Degrees and degree sequence of k-edge d-critical graphs

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Abstract

Let k and d be positive integers with $k \geq 2d$. Let $Z_k = \{0, 1, 2, ..., k-1\}$ be the set of integers modulo k. Let $D_k(x,y) = \min\{|x-y|, k-|x-y|\}$ for $x, y \in Z_k$. A pseudo complete d-coloring of G using k colors is a mapping $\phi : V(G) \to Z_k$ such that for any two elements $i, j \in Z_k$ with $D_k(i,j) \geq d$, there exist adjacent vertices u, v such that $\phi(u) = i$ and $\phi(v) = j$. The maximum value of k for which G is k-pseudo complete d-colorable is called the pseudo d-achromatic number of G and is denoted by $\psi_s^d(G)$. A graph G is called k-edge d-critical if $\psi_s^d(G) = k$ and $\psi_s^d(G-e) < k$ for all $e \in E(G)$. In this paper we present several basic results on the degrees and degree sequence of k-edge d-critical graphs.

Keywords: *Star chromatic number, Pseudo complete d-coloring, Pseudo d-achromatic number, k-edge d-critical graph.*

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