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CONNECTED DOMINATION CRITICAL GRAPHS WITH CUT VERTICES

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Abstract

A graph G is said to be k-γ_c-critical if the connected domination number of G, $\gamma_c(G)$, is k and $\gamma_c(G+uv) < k$ for any pair of non-adjacent vertices u and v of G. Let G be a k-γ_c-critical graph and $\zeta(G)$ the number of cut vertices of G. It was proved, in [1, 6], that, for $3 \leq k \leq 4$, every k-γ_c-critical graph satisfies $\zeta(G) \leq k-2$. In this paper, we generalize that every k-γ_c-critical graph satisfies $\zeta(G) \leq k-2$ for all $k \geq 5$. We also characterize all k-γ_c-critical graphs when $\zeta(G)$ is achieving the upper bound.

Keywords: connected domination, critical.

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