NAME: YASIR FAHEEM

ID # 6991

BS COMPUTER SCINEC

COMPILER CONSTRUCTION

FINAL EXAM

DATE: 22/06/20

Day: M T W T F S

Date: /__/__/

Q:NO:1

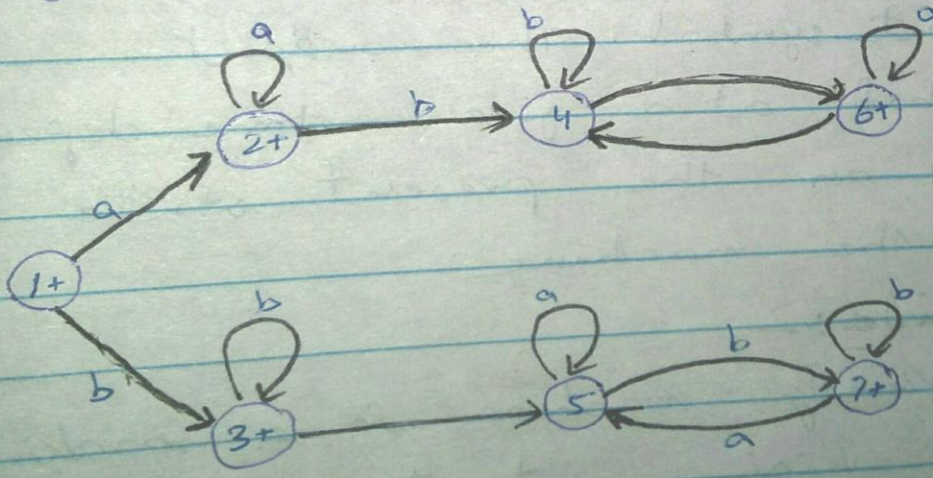
Build an FA accepting the language L of string defined over $\Sigma = \{a, b\}$, beginning with and ending in same letters.

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



Day M T W T F S Date: /__/__

Q:NO:3:-

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

Ans:-

i) All words having even length.

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

ii) All words having at least three a and two b.

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

iii) All words having at least double a or triple b

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

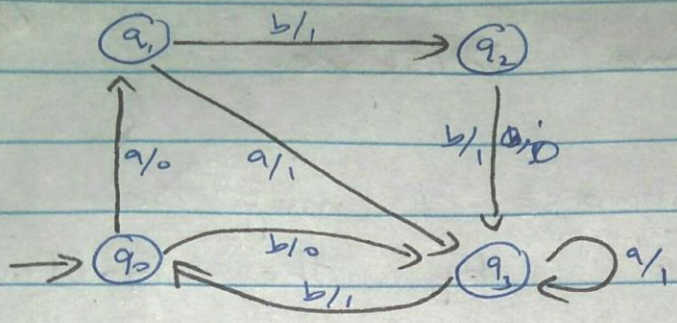
iv) All words having start with double a or quadruple b.

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

Day: S M T W T F S

Date: __/__/____

Q:NO:4:- Distinguish between Moore and Mealy Machine and convert the following Mealy Machine to Moore.



Ans:-

Moore machine is a finite state machine in which the next state is decided by cussent state and current input symbol. The output symbol at a given time depend only on the present state of the machine.

While:-

A Mealy machine is a machine in which output symbols

Day: M T W T F S Date: / /

depend upon the present input symbols and present state of the machine. In the Mealy machine the output is represented with each input symbols for each state seperated by /. Mealy T.T

	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

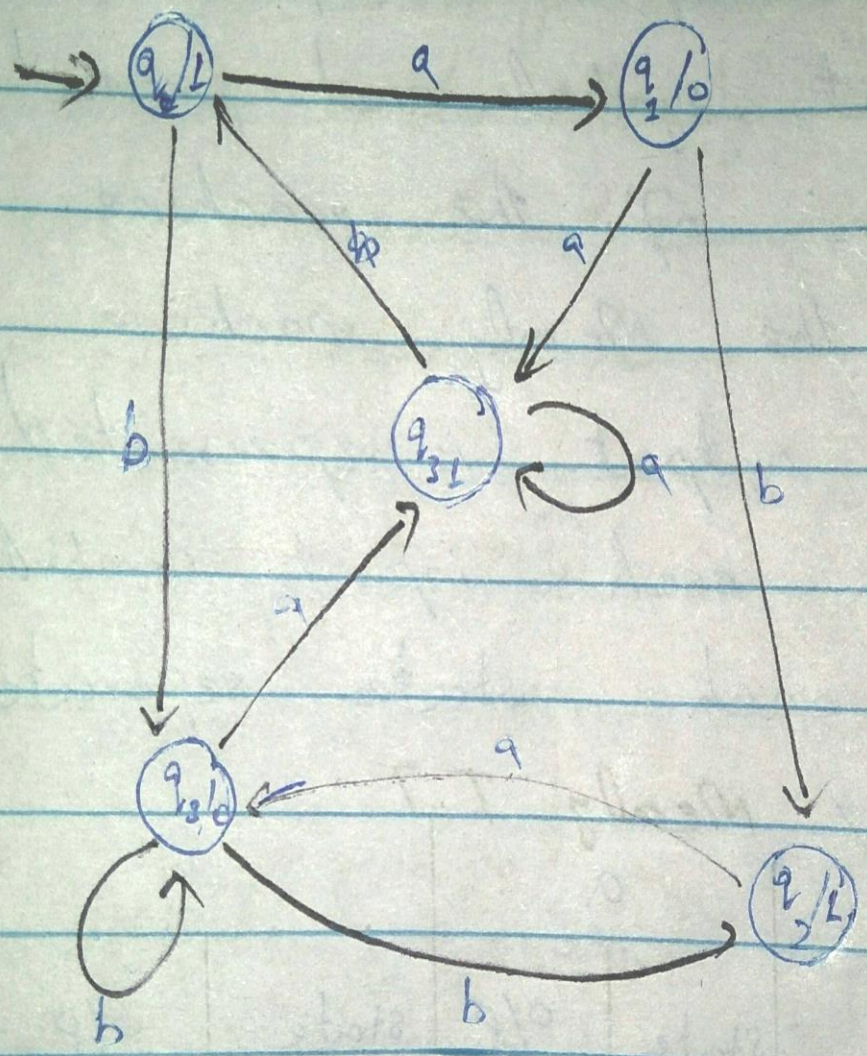
Moor transition table

Moore	a	b	o/p
q_0	q_{10}	q_{30}	—
q_1	q_{31}	q_{21}	—
q_2	q_{30}	q_{30}	—
q_{30}	q_{31}	q_{01}	0
q_{31}	q_{31}	q_{01}	1

Khizra Paper Products Excellent Good Need Improvement

Day M T W T F S

Date: __/__/____



Day: S M T W T F S

Date: / /

Q:NO:6:-

Draw a transition table for the diagram given in figure 2.

(-) is the starting state and (+) is the ending state.

Ans:-

State	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

Khizra Paper Products
Checked By:.....Parents:.....Excellent ☐ Good ☐ Need Improvement

Day: M T W T F S Date: / / —

Q:NO: 5:—

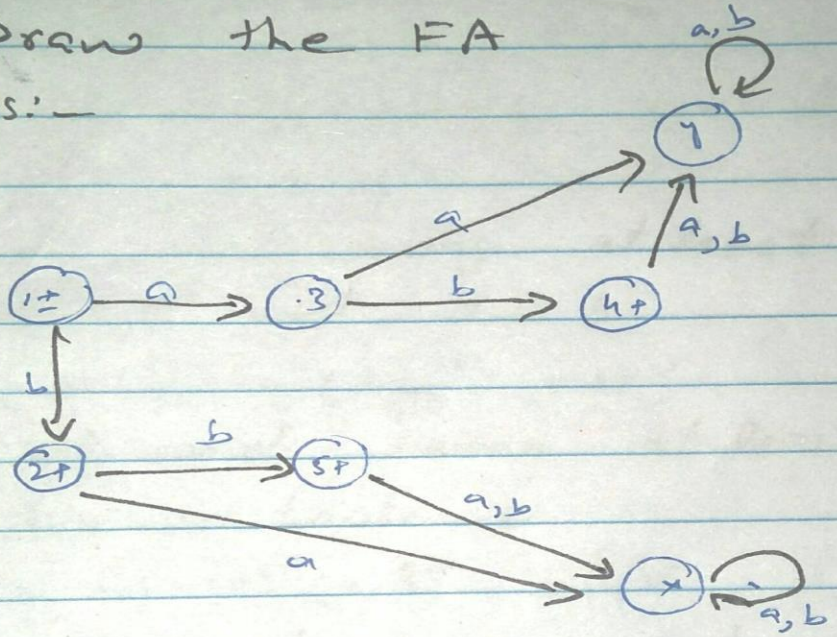
Consider the language

$L = \{\Lambda, b, ab, bb, \}$

$\Sigma = \{a, b\}$ $\Lambda + bb + a(bb)^* bb$

Draw the FA

Ans:—



Q:NO.2:—

Build an FA accepting:—

Ans:— The language L May be expressed by RE

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