PARTITION DIMENSION OF AMALGAMATION OF STARS GRAPH $\boldsymbol{nS_{m,k}}$

Abstract

by
Ana Istiani

Given graph G = *(V,E)*, $v \in V(G)$ and $S \subset V(G)$. The distance between *v* and S is *d(v,S)* = $min\{\, d(v,x), x \in S \,\}$, where $d(v,x)$ is the distance from *v* to *x*. Let Π = $\{S_1, S_2, \dots, S_k\}$ as the partition of *V(G)*. The representation of *v* with respect to Π is the *k*-vectors $r(v|\, \Pi) = (d(v, S_1), d(v, S_2),\dots, d(v, S_k))$. The partition Π is called as a resolving partition of $V(G)$ if $r(u \mid \Pi) \neq r(\, v \mid \Pi\,)$ for every two different vertices of *V(G)*. The partition dimension of *G*, written as *pd(G)* is the minimum *k* for which there is a resolving *k*-partition. The amalgamation of star graphs $nS_{m,k}$ obtained from *n* copies of amalgamation stars $S_{m,k}$ by connecting a leaf from each $S_{m,k}$ through a path. The result of the research is

$$pd(nS_{m,k}) = \begin{cases} \mathrm{k}\,, 1 \leq \mathrm{n} \leq \left\lfloor \frac{\mathrm{k}}{\mathrm{m}-1} \right\rfloor \\ \mathrm{k} + 1\,, \text{lainnya} \end{cases} \quad \text{for } k \geq m.$$

Keyword : graph, distance, partition, partition dimension, amalgamation of stars,