DIGITAL EDUCATION
MARTCOST

COMPUTER SCIENCE & ENGINEERING

INFORMATION TECHNOLOGY

Digital Systems

Hand Notes For GATE, PSUs & Competitive Exam

Hand Notes

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Note : *We also providing GATE, PSUs & Competitive Exam Materials [Handnotes, Shortnotes & Books], All Reports [Seminar Reports & PPT]*

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Digital System

→ Boolean expressions, laws, k-maps
variable entered map minimization
(vem - minimiz.).

→ multiplexer, De-mux, encoder, Decoder

→ Hazards : S-a-0, S-a-1, path
for connecting test vectors

→ flip-flop.... Types, Inter conversion.
counters and sequence detectors

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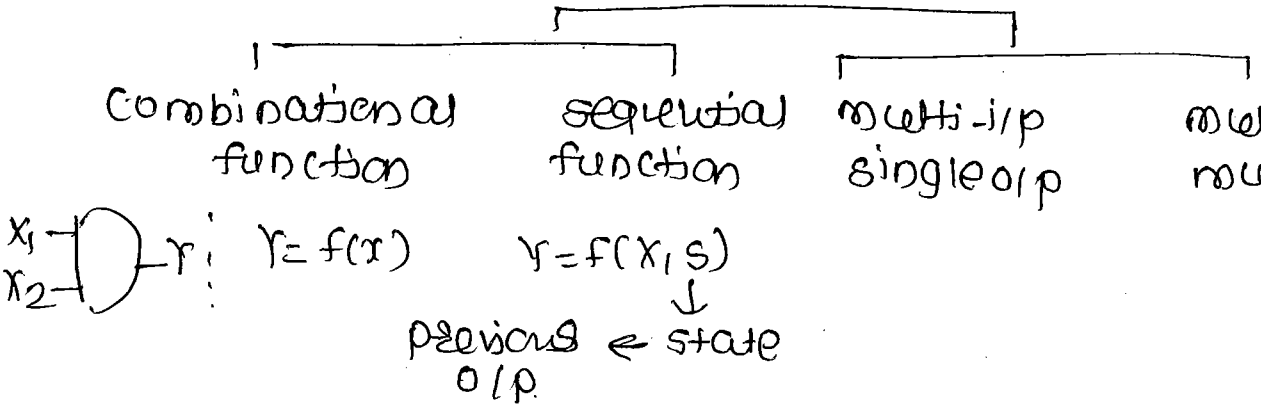
switching theory and automation ⇒ Z. Kohavi
Digital electronics - R.P Jain

* Digital electronics - malvino leach

Digital Systems



selection by elimination

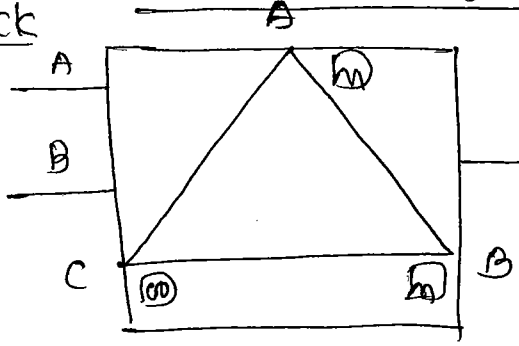
Physical problem → Boolean exp. → Computing m/c gates → Boolean Result → Actuator & device

Solution

Track simulation

clock - anti clock

0 1



$f(A,B,C) = 1$ iff only two vehicles meet together.

Same velocity.

A	B	C	f	
0	0	0	0	← No two vehicles will meet.
0	0	1	1	← BC → min-term → product of input variables (:1).
0	1	0	1	← AB
0	1	1	1	AB
1	0	0	1	AC
1	0	1	1	BC
1	1	0	1	AC
1	1	1	0	← moving anti-clockwise (all vehicles)

$f(A,B,C) = A'B'C + A'BC' + AB'C' + ABC'$

SOP

$= \Sigma(1,2,3,4,5,6)$.

max-term

↑

sum of i/p variables (:0).

↑

$(A+B+C)$

↑

$f(A,B,C) = (A+B+C)(A'+B'+C')$

↑

POS

$= \Pi(0,7)$.