Closed Formulas for total 2-domination of the Cartesian Product of Complete Graphs

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Let $G = (V, E)$ be a finite undirected graph. A set S of vertices in V is said to be total k-dominating if every vertex in V is adjacent to at least k vertices in S. The total k-domination number, $\gamma_{kt}(G)$, is the minimum cardinality of a total k-dominating set in G. In this work we study the total 2-domination number of Cartesian product of two complete graphs. We obtain closed formulas for the total 2-domination number of Cartesian product of two complete graphs and conjectured bounds for total k-domination number of Cartesian product of two complete graphs.

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