Assignment 01

1. What is Chomsky Normal Form (CNF)? State the rules for converting a CFG to CNF.
2. Define a parse tree. Draw the parse tree for the string aabb generated by the following grammar:

   S → AB
   A → aA | ε
   B → bB | ε

3. What is ambiguous grammar? Prove whether the following grammar is ambiguous:

   E → E + E | E * E | (E) | id

4. Define a Pushdown Automaton (PDA). Explain its components with an example.
5. Design a PDA for the language L = { $a^n b^{2n}$ | n ≥ 1}.