# DIPL – Assignment – 1

1. When a grammar is said to be ambiguous? Write an unambiguous BNF and EBNF for the arithmetic operations with the following specifications.
   + has the least precedence and left associative.
   * and % have higher precedence than + and are left associative
   ^ has highest precedence and is right associative.
   Note:-BNF & EBNF also contain numbers on which the arithmetic operators operate. **Also draw the Syntax Diagram**.
2. A) Write a note on Recursive Descent Parsing.
   B) S → N-PV-P.
   N-P→AN
   A→a|the
   N→girl|dog
   V-P→VN-P
   V→sees|pets
   Can the above grammar be parsed? Explain.
   If the production N→girl|dog is altered to N→theorist|orator can the grammar be parsed? Explain. Draw the parse tree for the sentence "thegirlseesadog."

3. Write the context free grammar for generating the strings representing the basic arithmetic operations which includes +, -, *, /, (,). Write a C code to scan the string "((38+24)+52)/2" generated by the above CFG.

4. A) What is programming language? Explain the definition.
   B) Explain different types and levels of abstraction with respect to programing languages.
   C) Compute factorial of a number using imperative, functional, logical and object oriented programming paradigms. (Only function required). Write one characteristic for each language approach mentioned above.

5. A) What is restriction? Explain the restrictions in C Language.
   B) Explain the Extensibility in Java with example.