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| ? n
   B) |vxy| ? n
   C) |vy| ? n

D) |vy| ? 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