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Complementary Eccentric Uniform Labeling Graphs

Research Article

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Abstract. Given a graph G = (V, E), a set $M \subset V$ is called Complementary Eccentric Uniform (CEU), if the M-eccentricity labeling $e_M(u) = \max\{d(u,v) : v \in M\}$ is identical for all $u \in V - M$. The least cardinality of a CEU set is called the CEU number of the graph G. In this paper we initiate a study on CEU labelled graphs and obtain bounds for certain graphs.

Keywords. CEU set; CEU number

MSC. 05C58

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1. Introduction

For all terminology and notation in graph theory, we refer the reader to F. Harary [5]. Unless mentioned otherwise, all graphs considered in this paper are finite, simple and connected.

The eccentricity distribution over all nodes in a graph is an important property which has been studied in [8]. In [7], Linda Lesniak studied various properties of eccentricity sequences. The distance labeling of graphs has been widely studied in [4]. In network analysis there are situations in which a set of nodes are in equal distance from some other nodes or we want to keep some nodes at a particular distance from a set of nodes. Motivated from this we initiate a study on uniform eccentricity labeling in graphs.

2. Definitions and Results

Given a graph G = (V, E), the distance between two vertices d(u, v) is the length of the shortest u - v path in G. The eccentricity e(v) of a vertex v is $\max_{u \in V} d(u, v)$. The radius rad G is $\min_{v \in V} e(v)$

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