Assignment 2 (Total marks 20): Date of posting: 4th Sept; Last date of submission: 16th Sept. ; Demo latest by: 20th Sept

Note:

- Do this assignment individually.
- Documentation, readability and efficiency may be considered for evaluation.
- Late submission will be penalized and so be avoided. In case of valid reason, inform me in writing.

Write a program in C/C++ /Prolog to do the following.

1. Check whether a given propositional expression is valid or consistent or inconsistent using semantic tableau method. Develop the following predicates/modules and call them appropriately. (10)
   a. Read an expression
   b. Functions for each semantic rule.
   c. Display all closed and open paths of the Semantic Tableau tree along with each line having display of the rule applied and the expression on which it is applied.
2. Convert a given propositional expression P into set of clauses and develop interpreter to show that a query Q is Logical Consequence of P by using resolution refutation method. (10)

- **Please Note**: Assume that single letter represents an atom. Use the following symbols for logical operators.
  - Dot(.) for logical AND
  - Plus(+) for logical OR
  - Minus(-) for NEGATION
  - Less than(<) for IMPLICATION
  - Equal(=) for EQUIVALANCE

- **For example**, p V q Λ ~ r → p can be entered as p + q .(-r) < p