

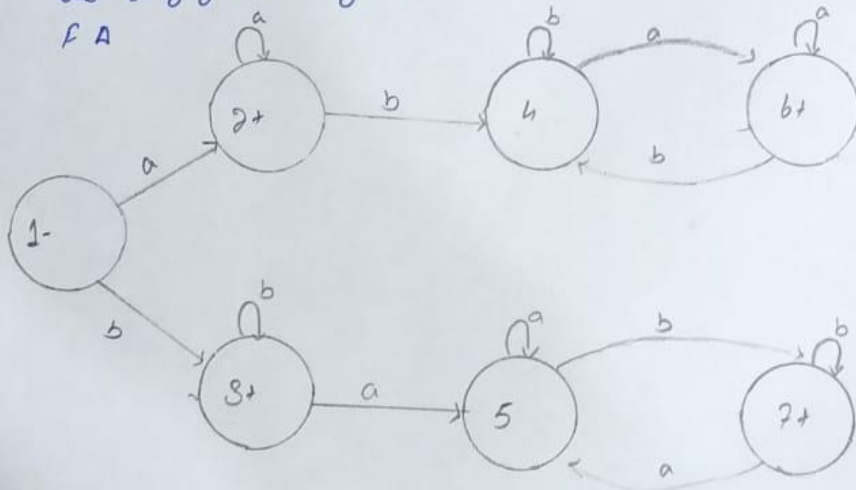
Qno 1:- Build FA accepting the language L of strings defined over $\Sigma = \{a, b\}$, beginning with and ending in same letters?

Ans:-

The language L may be expressed by the following regular expression

$$(a+b)^+ a (a+b)^+ a + b (a+b)^+ b$$

this language L may be accepted by the following FA



Qno 3:- Construct regular expression defining each of the following language over the alphabet $\Sigma = \{a, b\}$.

(i) All word having even length.

$$((a+b)(a+b))^+$$

(ii) All words having atleast three 'a' and two 'b'

$$(a+b)^+ (aaa)^+ (bb)^+ (a+b)^+$$

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(c) All words having at least double 'a' or triple 'b'

$$(a+b)^* (aaa)^+ (a+b)^* + (a+b)^*$$

(d) All word starts with double a or quadruple b.

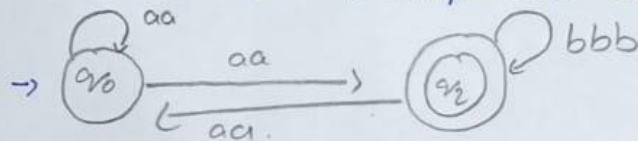
$$aa(a+b)^* + bbbb(a+b)^*$$

Ques: Draw a Transition Table for the Diagram given figure 2 (-) is the starting state and (+) is the ending state?

States	a	b
1-	2	6
2	3*	2
3+	x	4
4	x	5*
5+	x	x
6	10	7
7	y	8
8	9*	y
9+	y	y
10	y	11*
11+	y	y
x	x	x
y	y	y

Qno 2 Build an FA accepting the language L of strings defined over $\Sigma = \{a, b\}$ having quadruple a's or triple b's?

An FA which has quadruple a's or triple b's



Qno 4: Distinguish b/w moore and mealy machine and convert the following mealy machine to moore figure 1.

Mealy Machine:-

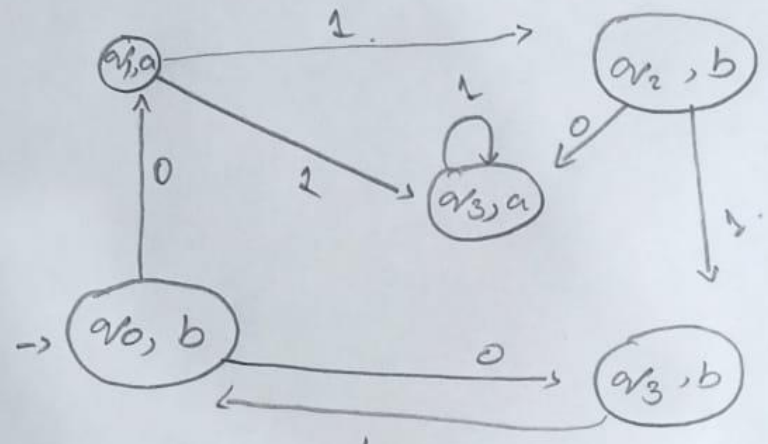
A mealy machine generates an output based on its current state and output. So the state diagram will include both an input and output signal for each transition edge.

- The output change asynchronous with the enabling clock edge.

- A mealy machine will have the same states or Power States than a moore machine.

Moore Machine

- The output of moore machine depends only on the machine current state, Transitions are not directly dependent upon input.
- The outputs change when the state changes and the state change.



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mean to make conversion