

11 Lecture - CS402

Important Mcqs

1. **What is the Kleene star theorem?**

- A. A theorem in graph theory
- B. A theorem in calculus
- C. A theorem in formal languages and automata (Answer)

What does the Kleene star theorem state?

- A. For any regular language L, there exists a regular expression that generates L
- B. For any regular language L, there exists a regular expression that generates L+
- C. For any regular language L, there exists a regular expression that generates L* (Answer)

What does L* represent in the Kleene star theorem?

- A. All strings in L
- B. All possible strings formed by concatenating strings from L
- C. All strings in L of length less than or equal to n (Answer)

What is the significance of the Kleene star theorem?

- A. It has important applications in computer science, linguistics, and natural language processing (Answer)
- B. It has no practical applications
- C. It is a purely theoretical result

What is the difference between L+ and L* in the Kleene star theorem?

- A. L* includes the empty string while L+ does not (Answer)
- B. L+ includes the empty string while L* does not
- C. There is no difference between L+ and L*

Is every regular language also a context-free language?

- A. Yes
- B. No (Answer)

What is a regular expression?

- A. A formal way to describe a set of strings (Answer)
- B. A mathematical equation
- C. A programming language

What is an automaton?

- A. A formal model for recognizing languages (Answer)
- B. A type of computer network
- C. A type of computer program

What is the difference between a deterministic and a nondeterministic automaton?

- A. A deterministic automaton always knows which transition to take next, while a nondeterministic automaton may have multiple possible transitions (Answer)

- B. A deterministic automaton has more states than a nondeterministic automaton
- C. There is no difference between a deterministic and a nondeterministic automaton

What is the pumping lemma?

- A. A theorem that states that all regular languages can be generated by a finite automaton
- B. A theorem that states that all context-free languages can be generated by a pushdown automaton
- C. A theorem that can be used to prove that certain languages are not regular (Answer)