

On the Defining Spectrum of k -Regular Graphs with $k-1$ Colors

Doostali Mojdeh*

*Department of Mathematics,
University of Mazandaran,
Babolsar, Iran.*

E-mail: dmojdeh@umz.ac.ir

Abstract

In a given graph $G = (V; E)$, a set of vertices S with an assignment of colors to them is said to be a defining set of the vertex coloring of G , if there exists a unique extension of the colors of S to a $c \geq \chi(G)$ coloring of the vertices of G . A defining set with minimum cardinality is called a minimum defining set and its cardinality is the defining number, denoted by $d(G; c)$. If F is a family of graphs then $Spec_c(F) = \{d \mid \exists G, G \in F, d(G, c) = d\}$. Here we study the cases where F is the family of k -regular (connected and disconnected) graphs on n vertices and $c = k-1$. Also the $Spec_{k-1}(F)$ defining spectrum of all k -regular (connected and disconnected) graph on n vertices are verified for $k = 3; 4$ and 5 .

Keywords: Regular graphs; coloring; defining spectrum.