1. (a) Explain what is meant by a *D-context-free language* and discuss why a context-free grammar is preferred when building a compiler for a language.

   [6]

   (b) Explain what is meant by a *closure algorithm* and what makes this approach useful in programming a compiler.

   [6]

   (c) Consider the following grammar:

   ```
   S -> A $
   A -> B A a          B -> b B c
   A ->  ε             B -> A A
   ```

   Calculate Nullable, First, and Follow for A and B. Explain the steps you have taken.

   [13]