CHAPTER 7

CONCLUSION

The Graceful labeling technique in Graph Theory has started only at the period of Ringel’s conjecture [83]. After three years, Kotzig developed the concept of Ringel-Kotzig conjecture [66]. The idea of labeling the vertices of the graph was introduced by Rosa, who paid the way of approaching the proof of Ringel’s conjecture. Rosa proved Caterpillars and paths are graceful [81]. The balanced trees formed from two graceful trees are graceful was proved by Zernks and Stanton [89]. In Chapter 2, we conclude that tree built from Caterpillars are graceful.

Frucht observed that there are three possible kinds of graceful labeling for coronas \( C_n \odot K_n \) [37]. Martin Baca and Maged Z. youssaf proved harmonious labeling exists for corona graph [73]. In Chapter 3, we say that all graphs \( P_n \odot K_2 \) where \( n = 1, 2, 3, ..., 5 \) permits graceful labeling. In addition, we say that the graph \( K_3 \odot C_3 \) accept graceful labeling.

V. Ajitha, S. Arumugam and K. A. Germina proved Square difference labeling admits for cycle, quadrilateral snakes, complete graph, ladder, cycle cactus, wheels, lattice grids, the graph \( G = K_2 + mK_1 \), central graphs and square graphs of path, few path related graphs, gear and fan graphs [7]. In Chapter 4, we conclude that complete bipartite graph and Trees permit the view of Square difference labeling.

Martin Baca showed the existence of lower bound for edge irregular graph [74]. Moreover, edge irregularity strength exists for Path, Star, Simple graphs, double Star, Cycle. In chapter 5, we consummate that Complete Bipartite graph and Complete graph accept the concept of edge irregular strength.

Hartsfield and Ringel proved that Paths, 2-regular graph and Complete graph admit antimagic [51]. In addition, there is an existence of antimagic labeling for Lattice grids,
Cartesian product of star graph and regular graph. In chapter 6, we conclude that tree of diameter 4 accept the approach of antimagic labeling.