

NO Group 5

group members!

45

QUESTION 1

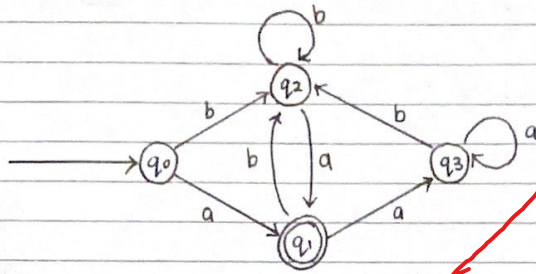
(i) $S = \{q_0, q_1, q_2, q_3\}$

$I = \{a, b\}$

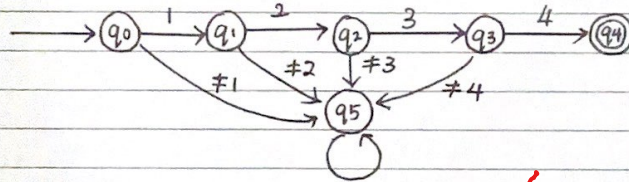
$F = \{q_1\}$

Transition table :

f_s	a	b
q_0	q_1	q_2
q_1	q_3	q_2
q_2	q_1	q_2
q_3	q_3	q_2



(ii) DFA reads the password and accepts it if it stops in an accepting state, for example



Thus, only if password = 1234 is accepted.

If one of the alphabet or number is wrong, it will stop at q_5 and not accepted.

QUESTION 2

(i) State transition table

f_s	a	b
S_0	S_2	S_1
S_1	S_3	S_1
S_2	S_4	S_3
S_3	S_3	S_3
S_4	S_2	S_3

(ii) a) $w = aaaaaa$

$$S_0 \xrightarrow{a} S_2 \xrightarrow{a} S_4 \xrightarrow{a} S_2 \xrightarrow{a} S_4 \xrightarrow{a} S_2 \xrightarrow{a} S_4$$

This input is not accepted by the DFA.

b) $w = ababab$

$$S_0 \xrightarrow{a} S_2 \xrightarrow{b} S_3 \xrightarrow{a} S_3 \xrightarrow{b} S_3 \xrightarrow{a} S_3 \xrightarrow{b} S_3$$

This input is accepted by the DFA.

QUESTION 3

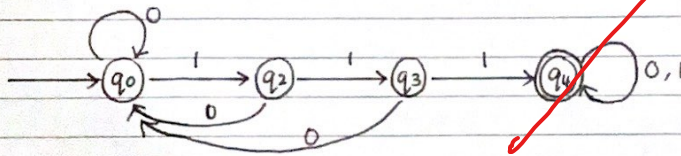
(i) a) $S = \{S_0, S_1, S_2, S_3, S_4, S_5\}$ $I = \{0, 1\}$ $q_0 = S_0$ $F = \{S_0, S_1, S_5\}$

b) string = 0011101100

 $S_0 \xrightarrow{0} S_0 \xrightarrow{0} S_0 \xrightarrow{1} S_1 \xrightarrow{1} S_2 \xrightarrow{1} S_3 \xrightarrow{0} S_5 \xrightarrow{1} S_5 \xrightarrow{1} S_5 \xrightarrow{0} S_4 \xrightarrow{0} S_4$

The string 0011101100 is not accepted by the DFA

(ii)



NO.

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QUESTION 4

$$S = \{q_0, q_1, q_2\}$$

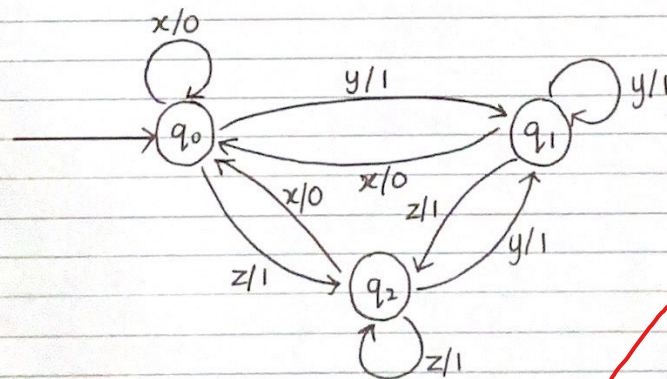
$$I = \{x, y, z\}$$

$$O = \{0, 1\}$$

 q_0 = initial state
Let q_0 = WANDER q_1 = ATTACK q_2 = EVADE x = not enemies y = enemies and not vulnerable z = enemies and vulnerable 0 = not shoot 1 = shoot

state transition table

	f_s			f_o		
	x	y	z	x	y	z
q_0	q_0	q_1	q_2	0	1	1
q_1	q_0	q_1	q_2	0	1	1
q_2	q_0	q_1	q_2	0	1	1



NO.

DATE:

QUESTION 5

 $S = \{S_1, S_2, S_3, S_4, S_5, S_6, S_7, S_8, S_9\}$ $I = \{A, B, C, D, E, F, G, H, I\}$ $O = \{0, 1, 2\}$ $q_0 = S_1$ 