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k-PARTITIONED FUZZY GRAPH

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Abstract: This paper has introduced a new concept which is partitioning of any fuzzy graph into k-partitioning fuzzy graphs by clustering the vertices of the fuzzy graph. The belongingness of the vertices is arranged as an array and partitioned into k disjoint subsets, such that all subsets have more or less equal sum. Some properties of k-partitioning fuzzy graph by order and size of partitioned fuzzy graph are discussed in this paper.

Keywords and Phrases: Fuzzy graph, 2-partitioned fuzzy graph, 3- partitioned fuzzy graph, 4-partitioned fuzzy graph, k-partitioned fuzzy graph, Strict k-partitioned fuzzy graph.

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1. Introduction

Uncertainty has quantified by Zadeh [34] through the concept of Fuzzy set theory in 1965 and Rosenfeld [25] developed the theory of fuzzy graph in 1975 using Kaufman's fuzzy relations. Rosenfeld's theoretical concepts have been studied by several researchers and utilized it for the applications. Connectedness of Fuzzy graphs have been studied by Yeh and Bang [33] and was published in the same year. Bhattacharya [5] discussed some properties of fuzzy graphs in 1987. In the year of 1989, fuzzy cut nodes and end nodes have been studied by Bhutani [6]. The operations on fuzzy graph was dealt with Moderson and Chang-Shyh [20] in 1994. In 2014, Pathinathan and Rosline [24] proposed a new fuzzy graph named double layered fuzzy graph. The proceeding researchers have introduced