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A NOTE ON SIGN BALANCED INDEX SET OF A GRAPH

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Abstract: Let G be a graph with vertex set V and edge set E. Let g be a labeling from E to $\{+,-\}$. The edge labeling g induces a vertex labeling $h : V \to \{+,-\}$ defined by $h(v) = \prod g(uv)$ for u in $N(v)$, where $N(v)$ is the set of vertices adjacent to v. Let $e(+) = card\{e \in E : g(e) = +\}$, $e(-) = card\{e \in E : g(e) = -\}$ and $v(+) = card\{v \in V : h(v) = +\}$, $v(-) = card\{v \in V : h(v) = -\}$. A labeling g is said to be sign friendly if $\mid e(+) - e(-) \mid \leq 1$. The sign balanced index set $(SBIS)$ of a graph G is defined by $\{\mid v(+) - v(-) \mid :$ the edge labeling g is sign friendly$\}$. In this paper we completely determine the sign balanced index sets of some important family of graphs.

Keywords and Phrases: Edge labeling, sign-friendly, sign balance index set.

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1. Introduction

A graph labeling is an assignment of integers to the vertices or edges or both, subject to certain conditions. Graph labelings were first introduced in the mid 1960's. Graph labeling was used in many applications like coding theory, x-ray