

**PATH UNION OF n NON ISOMORPHIC COPIES OF COMPLETE
BIPARTITE GRAPH IS ODD GRACEFUL**

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Abstract: In 1991, Gnanajothi [4] introduced a labeling method called *odd graceful labeling* to label the vertices of a graph. A graph G with q edges is said to be odd graceful if there is an injection f from $V(G) \rightarrow \{0, 1, 2, \dots, (2q - 1)\}$ such that, when each edge xy is assigned the label $|f(x) - f(y)|$, the resulting edge labels are $1, 3, 5, \dots, (2q - 1)$. In this paper, we prove that path union of n non isomorphic copies of complete bipartite graph is odd graceful, when m is even.

Keywords and Phrases: Odd graceful labeling, cycles, complete bipartite graph.

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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. Labeled graphs serve as useful models for a broad range of applications such as: coding theory, x-ray crystallography, radar, astronomy, circuit design, communication network addressing, data base management, secret sharing schemes, and models for constraint programming over finite domains.

The study on graph labeling began with the introduction to β -valuation by Rosa[10] in 1967. Golomb [5] called this β -valuation as *graceful labeling* in 1972. A graceful labeling of a graph G with q edges and vertex set V is an injection $f : V(G) \rightarrow \{0, 1, 2, \dots, q\}$ with the property that the resulting edge labels are also distinct, where an edge incident with vertices u and v is assigned the label