THE LOCATING-CHROMATIC NUMBER OF SUBDIVISION NON HOMOGENEOUS FIRECRACKER GRAPHS

Abstract

by
Guiyana Ayu Candra Kumala

In 2002, the locating-chromatic number of a graph was introduced by Chartrand *et al.*, with derived two graph concept, coloring vertices and partition dimension of a graph. Let $G = (V,E)$ be a connected graph and c be a proper k-coloring of G with color 1,2, …,k. Let $\Pi = \{C_1, C_2, \ldots, C_k\}$ be a partition of $V(G)$ which is induced by coloring c. The color code $c_\Pi(v)$ of v is the ordered k-tuple $(d(v,C_1), d(v,C_2), \ldots, d(v,C_k))$ where $d(v,C_i) = \min\{ d(v,x) | x ? C_i\}$ for any i. If all distinct vertices of G have distinct color codes, then c is called k-locating coloring of G. The locating-chromatic number, denoted by $\chi_L(G)$, is the smallest k such that G has a locating k-coloring. Non homogeneous firecracker graphs, $F_{n,(k_1,k_2,\ldots,k_n)}$ is a graph obtained by contatenation n star graphs S_{k_i}, i ? [1,n] each consist of k vertices by linking one leave from each star.
If $k_{maks} = max\{k_1, k_2, \ldots, k_n\}$ then subgraph $S_{k_{maks}}$ is called a *maximum star subgraph* of non homogeneous firecracker graphs $F_{n,(k_1,k_2,\ldots,k_n)}$. In this thesis discussed about locating-chromatic number by subdivising non homogeneous firecracker graphs $F_{n,(k_1,k_2,\ldots,k_n)}$. If one of edge instead pendant edge of subdivision non homogeneous firecracker graphs, denoted by $F'_{n,(k_1,k_2,\ldots,k_n)}$. The results were obtained $\chi_L\left(F'^{*}_{n,(k_1,k_2,\ldots,k_n)}\right) = k_{maks} - 1$, if $p = k_{maks} - 1$, therefore $\chi_L\left(F^{*}_{n,(k_1,k_2,\ldots,k_n)}\right) = k_{maks}$, if $p > k_{maks} - 1$, where p is the number of subgraph $S_{k_{maks}}$ of $F'_{n,(k_1,k_2,\ldots,k_n)}$. Similar results were obtained for $\chi_L\left(F''^{*}_{n,(k_1,k_2,\ldots,k_n)}\right)$ with n, k natural number and $s = 2$ even vertices.

Kata kunci : non homogeneous graph, subdivision, locating-chromatic number.