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GLOBAL DOMINATOR COLORING OF GRAPHS

Ismail Sahul Hamid

Department of Mathematics
The Madura College
Madurai – 11, India

e-mail: sahulmat@yahoo.co.in

AND

Malairaj Rajeswari

Department of Mathematics
Fatima College
Madurai – 18, India

e-mail: rajimaths11@gmail.com

Abstract

Let $S \subseteq V$. A vertex $v \in V$ is a *dominator* of S if v dominates every vertex in S and v is said to be an *anti-dominator* of S if v dominates none of the vertices of S. Let $\mathcal{C} = (V_1, V_2, \ldots, V_k)$ be a coloring of G and let $v \in V(G)$. A color class V_i is called a *dom-color class* or an *anti dom-color class* of the vertex v according as v is a dominator of V_i or an anti-dominator of V_i. The coloring $\mathcal{C}$ is called a *global dominator coloring* of G if every vertex of G has a dom-color class and an anti dom-color class in $\mathcal{C}$. The minimum number of colors required for a global dominator coloring of G is called the *global dominator chromatic number* and is denoted by $\chi_{gd}(G)$. This paper initiates a study on this notion of global dominator coloring.

Keywords: global domination, coloring, global dominator coloring, dominator coloring.

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