## **31 Lecture - CS402**

### **Important Mcqs**

- 1. Which of the following symbols can be rewritten by production rules in a Context-Free Grammar?
  - A. Non-terminal symbols only
  - B. Terminal symbols only
  - C. Both non-terminal and terminal symbols
  - D. None of the above

Answer: A

#### What is the start symbol in a Context-Free Grammar?

- A. The first non-terminal symbol in the grammar
- B. The last non-terminal symbol in the grammar
- C. A special non-terminal symbol that represents the entire language generated by the grammar
- D. A special terminal symbol that represents the empty string

Answer: C

#### Which of the following is not a part of a production rule in a Context-Free Grammar?

- A. Non-terminal symbol on the left-hand side
- B. Terminal symbol on the right-hand side
- C. Non-terminal symbol on the right-hand side
- D. None of the above

#### Answer: B

#### What is a leftmost derivation in a Context-Free Grammar?

A. A derivation in which the leftmost non-terminal symbol is always replaced in each step
B. A derivation in which the leftmost terminal symbol is always replaced in each step
C. A derivation in which the rightmost non-terminal symbol is always replaced in each step
D. A derivation in which the rightmost terminal symbol is always replaced in each step
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#### What is a parse tree in the context of Context-Free Grammar?

A. A tree structure that represents the syntactic structure of a string derived from the grammar B. A tree structure that represents the semantic structure of a string derived from the grammar

- C. A tree structure that represents the alphabet of the grammar
- D. None of the above

#### Answer: A

#### What is ambiguity in a Context-Free Grammar?

- A. A situation where a string can be derived by more than one parse tree
- B. A situation where a string cannot be derived by any parse tree
- C. A situation where a string has more than one non-terminal symbol
- D. None of the above

#### Answer: A

#### What is Chomsky normal form for a Context-Free Grammar?

A. A form in which all production rules have exactly one non-terminal symbol on the right-hand

side

B. A form in which all production rules have exactly one terminal symbol on the right-hand side C. A form in which all production rules have exactly two non-terminal symbols on the right-hand side

D. None of the above Answer: A

#### What is the purpose of a terminal symbol in a Context-Free Grammar?

- A. To represent basic elements of the language
- B. To represent non-terminal symbols
- C. To specify production rules
- D. None of the above

#### Answer: A

#### What is a rightmost derivation in a Context-Free Grammar?

A. A derivation in which the rightmost non-terminal symbol is always replaced in each step
B. A derivation in which the rightmost terminal symbol is always replaced in each step
C. A derivation in which the leftmost non-terminal symbol is always replaced in each step
D. A derivation in which the leftmost terminal symbol is always replaced in each step

Answer: A

# What is the difference between a leftmost and rightmost derivation in a Context-Free Grammar?

- A. The order in which the non-terminal symbols are replaced in each step
- B. The order in which the terminal symbols are replaced in each step
- C. The type of grammar being used
- D. None of the above

#### Answer: A