14****Question 15****Question 16****Question 17****Question 18****Question 19**