

* Theory of Computation (TOC) - Assignment Number - 1

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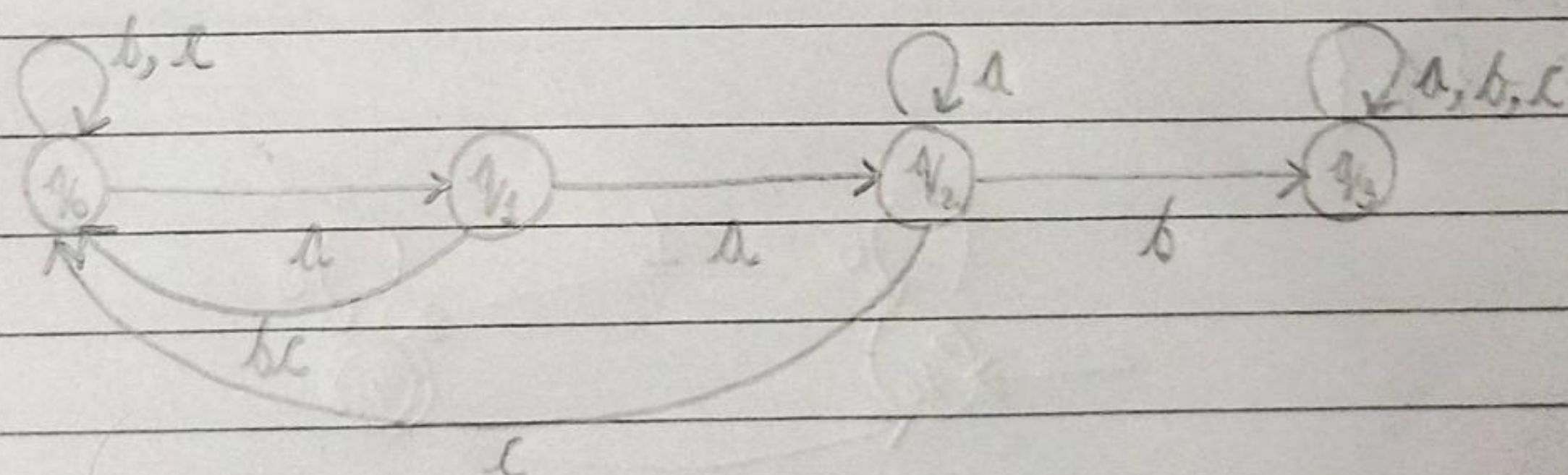
College :- AISSMS's IOIT.

* Given a DFA for $\Sigma = \{a, b, c\}$ that accepts any string with ab as a substring.

→ $\Sigma = \{a, b, c\}$
 $L = \{abab, acab, \dots\}$

$Q = \{q_0, q_1, q_2, q_3\}$
 $q_0 = q_0$
 $F = \{q_3\}$

DFA will be:



	a	b	c
q_0	q_1	q_0	q_0
q_1	q_0	q_2	q_0
q_2	q_2	q_3	q_0
q_3	q_3	q_3	q_3

① $acbab \rightarrow$

$q_0 \xrightarrow{a} q_1 \xrightarrow{c} q_0 \xrightarrow{a} q_1 \xrightarrow{a} q_2 \xrightarrow{b} q_3$ \therefore String accepted.

② $cabac \rightarrow$

$q_0 \xrightarrow{c} q_0 \xrightarrow{a} q_1 \xrightarrow{a} q_2 \xrightarrow{b} q_3 \xrightarrow{c} q_3$ \therefore String accepted.

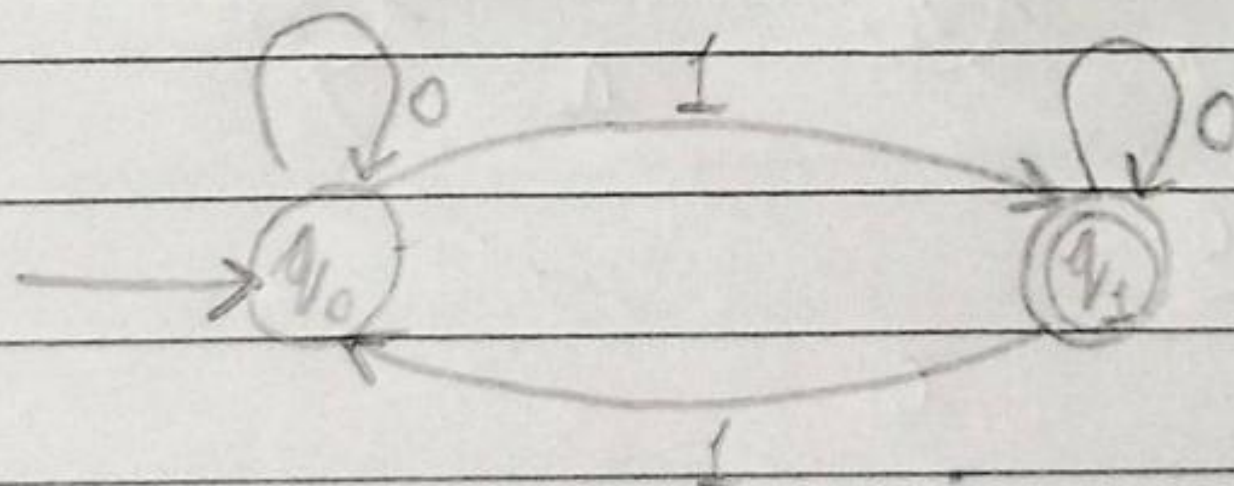
★ Given a DFA for $\Sigma = \{0, 1\}$ and string that have an odd numbers of 1's and any numbers of 0's.

$\rightarrow \Sigma = \{0, 1\}$
 $L = \{11100, 0001, 100101, \dots\}$

$Q = \{q_0, q_1\}$

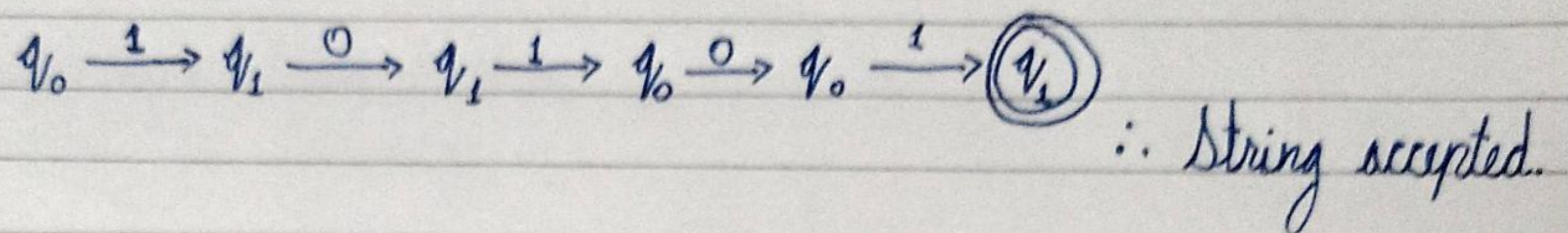
$q_0 = q_0$

$F = \{q_1\}$



	0	1
q_0	q_0	q_1
q_1	q_1	q_0

① 10101 -



② 0110 -

