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THE TOTAL EDGE GEODETIC DOMINATION NUMBER OF A GRAPH

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Abstract: In this paper the concept of total edge geodetic domination number of a graph is introduced. A set of vertices S of a graph G is called a total edge geodetic set if S is an edge geodetic set and its induced subgraph has no isolated vertices. The minimum cardinality of all total edge geodetic sets of G is called the total edge geodetic number and is denoted by $g_{et}(G)$. A total edge geodetic dominating set is an edge geodetic dominating set and its induced subgraph has no isolated vertices. The minimum cardinality of all such total edge geodetic dominating sets of G is called the total edge geodetic domination number and is denoted by $\gamma_{get}(G)$. It is shown that for every pair of integers a, b and c such that $2 \leq a \leq b \leq c$, there exist a connected graph G of order p with $g_e(G) = a, \gamma_{ge}(G) = b$ and $\gamma_{get}(G) = c$. Also, for any positive integers m, p with $3 \leq m \leq p$ then there is a connected graph G of order p such that $\gamma_{get}(G) = m$.

Keywords: Edge Geodetic set, Edge geodetic number, Edge geodetic dominating set, Edge geodetic domination number, Total Edge geodetic dominating set, Total Edge geodetic domination number.

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