

26 Lecture - CS402

Important Mcqs

1. **The Pumping Lemma can be used to prove that a language is:**

- a) Regular
- b) Context-free
- c) Turing-recognizable
- d) None of the above

Answer: d) None of the above

The Pumping Lemma states that if a language is regular, then:

- a) It can be parsed by a pushdown automaton
- b) It can be generated by a context-free grammar
- c) It can be pumped
- d) None of the above

Answer: c) It can be pumped

The Pumping Lemma applies to:

- a) All regular languages
- b) Some regular languages
- c) All context-free languages
- d) None of the above

Answer: b) Some regular languages

The Pumping Lemma can be used to prove that a language is not regular by:

- a) Demonstrating that it can be pumped
- b) Showing that it is accepted by a pushdown automaton
- c) Constructing a regular expression that generates it
- d) None of the above

Answer: a) Demonstrating that it can be pumped

If a language fails the pumping condition of the Pumping Lemma, it means that:

- a) The language is not regular
- b) The language is context-free
- c) The language is regular
- d) None of the above

Answer: a) The language is not regular

The Pumping Lemma can be used to prove that a language is not context-free:

- a) True
- b) False

Answer: b) False

The Pumping Lemma can be used to prove that a language is not regular if:

- a) The length of a string in the language is greater than or equal to the number of states in the corresponding DFA
- b) The length of a string in the language is less than or equal to the number of states in the corresponding DFA
- c) The length of a string in the language is greater than or equal to the number of transitions in the corresponding DFA
- d) None of the above

Answer: a) The length of a string in the language is greater than or equal to the number of states in the corresponding DFA

Which of the following is a necessary condition for a language to be regular?

- a) The Pumping Lemma holds for all strings in the language
- b) The Pumping Lemma holds for some strings in the language
- c) The Pumping Lemma does not hold for any string in the language
- d) None of the above

Answer: b) The Pumping Lemma holds for some strings in the language

The Pumping Lemma applies to which type of languages?

- a) Regular languages
- b) Context-free languages
- c) Recursive languages
- d) All of the above

Answer: a) Regular languages

Which of the following is a consequence of the Pumping Lemma?

- a) All regular languages are context-free
- b) All context-free languages are regular
- c) All languages are either regular or context-free
- d) None of the above

Answer: d) None of the above