β-PREREGULAR SPACE IN FUZZY SETTING

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Abstract: In this paper a new type of fuzzy regular space is introduced and studied by introducing fuzzy β-preopen set, the class of which is strictly larger than that of fuzzy open set as well as fuzzy preopen set. Here we also introduce two new types of functions, viz., fuzzy β-precontinuous and fuzzy β-preirresolute functions. Lastly, the application of fuzzy β-precontinuous function on fuzzy β-preregular space is shown here.

Keywords and Phrases: Fuzzy β-preopen set, fuzzy β-preregular space, fuzzy β-precontinuous function, fuzzy β-preirresolute function, fuzzy β-preopen q-nbd.

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1. Introduction

In [4], fuzzy open set is introduced. Afterwards, different types of fuzzy open-like sets are introduced by many mathematicians. Here we first introduce fuzzy β-preopen set, the class of which is strictly larger than that of fuzzy open sets and fuzzy preopen sets [8]. Using this concept as a basic tool, we introduce fuzzy β-precontinous function, the class of which is strictly larger than that of fuzzy continuous function [4]. Afterwards, we introduce fuzzy β-preregular space in which fuzzy closed set and fuzzy β-preclosed sets coincide.

2. Preliminary

Throughout this paper, (X, τ) or simply by X we shall mean a fuzzy topological space. A fuzzy set A is a function from a non-empty set X into the closed interval