

42 Lecture - CS402

Important Mcqs

1. **What is the pumping lemma for context-free languages?**

- A) A tool used to generate context-free languages
- B) A tool used to prove that a language is context-free
- C) A tool used to prove that a language is not context-free
- D) A tool used to recognize context-free languages

Answer: C

Which of the following statements is true about the pumping lemma for context-free languages?

- A) It only works for regular languages
- B) It only works for context-sensitive languages
- C) It can be used to prove that a language is context-free
- D) It can be used to recognize context-free languages

Answer: C

What is the purpose of the pumping lemma for context-free languages?

- A) To generate context-free languages
- B) To recognize context-free languages
- C) To prove that a language is context-free
- D) To prove that a language is not context-free

Answer: D

Which of the following is a requirement for the pumping lemma for context-free languages to be applied?

- A) The language must be regular
- B) The language must be context-free
- C) The language must be context-sensitive
- D) The language must be unrestricted

Answer: B

What is the meaning of the 'pumping length' in the pumping lemma for context-free languages?

- A) The minimum length of a string in the language
- B) The maximum length of a string in the language
- C) A constant n such that any string in the language with length greater than n can be pumped
- D) A constant n such that any string in the language with length less than n can be pumped

Answer: C

Which of the following is a requirement for the decomposition of a string in the pumping lemma for context-free languages?

- A) $|vxy| \leq n$
- B) $|vxy| \geq n$
- C) $|vy| \leq n$

D) $|vy| \leq n$

Answer: A

What is the purpose of the pumping lemma for context-free languages in theoretical computer science?

- A) To generate context-free languages
- B) To recognize context-free languages
- C) To prove properties of context-free languages
- D) To prove that context-free languages are more powerful than regular languages

Answer: C

Which of the following is a true statement about the pumping lemma for context-free languages?

- A) It can be used to recognize any language
- B) It can be used to recognize any regular language
- C) It can be used to recognize any context-free language
- D) It can be used to recognize any context-sensitive language

Answer: C

What is the minimum value for the pumping length in the pumping lemma for context-free languages?

- A) 0
- B) 1
- C) 2
- D) There is no minimum value

Answer: B

Which of the following is a true statement about the pumping lemma for context-free languages?

- A) It can be used to prove that any language is context-free
- B) It can be used to prove that any regular language is context-free
- C) It can be used to prove that any context-free language is not regular
- D) It can be used to prove that any context-free language is context-sensitive

Answer: C