INDEPENDENT DOUBLE MONOPHONIC DOMINATION NUMBER OF A GRAPH

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ABSTRACT. In this paper, we introduce the concept of an independent double monophonic domination in graphs by chordless paths (monophonic paths) and non-adjacency nature of vertices in a connected graph $G$. A double monophonic set in a connected $G$ is said to be an independent double monophonic dominating set of $G$ (abbreviated as idmd-set) if it is both dominating and independent, i.e., it is a maximal independent set in $G$. The minimum of the cardinalities of the idmd-sets of a connected graph $G$ is termed as an independent monophonic domination number of $G$ (idmd-number in short), denoted as $i_{md}(G)$. The $i_{md}$-number of some standard graphs are determined. Also, studied the realization problems of the graph variable $i_{md}(G)$ of the connected graphs $G$: For $(k, l) \in \mathbb{Z}^+ \times \mathbb{Z}^+$, with $2 \leq k < l \leq p$, there exists $G \in \xi(G)$ such that $i(G) = k$, $i_{md}(G) = l$, $i_{md}(G) = k$ and $|V(G)| = p$. Also, let $(d_m, k, p) \in \mathbb{Z}^+ \times \mathbb{Z}^+ \times \mathbb{Z}^+$ with $3 \leq d_m \leq k$ and $p \geq k + 1 + \left\lfloor \frac{2d_m}{3} \right\rfloor$. Then there exists a graph $G$ such that $|V(G)| = p$, $diam(G) = d_m$ and $i_{md}(G) = k$.

REFERENCES


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