



SNS COLLEGE OF TECHNOLOGY

Coimbatore-35
An Autonomous Institution



Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A++' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

19ECB231 – DIGITAL ELECTRONICS

II YEAR/ III SEMESTER

UNIT 4 –DESIGN OF SEQUENTIAL CIRCUITS

TOPIC – STATE MINIMIZATION & ASSIGNMENT



STATE MINIMIZATION & ASSIGNMENT



The process of eliminating the equivalent or redundant states from a state table/diagram is known as state reduction.

State assignment means assign the binary values to each state.

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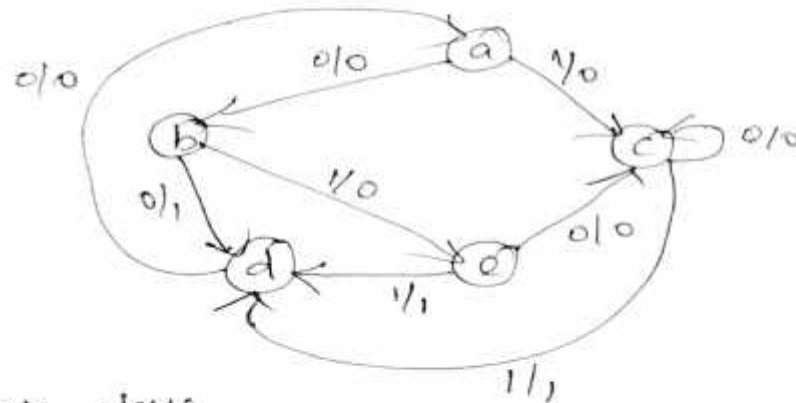
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2/12



State minimization (or) Reduction Technique!

To avoid the redundant states, flipflops, gates reduce the cost of the circuit.



State table

Present state	Next state		output	
	X=0	X=1	X=0	X=1
a	b	c	0	0
b	d	e	1	0
c	c	d	0	1
d	a	d	0	0
e	c	d	0	1

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16EC231 - Digital Electronics/Unit 4

K.Sunathi, AP/ECE

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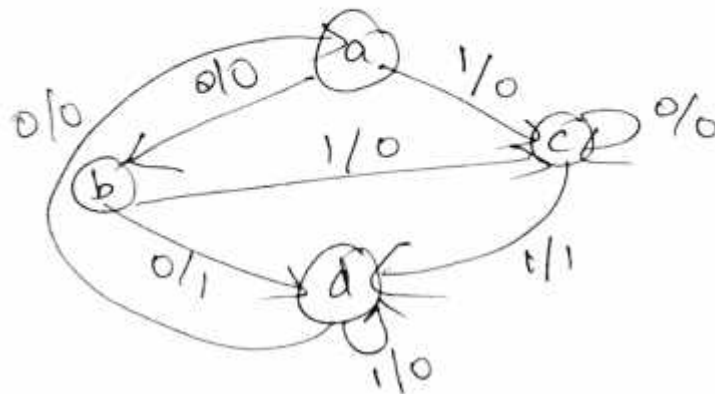
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Reduced State Table

P.S	N.S		O/P	
	X=0	X=1	X=0	X=1
a	b	c	0	0
b	d	c	1	0
c	e	d	0	1
d	a	d	0	0

Reduced State diagram



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State Assignment:-

It is assigning binary values to states

P.S	N.S		O/P	
	X=0	X=1	X=0	X=1
a	b	c	0	0
b	d	e	1	0
c	c	d	0	1
d	a	d	0	0

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K.Sumathi, AP/ECE

State assignment

$a \rightarrow 00$, $b \rightarrow 01$, $c \rightarrow 10$, $d \rightarrow 11$

P.S	N.S		O/p	
	X=0	X=1	X=0	X=1
00	01	10	0	0
01	11	10	1	0
10	10	11	0	1
11	00	11	0	0

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ASSESSMENT



- 1.What is state reduction?
- 2.Define state assignment.
- 3.Explain the operation of state minimization technique with example.

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7/12



THANK YOU

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8/12