ABSTRACT

The present thesis is a study of "A STUDY ON LEXI-SEARCH ALGORITHMS FOR SOME COMBINATORIAL PROGRAMMING PROBLEMS". For each of the problems an algorithm based on 'Lexicographic Search Approach' is developed to get an optimal feasible solution. Chapter - I is introductory in nature and define the concepts related to combinatorial programming. Chapter - II is review of the literature.

In the usual 'Lexi-search Algorithm' for the problems developed so far, when a partial word is considered (which represents a subset of solutions), it is first checked for feasibility. When it is feasible bounds are calculated. In this context the feasibility checking is easy and hence it is checked first and when it is feasible, the difficult part of calculating the bounds is taken up later, for developing an efficient algorithm. For some problems the difficulty may be the other way, that is, effective bounds can be calculated easily and feasibility checking technique called the 'Pattern Recognition Technique' is used in this thesis. In this technique efficient algorithms are developed by first calculating the bounds for the partial words, and then the feasibility of partial words are checked for the words whose value is less than the trial value.
These problems are the generalizations of the 'Bulk Transportation problems' and 'Travelling Salesman problems. Lexi-search algorithms' are developed to these problems, using 'Pattern Recognition Approach'.

In each chapter, other than the chapter I, II a problem is studied and the necessary computational results are presented in it, and the actual computer program of the algorithm written in 'C' language is given. At the end of the thesis a list of references is given.