THE PROPERTIES OF FUZZY GRAPHIC MATROIDS

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Abstract: The minor and duality of a fuzzy graphic matroid are defined and also explored their properties. The charcteristics of fuzzy graphic matroid like augumentation, base exchange property, uniformity, submodularity, weak absorption, strong absorption, weak elimination and induced circuit properties are discussed with examples.

Keywords and Phrases: Fuzzy matroid, fuzzy graphic matroid, bases, circuit, minor, dual, induced circuit.

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1. Introduction

A graph is a structural representation of a set in which some pairs of objects are related [1]. In 18th century, the basic ideas of graph theory introduced by Leonhard Euler [2]. In 1847 G.R. Kirchoff developed the tree theory in networks for their application.

Fuzzy graph theory is a branch of graph theory that incorporates fuzzy concepts allowing degrees of membership for vertices and edges. In 1965, Zadeh [17] introduced the concept of fuzzy sets laying the foundation for fuzzy logic and its applications in various fields. Zadeh's work paved the way for defining fuzzy graphs where edges have fuzzy weights or memberships. In 1975, Rosenfeld [6] developed the notion of fuzzy graphs and the concept of fuzzy adjacency matrices [3]. This work established a formal framework for analyzing fuzzy graphs.