Chapter 7

Conclusion

In this chapter, certain concluding remarks have been made in connection with the problems that have been solved in the thesis.

In this thesis InvG, PerG, TraG and CirG be specified respectively with a family of gaps on the real line, family of line segments between two parallel lines, family of trapezoids between two parallel lines and family of arcs of concentric circles on the circle, respectively discussed in Chapter 1. This specification have enabled to propose a number of sequential design to demolish the problems considered in the thesis.

In Chapter 2, we inquired into the Inv1C location problem with different edge weights on the tree. We developed exact conjunctive solution algorithm for the *tree* with fast running time $O(n)$.

By our previous experience, some sequential algorithms are available for Inv1C location problem with different edge weights on the tree and running time of such algorithms are $O(n \log n)$ time. Our proposed algorithm takes $O(n)$ time only.

For further research, we shall try to solve the same dispute on other types of IntG.

In Chapter 3, we inquired into the Inv1C location problem with different node weights on the tree correlative to the weighted InvG G and MADT on fuzzy InvGs. We developed an exact sequential solution algorithm for the *tree* of InvG with $O(n)$ time. But, MADST on the fuzzy InvG is designed based on BFS technique and $O(n^2)$ is the T-complexity of the algorithm, where $n = |V|$ and V is the set of nodes of the fuzzy InvG. Our future aim is to design the parallel algorithm for solving this problem on some special graphs and we shall try to solve the this problem on other classes of weighted IntG.

In Chapter 4, we proposed an algorithm to complete MADT on CirGs which is designed based on BFS technique and Inv1C location problem on the weighted CirGs. The T-complexity of this algorithm is of $O(n^2)$, where $n = |V|$ and V is the set of nodes of the

CirG. By our previous experience, the complexity is not optimal, so one can try to improve this algorithm as extensive research work for optimal algorithm. Also, we have look into the Inv1C location problem with vertex weights on the tree correlated to the weighted PerG G. $O(n)$ is the time complexity of our algorithm, where $n = |V|$ and V is the set of nodes of the PerG G. There is a huge scope of further research of same dispute on special types of IntG.

In Chapter 5, we have designed the algorithms for Computation of a MADT and Inv1C location problem on PerG and on weighted PerG, respectively. $O(n)$ is the T-complexity of our algorithm, where $n = |V|$ and V is the set of nodes of the PerG G. This idea can be used to solve the same problem to CirG.

In Chapter 6, we investigated the Inv1C location problem with vertex weights on the tree corresponding to the weighted TraG G. Firstly, we develop minimum heighted tree with two branches of level difference either zero or one of the TraG. Secondly, we modified the tree maintaining the bounding conditions to get Inv1C. $O(n)$ is the T-complexity of our algorithm, where $n = |V|$ and V is the set of nodes of the TraG G. This idea can be applied for solving the 1-center location problem to other graphs.

Actually, our main aim is to design some sequential algorithms for solving the graphs theoretic problems in polynomial time. We hope that our above said problems will receive more attention of the future research works.