

Question 31

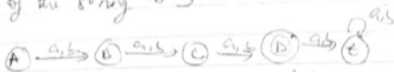
Automata theory is the study of abstract machines and automata, as well as the computational problems that can be solved by them. A deterministic finite automaton (DFA) is represented by 5-tuple $\langle Q, \Sigma, \delta, q_0, F \rangle$ where

- $\Rightarrow Q$ is a finite set of states
- $\Rightarrow \Sigma$ is a finite set of symbols
- $\Rightarrow \delta$ is the transition function
- $\Rightarrow q_0$ is the start state

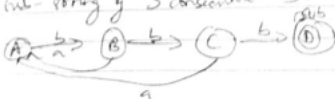
Question 32

DFA that accepts sets of strings over $\{a, b\}$ such that

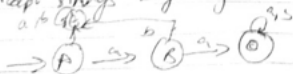
i) length of the string is 3



ii) Accepts sub-string of 3 consecutive b's



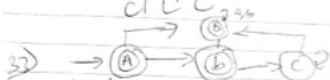
iii) Accept strings beginning with 'a'



iv) transition table for ii

Question

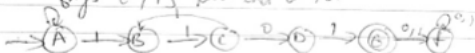
	a	b
A	A	B
B	B	C
C	C	C



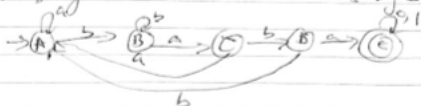
	a	b
A	B	D
B	C	D
C	D	C

Question 34

DFA that accepts a language over
i. all strings $\{0, 1\}$ that end in 101

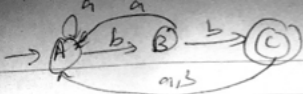


ii) all strings $\{a, b\}$ that contains the string babc



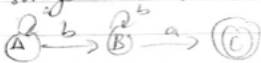
Question 35

DFA accepting the language of strings over $\{a, b\}$ ending with bb



Question 36

L = set of strings over $\{a, b\}$ ending in ba .



	a	b
A	A	B
B	C	A
C	A	A

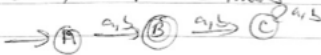
Question 37

DFA for all set of strings over $\{a, b\}$ such that

i) the string contains only 2 'a's



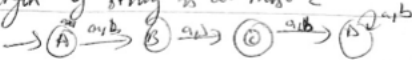
ii) $w \in \{a, b\}^* \mid |w| \equiv 1 \pmod{3}$



iii) $w \in \{a, b\}^* \mid |w| \equiv 1 \pmod{2}$



iv) Length of string is at most 2



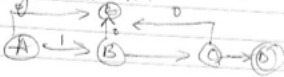
Done

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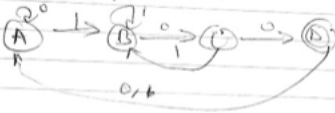
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Question 38.

38) DFA that accepts a language over all string {0, 1} that begins with 11



ii) That ends with 100



iii) That contain 101

