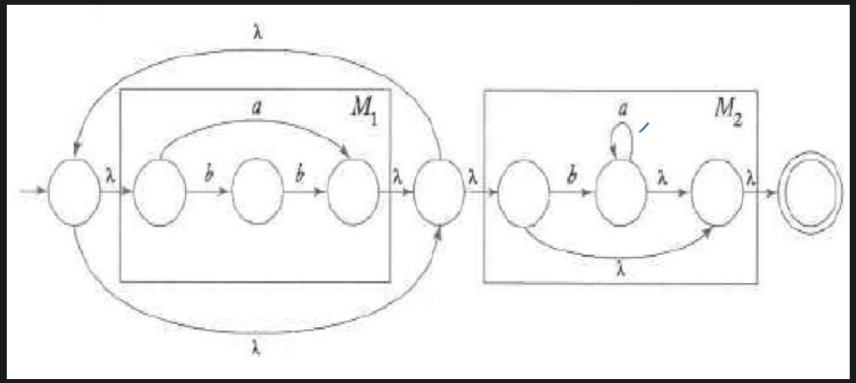
Given the following nfa:



Please choose the correct regular expression that represent the same language

- $L(\ (ab+bb)^*.\ (ba^*+\lambda)$
- $L((a+bb)^*.(ba^*+\lambda))$
- $L\ (\ \ (a+bb)^*\ +\ (ba^*+\lambda)\ \ )$
- $L\ (\ (a+bb^*).(ba^*+\lambda)\ )$

⚠ Moving to the next question prevents changes to this answer.

Question 18

Please draw a DFA for the following regular expression:

$\Sigma = \{a,b\}$

$r = (a+b)^* . (aaa+ba)$

Attach File Browse My Computer

⚠ Moving to the next question prevents changes to this answer.

What can be said about the following grammar:

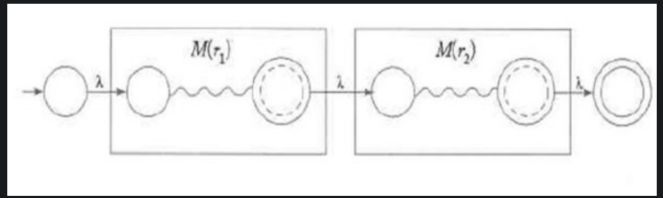
$S \rightarrow A$

$A \rightarrow aB \mid \lambda$

$B \rightarrow Ab$

- The grammar is regular
- the grammar is not regular
- the grammar is right-linear
- the grammar is left-linear

Which of the following regular expressions is true for the following automata:



- L(r1/r2)
- L(r1+r2)
- L(r1.r2)
- L(r2.r1)

Using the Pumping Lemma, we can prove that a language is :

- context-free
- finite
- infinite
- irregular

What is the difference between deterministic finite automata (DFA) and non- deterministic finite automata (NFA)?

For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).

Give the homomorphic image of the following language L. Given the following:

L = aa + (a+b*)

Where

h(a) = bb

h(b) = aba

What is h(L)

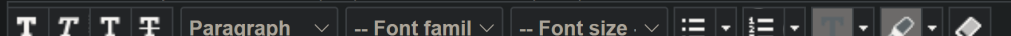
For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).

When a language L is defined using a finite automata, we can then say about the language is:

- $L = L(r)$
- $L = L(M)$
- $L = h(L)$
- $L = L(G)$

Please state 3 methods to represent languages.

For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).



We can define automata as:

- An automaton is an abstract model of a digital computer
- An automata is a non-state based model of digital computers
- is an abstract model with no mechanism for reading inputs to solve problems
- An automata does not abstractly represent the digital computer and must represent general problems

Given a grammar G, How can you define a regular grammar G?

For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).

Given the following definition of a finite automata,

$$M = (Q, \Sigma, \delta, q_0, F),$$

What does the symbol 'F' refer to?

- The set of final states
- the set of transitions
- the set of states
- the set of alphabet in the language

Which word is not accepted by the following grammar:

$S \rightarrow aAB$

$A \rightarrow aa \mid aB \mid \lambda$

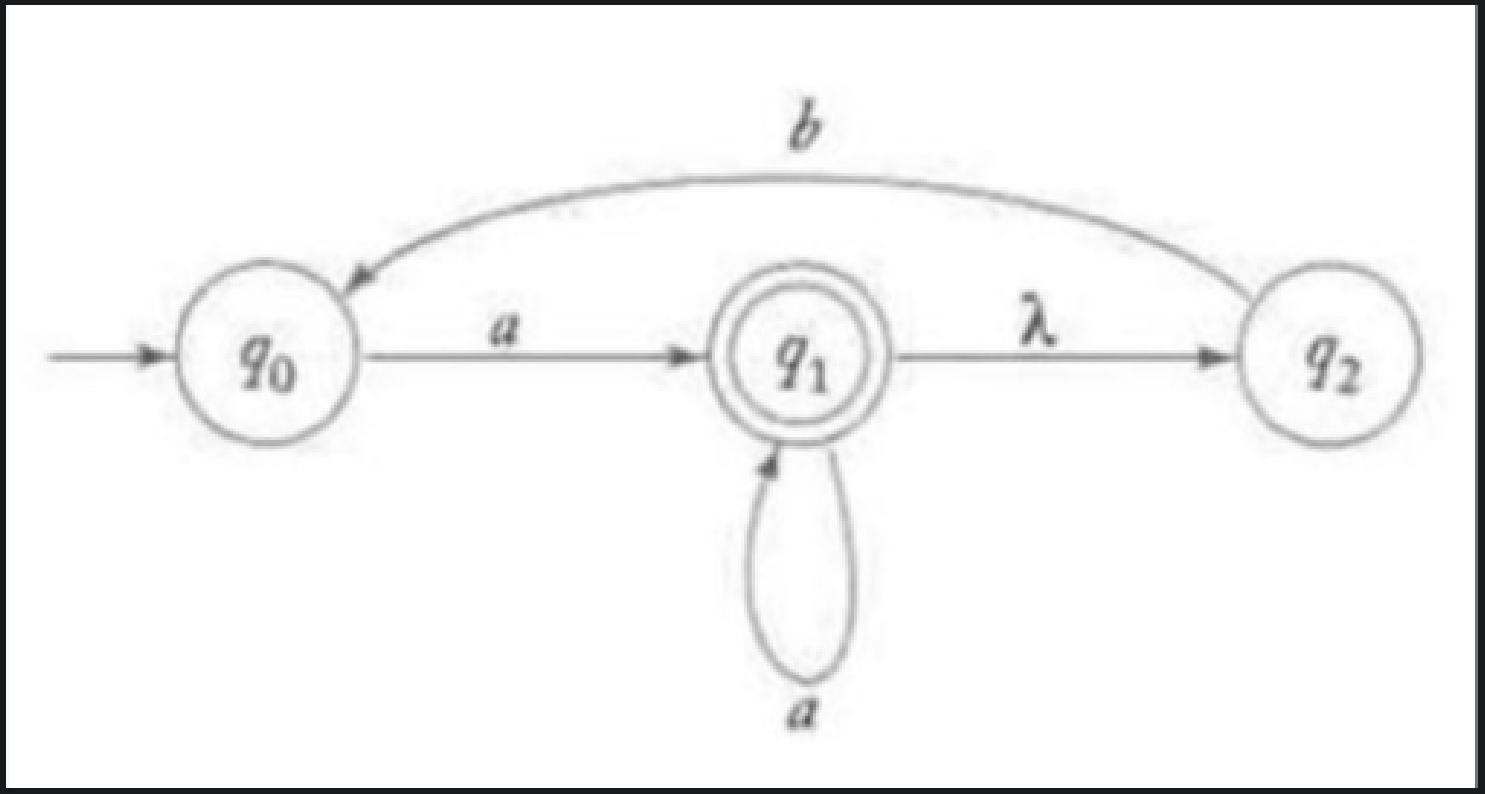
$B \rightarrow bb \mid bA \mid \lambda$

- aaabb
- abb
- a
- aaabbaa

How can you define regular languages?

For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).

convert the following NFA to DFA



Selected Answer: [redacted]

Attach File

Browse My Computer

Question 2

1 points

What does the following definition define:

$M = (Q,\Sigma,\delta,q0 , F)$,

where

Q is a finite set of internal states,

Σ is a finite set of symbols called the input alphabet,

$\delta : Q \times \Sigma \rightarrow Q$ is a total function called the transition function,

$q0 \in Q$ is the initial state,

$F \subseteq Q$ is a set of final states.

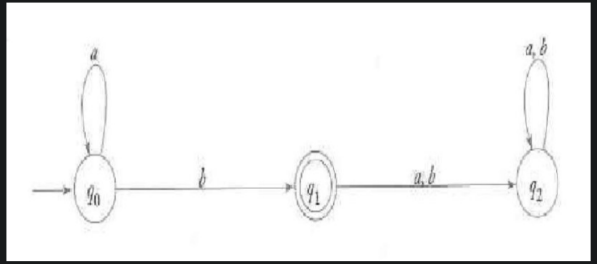
- A non-deterministic finite accepter
- deterministic finite accepter
- Push Down automata
- Finite automata with Epsilon transitions

For $\Sigma = \{a, b, c\}$, $r = (a+b+c)^* .(c+\emptyset)$

which word is not accepted by this regular expression ?

- caaab
- abdcba
- aaccbbaa
- cb

Describe the following language accepted by the automata



- All the words that must start with any number of a's followed by a single b.
- the words that can have any number of 'a' followed by 'b' followed by any number of 'a' or 'b'
- All the words that may starts with any string of 'a' followed by a 'b'
- any combination of 'a' or 'b' with at least 1 'b'

To prove the closure property under difference for L1 and L2, we can prove it using the following:

- $L1 - L2 = L1 \bigcap \overline{L2}$
- $L1 - L2 = L1 \cup \overline{L2}$
- $L1 - L2 = \varphi$
- $L1 - L2 = L1 . L2 \cup \phi$