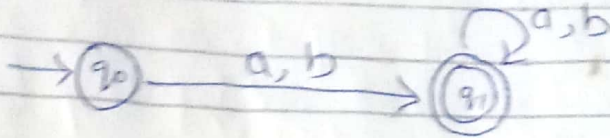


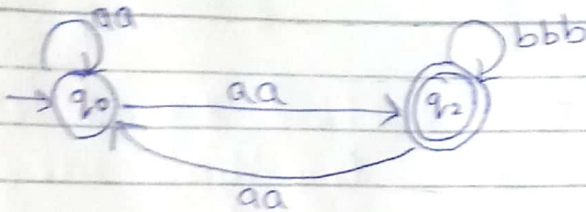
Question 1

→ Beginning from and ending in same letters



Question 2

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



Question 3

→ Construct regular expression.

i) All words having even length
 $((a+b)(a+b))^*$

ii) All words having at least three a or triple b.
 $(a+b)^* aaa (a+b)^* bbb (a+b)^*$

iii) All words having at least double a or triple b.
 $(a+b)^* (aa+bbb) (a+b)^*$

iv) All words starts with double a or quadruple b.
 $aa + bbbb (a+b)^*$

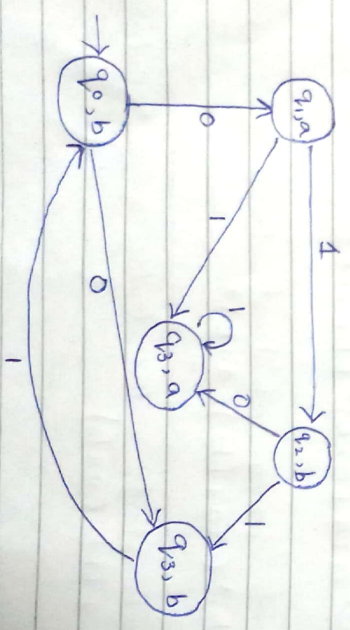
Question 9

Mealy Machine:

- 1) 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.
- 2) The output change asynchronously with the enabling clock edge.
- 3) A Mealy machine will have the same number or fewer states than a Moore machine.

Moore Machine:

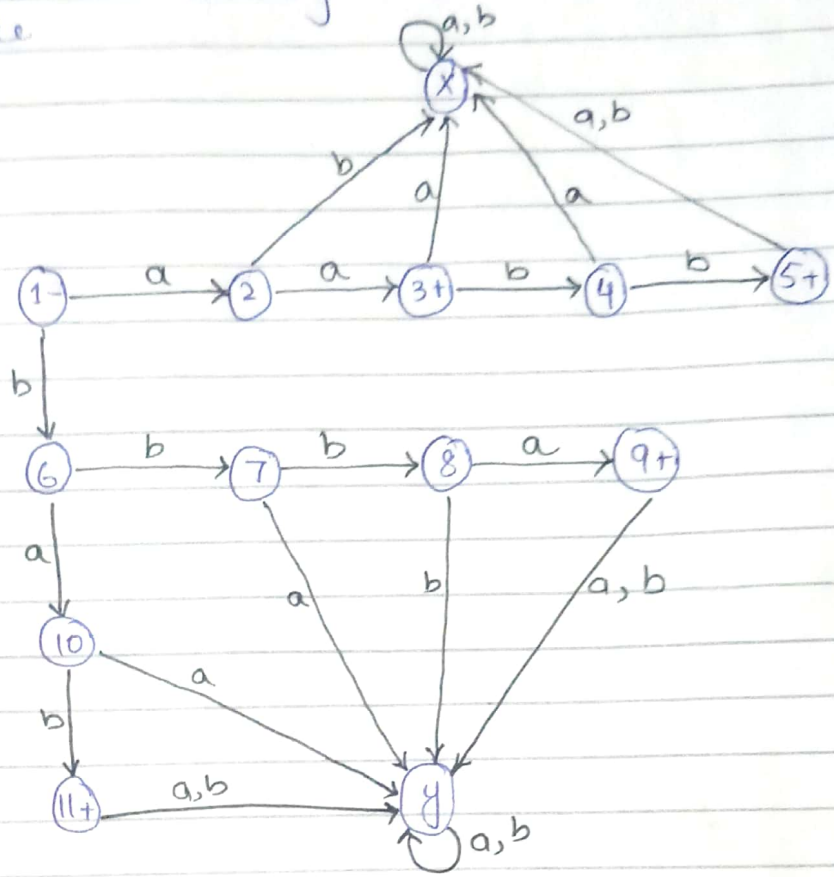
- 1) The output of Moore machine depends only on the machine's current state; transitions are not directly dependent upon input.
- 2) The outputs change when the state changes, and the state change is synchronous with the enabling clock edge, outputs change synchronously with this clock edge.
- 3) A Moore machine can have more number of states than a Mealy machine.



(Mealy to Moore Conversion)

Question 6

→ Transition Table for the given diagram.
 (-) is the starting state and (+) is the ending state



⇒ Transition Table

	a	b
1-	2	6
2	3	x
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