1. Explain the following terms (20%)
   a. Load-and-go assembler
   b. Deadlock and Starvation
   c. YACC and LEX
   d. Virtual machine
   e. Working set

2. Explain how the following addressing modes of instructions work.(20%)
   a. Immediate addressing
   b. Direct addressing
   c. Indirect addressing
   d. Indexing addressing

3. Explain the functions of a loader and how it works. (10%)

4. What are the advantages of using an intermediate language in a compiler? Name two examples of compilers using intermediate language. (10%)

5. Use the BNF grammar below to construct a parse tree for the statement
   SEGAMA:= ALPHA * BETA DIV GAMMA -100 (20%)

   <id-list>::= id | <id-list>, id
   <assign>::= id:= <exp>
   <exp>::= <term> | <exp> * <term> | <exp> DIV <term>
   <term>::=<factor> | <term> +<factor>| <term> -<factor>
   <factor>::= id | int | (exp)

6. List four job scheduling methodologies and explain how each of them works. (20%)