

IQRA NATIONAL UNIVERSITY

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SUB TO SIR SHERAZ

SUBJECT COMPILER CONSTRUCTION

Q1 :- $\Sigma = \{a, b\}$

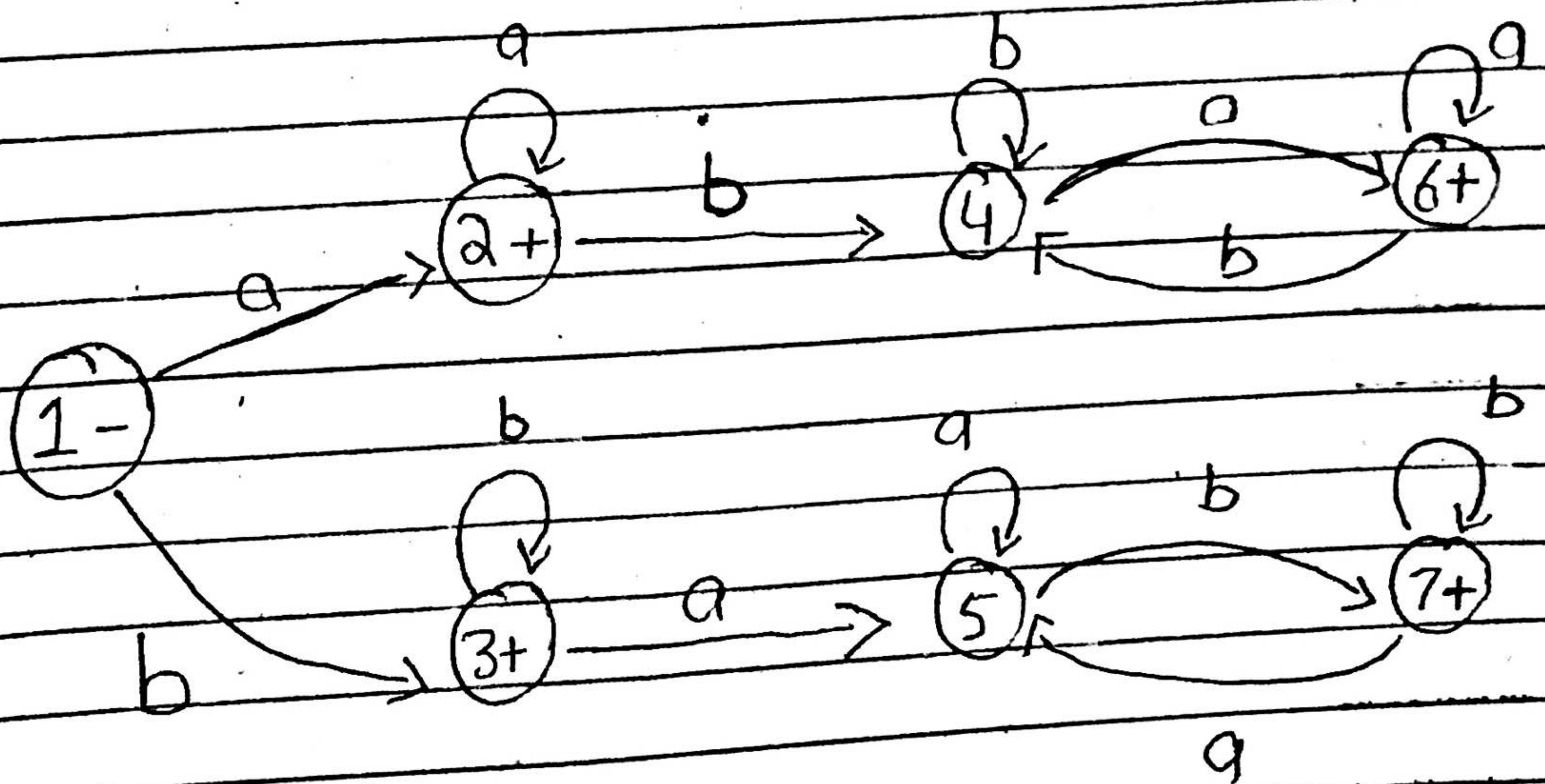
beginning with and ending
in same letters.

Ans :-

It may be expressed
by the following regular expression

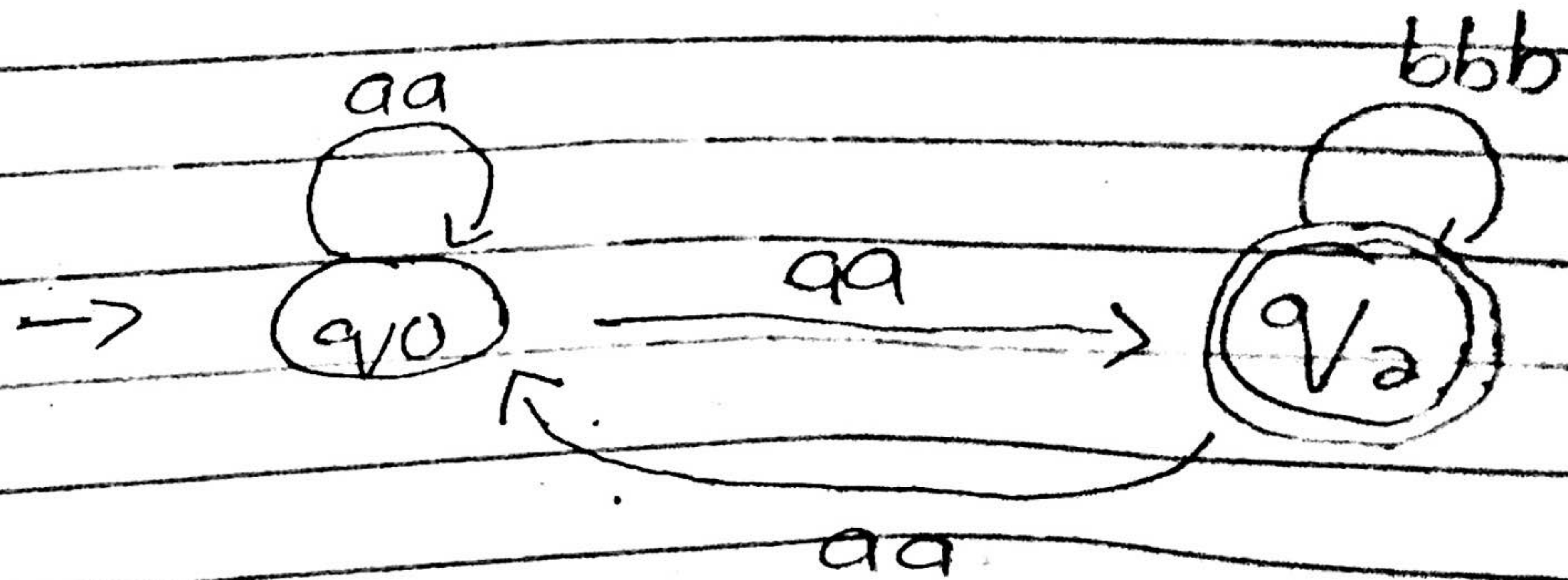
$$(a+b) + a(a+b)^*a + b(a+b)^*b$$

Language L may be accepted
by the following FA



Q2 :-

An FA which has quadruple a's and three b's



$$Q3:- \Sigma = \{a, b\}$$

i. All words having even length

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

ii. All words having atleast

three a's two b's

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

iii. Atleast three b or double a

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

iv. Start with double a quadruple b

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

Q4:-

Distinguish b/w moory & Mealy

Mealy

Moore

* Output depends upon both present state & present input

* Depend only on present state

* Fewer state than

* More states

Moore machine

* React faster to input

* Circuit delay due to more logic decoding

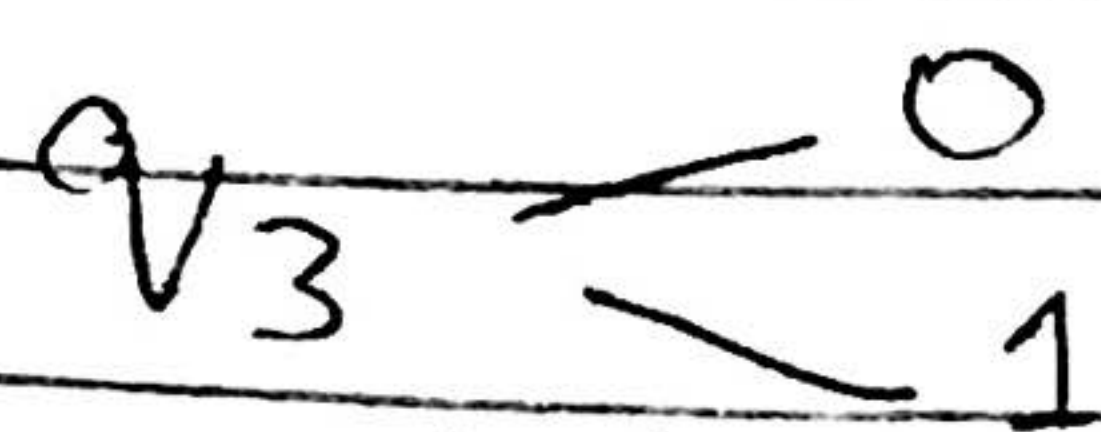
* A counter is not

* A counter is a

a Mealy machine

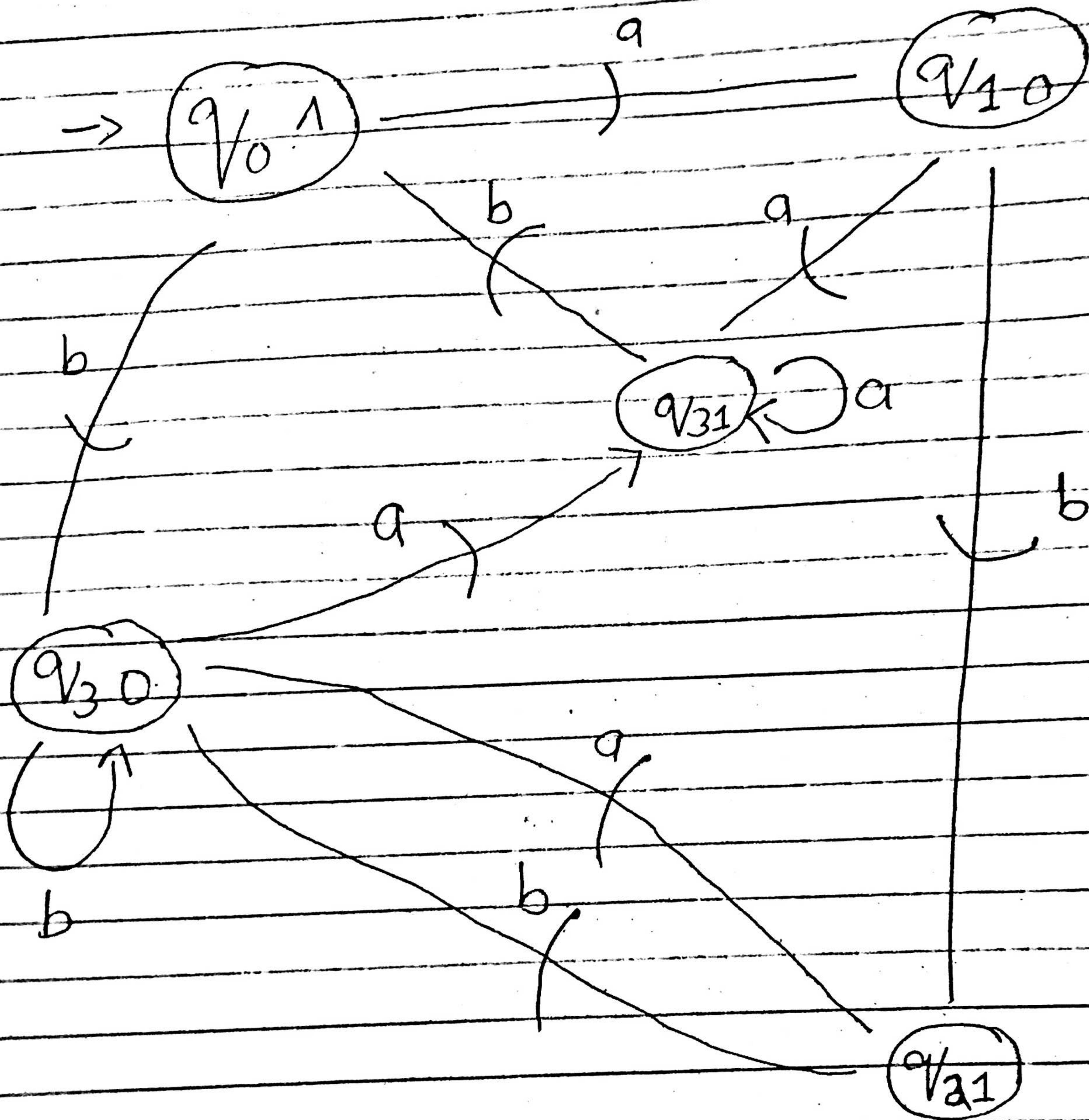
Moore machine

	a		b	
	State	O/P	State	O/P
q_0	q_1	0	q_3	0
q_1	q_3	1	q_2	1
q_2	q_3	0	q_3	0
q_3	q_3	1	q_0	1



Moore transition table

Moore	a	b	O/p
q_0	$q_1 0$	$q_3 0$	—
q_1	$q_3 1$	$q_2 1$	—
q_2	$q_3 0$	$q_3 0$	—
$q_3 0$	$q_3 1$	$q_0 1$	0
$q_3 1$	$q_3 1$	$q_0 1$	1



Q6 :- Transition table for Fig 2

Transition table

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