

COMPLEMENTARY EDGE SEMITOTAL-POINT DOMINATION IN GRAPHS

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Abstract

For any graph $G = (V, E)$, the semitotal-point graph $T_2(G) = H$ is the graph whose point set is the union of vertices and edges of G , in which two vertices are adjacent if and only if they are adjacent vertices of G or one is a vertex and the other is an edge of G incident with it. Let F be a minimum edge dominating set of G . If $E - F$ contains an edge dominating set F' , then F' is called a complementary edge dominating set of G with respect to F . The complementary edge domination number $\gamma_e^{-1}(G)$ of G is the minimum number of edges in a complementary edge dominating set of G . A complementary edge dominating set of a graph H is called a complementary edge semitotal-point dominating set of G . A complementary edge semitotal-point domination number $\gamma_{etp}^{-1}(G)$ of G is the minimum cardinality of a complementary edge semitotal-point dominating set of G . In this paper, many bounds on $\gamma_{etp}^{-1}(G)$ are obtained in terms of elements of G but not the elements of H . In addition, we establish the relationship of this concept with other domination parameters. Also, Nordhaus-Gaddum type results are obtained.

Key Words : *Domination number, Edge domination number, Complementary edge domination number.*

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