

**21CSE356T**  
**Natural Language Processing**  
**Unit-2**  
**Question Bank**

1. What is the role of CFG in syntactic parsing?
2. Differentiate between top-down parser and bottom-up parser. Give example also.
3. How can parsing algorithms handle ambiguity in parse tree? Discuss its various types also.
4. How does the CKY algorithm fill the parsing table, explain its steps also.
  - a. Implement a basic CKY parser for the grammar:
    - 1)  $S \rightarrow NP VP$
    - 2)  $NP \rightarrow Det N$
    - 3)  $VP \rightarrow V NP$
    - 4)  $Det \rightarrow "the"$
    - 5)  $N \rightarrow "dog" \mid "cat"$
    - 6)  $V \rightarrow "chased" \mid "saw"$
5. Discuss the basic three operations used in Earley parsing algorithm. Given the grammar below, Parse using Earley algorithm "the cat sleeps".
  - 1)  $S \rightarrow NP VP$
  - 2)  $NP \rightarrow Det N$
  - 3)  $VP \rightarrow V$
  - 4)  $Det \rightarrow "the"$
  - 5)  $N \rightarrow "cat"$
  - 6)  $V \rightarrow "sleeps"$
6. Explain the following:
  - a. Dependency Parsing
    - i. Given the sentence "She enjoys playing soccer," write the dependency relations.
  - b. Probabilistic Context Free Grammar