Programming Langauges

Homework 2 (Due date 04.04.2019)

1- Write BNF descriptions for "variable defination" and "while" statments in C language. Assume that the variable names can be "A", "B" or "C". The BNF should cover "int", "float" and "char" data types and ">", ">=", "<=", "<", "==" and "!=" comparison operators.

2- Consider the following grammar:
   <S> → <A> a <B> b
   <A> → <A> b | b
   <B> → b
   Which of the following sentences are in the language generated by this grammar?
   a. babb
   b. bbbabb
   c. bbaaaaabc
   d. aaaaaa
   write 3 other statments that this gramer can generate.

3- Prove that the following grammar is ambiguous:
   <S> → <A>
   <A> → <S> + <A> | <id>
   <id> → a | b | c

4- Using the following grammar :
   <assign> → <id> = <expr>
   <id> → A| B | C
   <expr> → <id> + <expr> | <id> - <expr> | <id> * <expr> | (<expr>) | <id>

   show a parse tree and a leftmost derivation for each of the following statements:
   a. A = A * (B * A* (C + (A − B)))
   b. B = A * (A − C * (C + B))