

ECCENTRIC AND SUPER ECCENTRIC SIGNED GRAPHS

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Abstract: In this paper we introduced the new notions eccentric and super eccentric signed graph of a signed graph and its properties are obtained. Also, we obtained the structural characterizations of these notions. Further, we presented some switching equivalent characterizations.

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1. Introduction

For standard terminology and notation in graph theory we refer Harary [4] and Zaslavsky [14] for signed graphs. Throughout the text, we consider finite, undirected graph with no loops or multiple edges.

In a graph Γ , the distance $d(u, v)$ between a pair of vertices u and v is the length of a shortest path joining them. The eccentricity $e(u)$ of a vertex u is the distance to a vertex farthest from u . The radius $r(\Gamma)$ of Γ is defined by $r(\Gamma) = \min\{e(u) : u \in \Gamma\}$ and the diameter $d(\Gamma)$ of Γ is defined by $d(\Gamma) = \max\{e(u) : u \in \Gamma\}$. A graph for which $r(\Gamma) = d(\Gamma)$ is called a *self-centered graph* of radius $r(\Gamma)$.

Let $\Gamma = (V, E)$ be a simple undirected graph. The eccentricity $e(v)$ of a vertex in $V(\Gamma)$ is defined by $e(v) = \max_{u \in V} d(u, v)$, where $d(u, v)$ stands for the length of the