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UFS: Teori Bahasa Automata.

①. Buatlah diagram transisi dari aturan produksi

$S \rightarrow aS \mid bB \mid b$

$B \rightarrow cC$

$C \rightarrow aS$

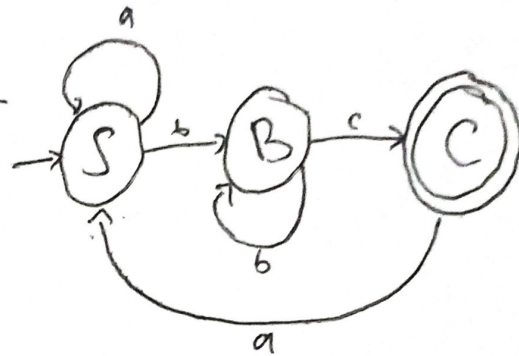
$Q = \{S, B, C\}$

$\Sigma = \{a, b, c\}$

$S = S$

$F = C$

δ	a	b	c
S	S	B	-
B	-	B	C
C	S	-	-



②. Tentukan Deterministik Finite Automata (DFA)

$Q = \{q_0, q_1, q_2, q_3, q_4, q_5\}$

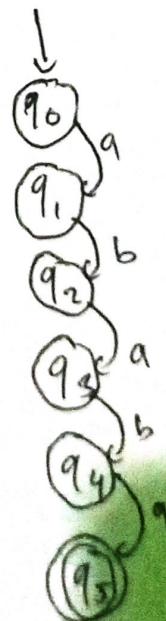
$\Sigma = \{a, b\}$

$S = q_0$

$F = \{q_5\}$

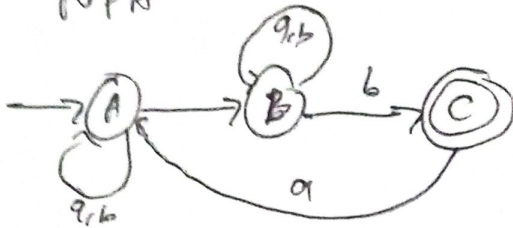
$\delta =$

δ	a	b
q_0	q_1	q_2
q_1	q_2	q_2
q_2	q_3	q_4
q_3	q_4	q_5
q_4	q_5	q_5
q_5	-	-



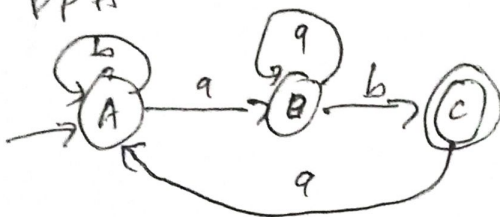
③. $Q = \{A, B, C\}$
 $\Sigma = \{a, b\}$
 $S = A$
 $F = \{C\}$

NFA



δ	a	b
A	{A, B}	{A}
B	{B}	{B, C}
C	{A}	\emptyset

DFA



δ	a	b
A	B	A
B	B	C
C	A	-

④ Grammar

$Q = \{Q_0, Q_1, Q_2, Q_3\}$

$\Sigma = \{1, 0\}$

$S = Q_0$

$F = \{Q_0\}$

1. 1101 : ditolak karena berakhir di Q_3
2. 0101 : diterima karena berakhir di final state Q_0
3. 1001 : diterima, berakhir di final state
4. 1110 : ditolak, berakhir di Q_3
5. 0001 : ditolak, berakhir di Q_3