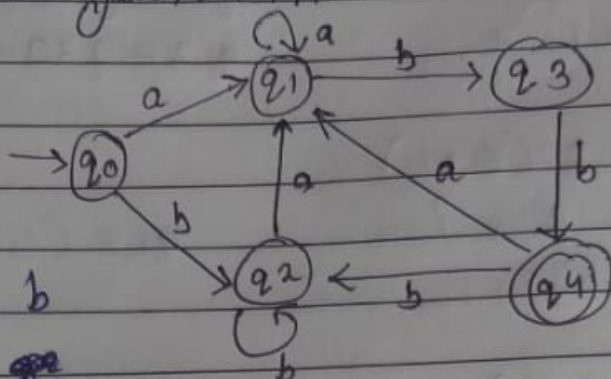


Assignment-2

Ques 1 Minimize the given DFA.



	a	b
q0	q1	q2
→ q0	q1	q2
q1	q1	q3
q2	q1	q2
q3	q1	q4
q4	q1	q2
I.S = q0 F.S = q4		

$$\pi_0 = (\{q_0\}, \{q_0, q_1\})$$

$$\pi_0 = (\{q_4\}, \{q_0, q_1, q_2, q_3\})$$

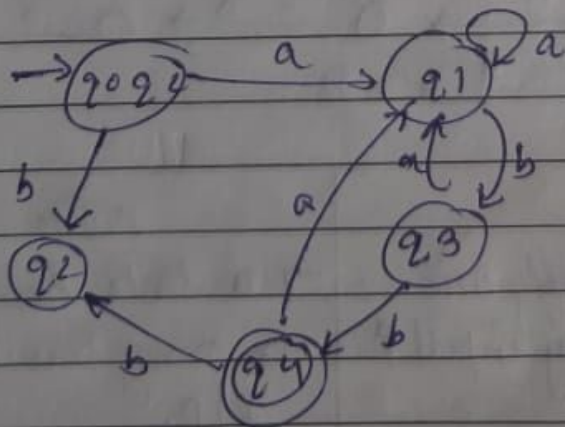
$$\pi_1 = (\{q_4\}, \{q_0, q_1, q_2\}, \{q_3\})$$

$$\pi_2 = (\{q_4\}, \{q_3\}, \{q_0, q_1\}, \{q_2\})$$

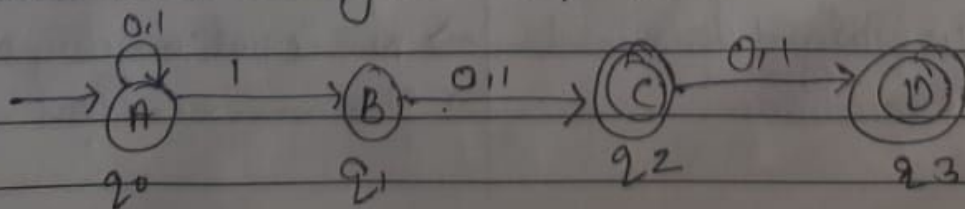
$$\pi_3 = (\{q_4\}, \{q_3\}, \{q_1\}, \{q_0, q_2\})$$

$$\pi_2 = \pi_3$$

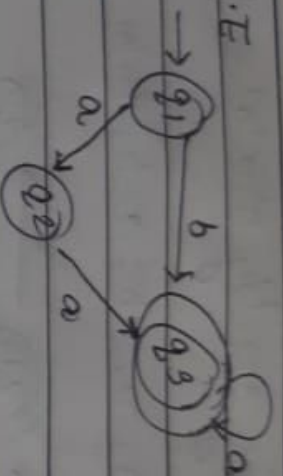
	a	b
S' → q0q2	q1	q2
q1	q1	q3
q3	q1	q4
* q4	q1	q2



Ques 2 Convert NFA to regular expression



8) Find R.E



$$q_1 = \lambda$$

$$q_2 = q_1 a = a$$

$$q_3 = q_1 a + q_3 a + q_1 b$$

$$q_3 = q_1 b + q_3 a + q_2 a$$

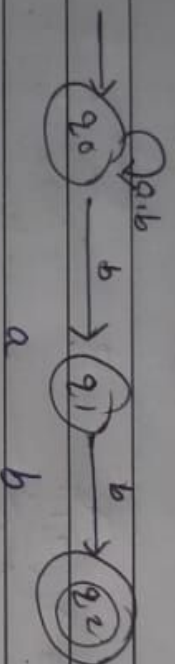
$$q_3 = b + q_3 a + q_1 a$$

$$q_3 = \underline{b + a} + q_3 a$$

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

9)

Convert NFA to DFA



$$\begin{array}{lcl} \rightarrow q_0 & q_0 & q_0 q_1 \\ & q_1 & q_2 \\ & *q_2 & \end{array}$$

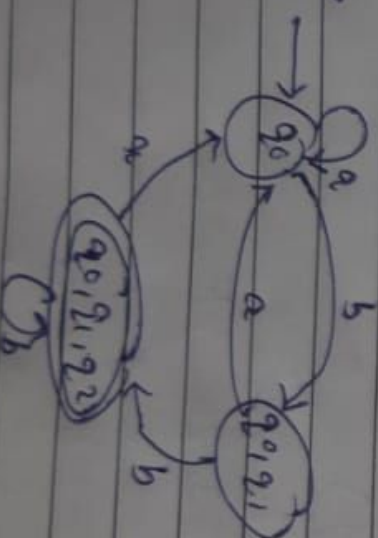
for DFA:

$$\rightarrow [q_0] \quad [q_0] \quad [q_0 q_1]$$

$$[q_0 q_1] \quad [q_0] \quad [q_0 q_1 q_2]$$

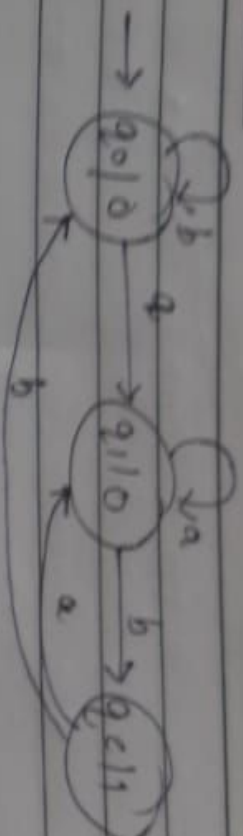
$$* [q_0 q_1 q_2] \quad [q_0] \quad [q_0 q_1 q_2]$$

DFA:



10)

Convert Moore machine to Mealy machine



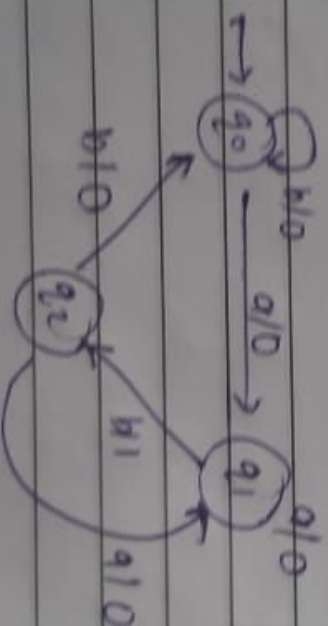
	a	b	o/p
→ q ₀	q ₁	q ₂	0
q ₁	q ₁	q ₂	0
q ₂	q ₁	q ₂	1

Mealy:

a

b

	N.S	a/p	N.S	o/p
→ q ₀	q ₁	0	q ₀	0
q ₁	q ₁	0	q ₂	1
q ₂	q ₁	0	q ₀	0



$$\Delta + 102 + 02 = 07$$

$$91 = 901$$

$$q_2 = q_{10} + q_{11}$$

$$q_3 \geq q_{20} + q_{21}$$

$q_1 = (0+1)*7$

$$q_0 = (0+1)^*$$

$\rightarrow \text{O} \xrightarrow{(\text{OH})^*} \text{O} \xrightarrow{1(\text{OH})} \text{O}$
 $\rightarrow \text{O} \xrightarrow{\text{OH}} \text{O} \xrightarrow{\text{OH}} \text{O} \xrightarrow{\text{OH}} \text{O}$
 $\rightarrow \text{O} \xrightarrow{\text{OH}} \text{O} \xrightarrow{\text{OH}} \text{O} \xrightarrow{\text{OH}} \text{O}$
 $\rightarrow \text{O} \xrightarrow{\text{OH}} \text{O} \xrightarrow{\text{OH}} \text{O} \xrightarrow{\text{OH}} \text{O}$

$a(b+c) * b$

$$\begin{aligned} & \rightarrow O \xrightarrow{a(b+c)*} O \xrightarrow{b} O \\ & \rightarrow O \xrightarrow{\wedge} O \xrightarrow{(a(b+c))\wedge} O \xrightarrow{b} O \\ & \rightarrow O \xrightarrow{\wedge} O \xrightarrow{O \xrightarrow{b}} O \\ & \rightarrow O \xrightarrow{\wedge} O \xrightarrow{O \xrightarrow{b/c}} O \xrightarrow{b} O \\ & \rightarrow O \xrightarrow{a} O \xrightarrow{O \xrightarrow{(b*c)*}} O \xrightarrow{b/c} O \xrightarrow{\wedge} O \xrightarrow{b} O \\ & \rightarrow O \xrightarrow{a} O \xrightarrow{O \xrightarrow{\wedge}} O \xrightarrow{b/c} O \xrightarrow{\wedge} O \xrightarrow{b} O \end{aligned}$$

10FA

Each state has exactly one transition for every input symbol.

Embolus brevis

Empty provision account allowed

→	N.S is completely determined
→	1st
→	2nd
→	3rd
→	4th
→	5th
→	6th
→	7th
→	8th
→	9th
→	10th
→	11th
→	12th
→	13th
→	14th
→	15th
→	16th
→	17th
→	18th
→	19th
→	20th
→	21st
→	22nd
→	23rd
→	24th
→	25th
→	26th
→	27th
→	28th
→	29th
→	30th
→	31st
→	32nd
→	33rd
→	34th
→	35th
→	36th
→	37th
→	38th
→	39th
→	40th
→	41st
→	42nd
→	43rd
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→	82nd
→	83rd
→	84th
→	85th
→	86th
→	87th
→	88th
→	89th
→	90th
→	91st
→	92nd
→	93rd
→	94th
→	95th
→	96th
→	97th
→	98th
→	99th
→	100th

Josephine

NOFA

→ a stock can have 75% + more

or many translation for some
T10

→ Epithelial transition and effects

→ N.S. is not empirically observable

2/ Queen excretion.

Q1

All strings containing exactly one 'a'.

$$\Sigma = a, b, c$$

$$L = \{a, ab, ac, ba, ca, abc, acb, abcb, \dots\}$$

NFA:



DFA:



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

Q2

Minimize DFA.



a b

$\rightarrow q_0$ q_1 q_2

$*q_1$ q_2 q_1

$*q_2$ q_1 q_2

$q_3 \rightarrow$ non reachable state

$$\pi_0 = (q_0, q_1, q_2, q_3)$$

$$\pi_0 = (q_0, q_1, q_2, q_3)$$

$$\pi_1 = (q_1, q_2, q_3, q_0)$$

$$\pi_0 = \pi_1 \quad T.S = q_0 \quad F.S = q_2$$

a b

$\rightarrow B$ A B

A A A

