Started on	Thursday, 15 February 2024, 8:15 AM
State	Finished
Completed on	Thursday, 15 February 2024, 8:21 AM
Time taken	6 mins
Grade	**6.17** out of 10.00 (**61.67**%)

Question 1

Correct

Mark 1.00 out of 1.00

What is the minimum number of states required for a finite automaton recognizing the language **L** defined over $\sum$ **= {a, b}**, where **L** consists of all strings with no consecutive '**a**'s?

Select one:

- a. 4
- b. 1
- c. 2
- d. 3 ✔

Question 2

Incorrect

Mark 0.00 out of 2.00

What is the minimum number of states in a DFA to recognize the language represented by the regular expression (0|Λ)(1|10)* ?

Select one:

- a. 3
- b. 4 ✖
- c. 1
- d. 2
- e. 5

Question 3

Partially correct

Mark 1.50 out of 3.00

Suppose $M_1=(Q_1 , \Sigma, q_1, A_1 , \delta_1)$ and $M_2=(Q_2 , \Sigma, q_2 , A_2 , \delta_2)$ are Finite Automata(FA)s that accept languages L_1 and L_2 where $L_i \subseteq \Sigma^*$, Then which of the following is/are true?

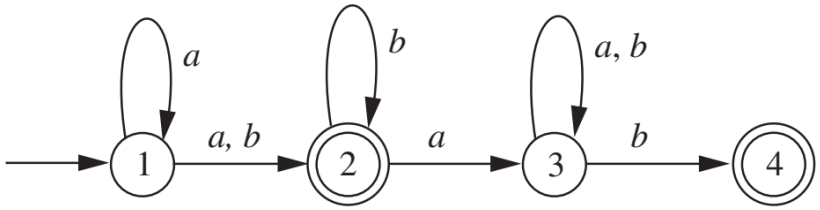
Select one or more:

- a. If $x \in \Sigma$ then there is an FA recognizing {x} ✔
- b. There is no such an FA, M that accepts the language $\Sigma^* - L_1$
- c. There is no such a FA, M that accepts the language $L_1 \cap L_2$
- d. There is an FA, M that accepts the language L_1^*

Question 4

Correct

Mark 2.00 out of 2.00



Consider the above NFA.

Select the states which are included in the set $\delta^*(1, abab)$?

Select one or more:

- a. 2
- b. 4 ✔
- c. 3 ✔
- d. 1

Question 5

Partially correct

Mark 1.67 out of 2.00

Suppose the NFA, M=(Q, Σ, q_0 , A, δ) where Q={q_0 , q_1 , q_2 }, Σ={0,1}, A={q_2 } and δ specified as follows is given.

Current State q	δ(q,0)	δ(q,1)
q_0	{q_0}	{q_0, q_1}
q_1	{q_2}	{q_2}
q_2	Ø	ø

To find an equivalent DFA, M1=(Q_1, Σ, {q_0} , A_1, $δ_1$) , complete the following table with suitable values for each state.

Current State q	$δ_1$(q,0)	δ1(q,1)
{q_0}	{q_0}	{q0,q1}
{q0,q1}	{q_0, q_2}	{q0,q1,q2 }
{q_0,q_2}	{q_0}	{q0,q1}
{q0,q1}	{q0, q2}	{q0,q1,q2 }