Abstract

In a graph G, a vertex dominates itself and its neighbors. A subset S of V is called a dominating set in G if every vertex in V-S is adjacent to at least one vertex in S. The minimum cardinality taken over all, the minimal double dominating set which is called Fuzzy Double Domination Number and which is denoted as \( D_2(G) \). A set S is called a Triple dominating set of a graph G if every vertex in V is dominated by at least three vertices in S. The minimum number of colors required to color all the vertices such that adjacent vertices do not receive the same colour is the chromatic number \( \chi(G) \). The minimum cardinality of a triple dominating set is called Triple domination number of G and is denoted by \( \gamma_3(G) \). The connectivity of a connected graph G is the minimum number of vertices whose removal results in a disconnected or trivial graph. For any graph G, a complete sub graph of G is called a clique of G. For a fixed positive integer k, the n-tuple domination problem is to find a minimum vertex subset such that every vertex in the graph dominated by at least k vertices in this set. In this paper we find an upper bound for the sum of the Fuzzy Double Domination, Triple domination, Chromatic Number in fuzzy graphs and characterize the corresponding extremal fuzzy graphs.

References

- Harary, F. and T. W. Haynes, Nordhaus-Gaddum inequalities for domination in graphs,
A Study on Double, Triple and N - Tuple Domination of Fuzzy Graphs


Index Terms
Keywords

- Domination Number
- Double Domination Number
- Triple Domination Number
- n-tuple Domination Number
- Chromatic Number
- Clique
- Fuzzy graphs and Connectivity.