LEGAL DOMINATING SEQUENCES

AYSEL EREY

Department of Mathematics
Gebze Technical University
e-mail: aysel.erey@gtu.edu.tr

A sequence of vertices \((v_1, \ldots, v_k)\) of a graph \(G\) is called a legal dominating sequence if \(\{v_1, \ldots, v_k\}\) is a dominating set of \(G\) and \(N[v_i] \not\supseteq \bigcup_{j=1}^{i-1} N[v_j]\) for every \(i\). A graph \(G\) is said to be \(k\)-uniform if all legal dominating sequences have equal length \(k\). Brešar et al. [1] characterized \(k\)-uniform graphs with \(k \leq 3\). We extend their work by giving a complete characterization of all \(k\)-uniform graphs with \(k \geq 4\). We also discuss a variant of this problem for another type of sequence where open neighborhoods are considered instead of closed neighborhoods.

Keywords: domination, legal sequence.

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References