Unit 6 - Week 4

Assignment 4

Due on 2020-02-28, 23:59 ET

1. What is the value of Language conditions:
   a. String
   b. Nonterminal
   c. Both string and non-terminal
   d. Both string and terminal
   e. None of the above options
   1 point

2. Which is the greater of (2 / 3) and (1 / 2):
   a. 2 / 3
   b. 1 / 2
   c. Both 2 / 3 and 1 / 2
   d. None of the other options
   1 point

3. Which of the following is a language comprehension:
   a. Regular expression
   b. Nonterminal
   c. Both regular expression and non-terminal
   d. None of the other options
   1 point

4. A grammar with production rules $A \rightarrow BC$, $B \rightarrow \alpha$, $C \rightarrow \gamma$, $\alpha \rightarrow \delta$, $\gamma \rightarrow \epsilon$,
   a. Context-free
   b. Regular
   c. Both context-free and regular
   d. None of the other options
   1 point

5. For the grammar $S \rightarrow AB$, $A \rightarrow a$, $B \rightarrow b$, $A \rightarrow aB$,
   a. Reduction
   b. Non-reduction
   c. Both reduction and non-reduction
   d. None of the other options
   1 point

6. Which of the following are regular languages:
   a. $a^n b^n$ for $n \geq 0$
   b. $a^n b^n$ for $n \in \mathbb{N}$
   c. Both $a^n b^n$ for $n \geq 0$ and $a^n b^n$ for $n \in \mathbb{N}$
   d. None of the other options
   1 point

7. Which of the following are context-free languages:
   a. $a^n b^n$ for $n \geq 0$
   b. $a^n b^n$ for $n \in \mathbb{N}$
   c. Both $a^n b^n$ for $n \geq 0$ and $a^n b^n$ for $n \in \mathbb{N}$
   d. None of the other options
   1 point

8. A grammar is in context-free:
   a. Regular language
   b. Context-free language
   c. Both regular language and context-free language
   d. None of the other options
   1 point

9. Every grammar in a language comprehension is a:
   a. String
   b. Nonterminal
   c. Both string and non-terminal
   d. None of the above options
   1 point

10. Which of the following are context-free grammars:
    a. $S \rightarrow aSb$, $S \rightarrow \epsilon$
    b. $S \rightarrow aSb$, $S \rightarrow \epsilon$
    c. Both $S \rightarrow aSb$, $S \rightarrow \epsilon$
    d. None of the other options
    1 point

11. Which of the following is a context-free grammar:
    a. $S \rightarrow aSb$, $S \rightarrow \epsilon$
    b. $S \rightarrow aSb$, $S \rightarrow \epsilon$
    c. Both $S \rightarrow aSb$, $S \rightarrow \epsilon$
    d. None of the other options
    1 point

12. Which of the following are context-free grammars:
    a. $S \rightarrow aSb$, $S \rightarrow \epsilon$
    b. $S \rightarrow aSb$, $S \rightarrow \epsilon$
    c. Both $S \rightarrow aSb$, $S \rightarrow \epsilon$
    d. None of the other options
    1 point