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ON MULTI-SET AND MULTI-SET FUNCTION

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Abstract: In this paper, we introduce the concept of α-levels of multi-set and study many of its properties, weak α-level and strong α -level of multi-set. Also we study the cartesian product of two multi-sets and some of its properties, Also we study the multi-set function and some of its properties and define the image and the inverse image of multi- sets and study of some properties.

Keywords and Phrases: Multi-set, Multi-set relation, Multi-set function.

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1. Introduction

In [13] Yager introduced the idea of multi-sets as an extension of classical set theory. In classical set theory, an element accurasy only one time in a set. In many real life applications an element accuresy more than one time in a set. This is why Yager et al defined a multi-set which is a generalization of an ordinary set.

In the classical set theory, a set is a well-defined collection of distinct objects and the operations are based on this definition. If the problem allowed to repeated occurrences of any object in a set then we need another mathematical structure, that which is recently known as multi-set (mset for short). The same idea are studied by Yager in [15] and Jena in [9], but under the name of bags and lists. Thus, a multiset differs from a set in the sense that each element has a multiplicity-a natural number not necessarily one-that indicates how many times it is the member of the multiset was studied by ([1], [5], [6], [7], [8]). Application of multiset theory indecision making can be seen in [16,13]. One of the most natural and simplest