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Introduction to Paired Domination Polynomial of a Graph

Authors : Puttaswamy, Anwar Alwardi, Nayaka S. R.

Abstract : One of the algebraic representation of a graph is the graph polynomial. In this article, we introduce the paired-domination polynomial of a graph G. The paired-domination polynomial of a graph G of order n is the polynomial Dp(G, x) with the coefficients dp(G, i) where dp(G, i) denotes the number of paired dominating sets of G of cardinality i and γpd(G) denotes the paired-domination number of G. We obtain some properties of Dp(G, x) and its coefficients. Further, we compute this polynomial for some families of standard graphs. Further, we obtain some characterization for some specific graphs.

Keywords : domination polynomial, paired dominating set, paired domination number, paired domination polynomial
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