Conclusion

Graphs such as cycles, n-cubes and trees are among the important types of graphs whose derived graphs have applications in different branches of science. Our investigation on (2, 2)-bipartiteness of power graphs, which is among derived graphs, of chosen graphs, contribute to the further understanding of characteristics of those graphs and inspire the researchers to consider power graphs of different types of graphs for the similar investigation.

The notation of (2, 2)-bipartition of a graph, whenever it exists, depends on distance between the vertices which influences the study of several graph parameters. In the present research work, we study several properties of graphs having (2, 2)-bipartition and provide an algorithm to detect the (2, 2)-bipartiteness of graphs and present a (2, 2)-bipartition whenever it exists. The results and algorithm presented in this thesis is likely to have an implication in the applied area which may use network with (2, 2)-bipartition. Also, this may lead to a new work on making necessary modifications in the given network which results in obtaining a network with (2, 2)-bipartition which serves the purpose.